Honeywell Industrial Combustion EMEA

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Single Gas Valves

Solenoid gas valve, normally closed VE400AA

Class "A" AC powered, Safety Shutoff Solenoid Gas Valve.
For pilot and small burner applications in gas power burners, gas boilers, ovens, furnaces and other gas consuming appliances.

Gas valve type	AC powered, non regulated ON/OFF normally closed, fast opening.
Media	natural gas, propane, air.
Materials	brass body for 1/4" version, aluminium body for others.
Approvals	CE (EN161), GOST, AGA
Pipe connection	Internal thread as per ISO 7/1 (Rp)
Threads type	BSP
Maximum opening time	1 s
Maximum closing time	1 s
Ambient temperature	-15 ... 60 °C
Protection class	IP65
Electrical connection	DIN plug

VE400AA

220...240 Vac versions

Valve dimension	Max. operating pressure mbar	Type
Rp 1/4	500	**VE408AA1007**
Rp 3/8	360	**VE410AA1003**
Rp 1/2	360	**VE415AA1008**
Rp 3/4	200	**VE420AA1001**

110 Vac versions

Valve dimension	Max. operating pressure mbar	Type
Rp 1/4	500	**VE408AA1015**
Rp 3/8	360	**VE410AA1011**
Rp 1/2	360	**VE415AA1016**
Rp 1/2	200	**VE420AA1019**

Single Gas Valves

Solenoid gas valve, normally closed VE4000A1

Class "A" Safety Shutoff Solenoid Gas Valve.
For control and regulation of gaseous fuels in gas power burners, gas boilers, ovens, furnaces and other gas consuming appliances.

VE4000A

Gas valve type	non regulated ON/OFF normally closed, fast opening.
Media	natural gas, propane, air. Special versions for biogas available upon request.
Materials	aluminium die cast body.
Approvals	CE (EN161), GOST, AGA
Pipe connection	Internal thread as per ISO 7/1 (Rp)
Threads type	BSP
Maximum opening time	1 s
Maximum closing time	1 s
Ambient temperature	-15 ... 60 ^{o}C

220...240 Vac versions

Valve dimension	Max. operating pressure mbar	Protection class	Electrical connection	Optional CPI-switch	Replacement coil	Type
Rp 3/8	360	IP54	PG11		BB052301	**VE4010A1006**
Rp 1/2	360	IP54	PG11		BB052301	**VE4015A1005**
Rp 1/2	360	IP65	DIN plug		BB052302	**VE4015A1070**
Rp 3/4	200	IP54	PG11	MS052501	BB052325	**VE4020A1005**
Rp 1	200	IP54	PG11	MS052501	BB052325	**VE4025A1004**
Rp 1	360	IP65	DIN plug	MS052501	BB052326DIN	**VE4025A1145**
Rp 1 1/4	200	IP54	PG11	MS054001	BB052340	**VE4032A1000**
Rp 1 1/4	360	IP65	DIN plug	MS054001	BB052340	**VE4032A1109**
Rp 1 1/2	200	IP54	PG11	MS054001	BB052340	**VE4040A1003**
Rp 1 1/2	360	IP65	DIN plug	MS054001	BB052340	**VE4040A1144**
Rp 2	200	IP54	PG11	MS055001	BB052303	**VE4050A1002**
Rp 2	360	IP65	DIN plug	MS055001	BB052303	**VE4050A1127**
Rp 2 1/2	200	IP54	PG11	MS056501	BB052365	**VE4065A1000**

110 Vac versions

Valve dimension	Max. operating pressure mbar	Protection class	Electrical connection	Optional CPI-switch	Replacement coil	Type
Rp 1/2	360	IP54	PG11		BB051102DIN	**VE4015A1013**
Rp 1/2	360	IP65	DIN plug		BB051102DIN	**VE4015A1138**
Rp 3/4	200	IP54	PG11	MS052501	BB051125	**VE4020A1054**
Rp 1	200	IP54	PG11	MS052501	BB051125	**VE4025A1053**
Rp 1	360	IP65	DIN plug	MS052501	BB051126DIN	**VE4025A1194**
Rp 1 1/2	200	IP54	PG11	MS054001		**VE4040A1052**
Rp 1 1/2	360	IP65	DIN plug	MS054001		**VE4040A1227**
Rp 2	200	IP54	PG11	MS055001	BB051154DIN	**VE4050A1051**
Rp 2	360	IP65	DIN plug	MS055001	BB051154DIN	**VE4050A1184**

24 Vac versions

Valve dimension	Max. operating pressure mbar	Protection class	Electrical connection	Optional CPI-switch	Replacement coil	Type
Rp 3/4	200	IP54	subbase	MS052501		**VE8020A1035**

Single Gas Valves

1

Solenoid gas valve, normally closed VE4000A3

Class "A" Safety Shutoff Solenoid Gas Valve.
For control and regulation of gaseous fuels in gas power burners, gas boilers, ovens, furnaces and other gas consuming appliances.

VE4000A3

Gas valve type	non regulated ON/OFF normally closed, fast opening.
Media	natural gas, propane, air. Special versions for biogas available upon request.
Materials	aluminium die cast body.
Approvals	CE (EN161), GOST, AGA
Pipe connection	PN16 Flanges as per EN 1092-1
Maximum opening time	1 s
Maximum closing time	1 s
Ambient temperature	-15 ... 60 ^{o}C

220...240 Vac versions

Valve dimension	Max. operating pressure mbar	Protection class	Electrical connection	Optional CPI-switch	Replacement coil	**Type**
DN65	360	IP65	DIN plug	MS058001	BB052381DIN	**VE4065A3022**
DN80	360	IP65	DIN plug	MS058001	BB052382DIN	**VE4080A3021**
DN100	200	IP54	PG11	MS051001	BB152300	**VE4100A3001**
DN100	360	IP65	DIN plug	MS051001		**VE4100A3068**

110 Vac versions

Valve dimension	Max. operating pressure mbar	Protection class	Electrical connection	Optional CPI-switch	Replacement coil	**Type**
DN65	360	IP65	DIN plug	MS058001	BB051181DIN	**VE4065A3030**
DN80	360	IP65	DIN plug	MS058001	BB051105DIN	**VE4080A3039**
DN100	360	IP65	DIN plug	MS051001		**VE4100A3076**

Single Gas Valves

Solenoid gas valve, normally closed, with flow rate adjustment VE4000B1

Class "A" Safety Shutoff Solenoid Gas Valve, with maximum flow rate adjustment.
For control and regulation of gaseous fuels in gas power burners, gas boilers, ovens, furnaces and other gas consuming appliances.

VE4000B1

Gas valve type	non regulated ON/OFF normally closed, fast opening, with maximum flow rate adjustment.
Media	natural gas, propane, air. Special versions for biogas available upon request.
Materials	aluminium die cast body.
Approvals	CE (EN161), GOST, AGA
Pipe connection	Internal thread as per ISO 7/1 (Rp)
Threads type	BSP
Maximum opening time	1 s
Maximum closing time	1 s
Ambient temperature	-15 ... 60 $^{\circ}$C
Additional description	• The maximum flow rate can be adjusted on top of the valve • Optional Closed Position Indication Switch (CPI switch) can be ordered separately.

220...240 Vac versions

Valve dimension	Max. operating pressure mbar	Protection class	Electrical connection	Optional CPI-switch	Replacement coil	Comments	Type
Rp 3/8	360	IP65	DIN plug			–	**VE4010B1062**
Rp 1/2	200	IP54	PG11		BB152301	–	**VE4015B1004**
Rp 1/2	360	IP65	DIN plug		BB152305	–	**VE4015B1087**
Rp 3/4	200	IP54	PG11	MS052501	BB152325	–	**VE4020B1004**
Rp 3/4	360	IP54	PG11	MS052501	BB152325	–	**VE4020B1046**
Rp 3/4	360	IP65	DIN plug	MS052501	BB152324	–	**VE4020B1137**
Rp 1	200	IP54	PG11	MS052501	BB152325	–	**VE4025B1003**
Rp 1	360	IP54	PG11	MS052501	BB152325	–	**VE4025B1045**
Rp 1	360	IP65	DIN plug	MS052501	BB152325	–	**VE4025B1102**
Rp 1 1/4	360	IP65	DIN plug	MS054001		–	**VE4032B1116**
Rp 1 1/2	200	IP54	PG11	MS054001	BB152326	–	**VE4040B1002**
Rp 1 1/2	360	IP54	PG11	MS054001	BB152340	–	**VE4040B1044**
Rp 1 1/2	360	IP65	DIN plug	MS054001		Viton	**VE4040B1119**
Rp 1 1/2	360	IP65	DIN plug	MS054001		–	**VE4040B1135**
Rp 2	200	IP54	PG11	MS055001	BB152340	–	**VE4050B1001**
Rp 2	360	IP54	PG11	MS055001	BB152303	–	**VE4050B1043**
Rp 2	360	IP65	DIN plug	MS055001	BB152307	–	**VE4050B1118**
Rp 2 1/2	200	IP54	PG11	MS058001	BB152365	–	**VE4065B1017**
Rp 3	200	IP54	PG11	MS058001	BB152380	–	**VE4080B1016**

Single Gas Valves

1

110 Vac versions

Valve dimension	Max. operating pressure mbar	Protection class	Electrical connection	Optional CPI-switch	Replacement coil	Comments	**Type**
Rp 3/8	360	IP65	DIN plug			–	**VE4010B1054**
Rp 1/2	200	IP54	PG11		BB151101	–	**VE4015B1012**
Rp 1/2	360	IP65	DIN plug		BB151107	–	**VE4015B1095**
Rp 3/4	360	IP65	PG11	MS052501	BB151125	–	**VE4020B1129**
Rp 1	360	IP54	PG11	MS052501	BB151125	–	**VE4025B1078**
Rp 1	360	IP65	DIN plug	MS052501	BB151125	Viton	**VE4025B1110**
Rp 1	360	IP65	DIN plug	MS052501	BB151125	–	**VE4025B1128**
Rp 1 1/4	360	IP65	DIN plug	MS054001	BB151104	–	**VE4032B1108**
Rp 1 1/2	360	IP65	DIN plug	MS054001	BB151104	–	**VE4040B1127**
Rp 2	360	IP65	DIN plug	MS055001	BB151153	–	**VE4050B1126**

24 Vac versions

Valve dimension	Max. operating pressure mbar	Protection class	Electrical connection	Optional CPI-switch	Replacement coil	Comments	**Type**
Rp 1/2	360	IP65	DIN plug			–	**VE8015B1042**
Rp 3/4	200	IP65	DIN plug	MS052501		–	**VE8020B1042**
Rp 1	200	IP65	DIN plug	MS052501		–	**VE8025B1058**
Rp 1 1/2	200	IP65	DIN plug	MS054001		–	**VE8040B1032**
Rp 2	200	IP65	DIN plug	MS055001		–	**VE8050B1023**

24...28 Vdc versions

Valve dimension	Max. operating pressure mbar	Protection class	Electrical connection	Optional CPI-switch	Replacement coil	Comments	**Type**
Rp 1/2	360	IP65	DIN plug			–	**VE8015B1059**
Rp 3/4	200	IP65	DIN plug	MS052501		–	**VE8020B1059**
Rp 1	200	IP65	DIN plug	MS052501		–	**VE8025B1066**
Rp 1 1/4	200	IP65	DIN plug	MS054001		–	**VE8032B1039**
Rp 1 1/2	200	IP65	DIN plug	MS054001		–	**VE8040B1040**
Rp 2	200	IP65	DIN plug	MS055001		–	**VE8050B1031**

Single Gas Valves

Class "A" Safety Shutoff Solenoid Gas Valve with flanged connections.
For control and regulation of gaseous fuels in gas power burners, gas boilers, ovens, furnaces and other gas consuming appliances.

VE4000B3

Gas valve type	non regulated ON/OFF normally closed, fast opening
Media	natural gas, propane, air. Special versions for biogas available upon request
Materials	aluminium die cast body
Approvals	CE (EN161), GOST, AGA
Pipe connection	PN16 Flanges as per EN 1092-1
Maximum opening time	1 s
Maximum closing time	1 s
Ambient temperature	-15 ... 60 ^{o}C
Additional description	• Adjustable maximum flow rate on top of the coil.
	• 4 auxiliary pressure taps with Rp 1/4" threaded connections, 2 on the inlet side, 2 on the outlet side.
	• Other voltages are also available.
	• Optional Closed Position Indication Switch (CPI switch) is ordered separately.

220...240 Vac versions

Valve dimension	Max. operating pressure mbar	Protection class	Electrical connection	Optional CPI-switch	Replacement coil	Type
DN65	200	IP54	PG11	MS058001	BB152365	**VE4065B3005**
DN65	360	IP54	PG11	MS058001	BB152380	**VE4065B3039**
DN65	360	IP65	DIN plug	MS058001		**VE4065B3153**
DN80	200	IP54	PG11	MS058001	BB152380	**VE4080B3004**
DN80	360	IP54	PG11	MS058001	BB152382	**VE4080B3038**
DN80	360	IP65	DIN plug	MS058001	BB152383	**VE4080B3178**
DN100	200	IP54	PG11	MS051001	BB152300	**VE4100B3000**
DN100	360	IP54	PG11	MS051001	BB152308	**VE4100B3034**

110 Vac versions

Valve dimension	Max. operating pressure mbar	Protection class	Electrical connection	Optional CPI-switch	Replacement coil	Type
DN65	360	IP54	PG11	MS058001	BB151180	**VE4065B3047**
DN65	360	IP65	DIN plug	MS058001		**VE4065B3161**
DN80	360	IP54	PG11	MS058001	BB151108	**VE4080B3046**

Single Gas Valves

Solenoid gas valve, normally closed, with characterized opening VE4000C1

Class "A" Safety Shutoff Solenoid Gas Valve, with maximum flow rate adjustment and character-ized opening.
For control and regulation of gaseous fuels in gas power burners, gas boilers, ovens, furnaces and other gas consuming appliances.

VE4000C1

Gas valve type	non regulated ON/OFF normally closed, slow opening, with maximum flow rate adjustment
Media	natural gas, propane, air. Special versions for biogas available upon request
Materials	aluminium die cast body
Approvals	CE (EN161), GOST, AGA
Pipe connection	Internal thread as per ISO 7/1 (Rp)
Threads type	BSP
Maximum opening time	30 s
Maximum closing time	1 s
Ambient temperature	-15 ... 60 °C
Additional description	• The maximum flow rate and the opening characteristics can be adjusted on top of the valve. • Optional Closed Position Indication Switch (CPI switch) is ordered separately.

220...240 Vac versions

Valve dimension	Max. operating pressure mbar	Protection class	Electrical connection	Optional CPI-switch	Replacement coil	Type
Rp 1/2	360	IP54	PG11		BB152301	**VE4015C1003**
Rp 1/2	360	IP65	DIN plug		BB152305	**VE4015C1110**
Rp 3/4	200	IP54	PG11	MS052501	BB152325	**VE4020C1003**
Rp 3/4	200	IP54	DIN plug	MS052501		**VE4020C1060**
Rp 3/4	360	IP65	DIN plug	MS052501	BB152324	**VE4020C1086**
Rp 1	200	IP54	PG11	MS052501	BB152325	**VE4025C1002**
Rp 1	200	IP54	DIN plug	MS052501		**VE4025C1085**
Rp 1	360	IP65	DIN plug	MS052501	BB152324	**VE4025C1119**
Rp 1 1/4	360	IP54	PG11	MS054001	BB152340	**VE4032C1032**
Rp 1 1/2	200	IP54	PG11	MS054001	BB152326	**VE4040C1001**
Rp 1 1/2	360	IP65	DIN plug	MS054001	BB152342DIN	**VE4040C1175**
Rp 2	200	IP54	PG11	MS055001	BB152340	**VE4050C1000**
Rp 2	360	IP65	DIN plug	MS055001	BB152307DIN	**VE4050C1117**

110 Vac versions

Valve dimension	Max. operating pressure mbar	Protection class	Electrical connection	Optional CPI-switch	Replacement coil	Type
Rp 1/2	360	IP65	DIN plug		BB151107DIN	**VE4015C1128**
Rp 1	360	IP65	DIN plug	MS052501		**VE4025C1127**
Rp 1 1/4	360	IP65	DIN plug	MS054001		**VE4032C1065**
Rp 1 1/2	360	IP65	DIN plug	MS054001		**VE4040C1167**

Single Gas Valves

Solenoid gas valve, normally open VE4000S

Solenoid Gas Valve normally open.
The VE4000S1 and VE4000S2 series gas valves are safety relief solenoid valves used as vent valves in gas power burners, gas boilers, ovens, furnaces and other gas consuming appliances.

VE4000S1

Gas valve type	non regulated ON/OFF normally open
Media	natural gas, propane, air
Materials	aluminium die cast body
Approvals	CE (EN161), GOST, AGA
Pipe connection	Internal thread as per ISO 7/1 (Rp)
Threads type	BSP
Max. operating pressure	360 mbar
Maximum opening time	1 s
Maximum closing time	1 s
Ambient temperature	-15 ... 60 ^{o}C
Protection class	IP54
Electrical connection	PG11
Additional description	• The VE4000S1 series are without Closed Position Indication (CPI) Switch, which can be ordered and installed separately.
	• The VE4000S2 series have the CPI switch factory installed.

VE4000S1 Series (220...240Vac)

Valve dimension	Optional CPI-switch	Replacement coil	Type
Rp 3/4	MS052501	BB152302	**VE4020S1038**
Rp 1	MS052501	BB152302	**VE4025S1037**

VE4000S1 Series (110Vac)

Valve dimension	Optional CPI-switch	Replacement coil	Type
Rp 3/4	MS052501	BB151101	**VE4020S1046**
Rp 1	MS052501	BB151101	**VE4025S1045**

VE4000S1 Series (24..28VDC)

Valve dimension	Optional CPI-switch	Replacement coil	Type
Rp 3/4	MS052501		**VE8020S1000**
Rp 1	MS052501		**VE8025S1009**

VE4000S2 Series with factory installed CPI switch (220...240Vac)

Valve dimension	Optional CPI-switch	Replacement coil	Type
Rp 3/4	included	BB152302	**VE4020S2044**
Rp 1	included	BB152302	**VE4025S2035**

VE4000S2

Honeywell

Single Gas Valves

Safety shut-off gas valve, normally closed for North American market V4295A1

Class "B" Safety Shutoff Gas Valve,
For control and regulation of gaseous fuels in gas power burners, gas boilers, ovens, furnaces and other gas consuming appliances.

V4295A1

Gas valve type	non regulated ON/OFF normally closed, fast opening.
Media	natural gas, propane, air. Special versions for biogas available upon request.
Materials	aluminium die cast body.
Approvals	CSA, GOST, AGA
Pipe connection	Internal threads
Threads type	NPT
Maximum opening time	1 s
Maximum closing time	1 s
Ambient temperature	-40 ... 63 ºC
Additional description	Upstream and downstream taps 1/4" NPT

120 Vac versions

Valve dimension	Max. operating pressure mbar	Type
Rp 1/2	140	**V4295A1015**
Rp 3/4	140	**V4295A1023**
Rp 1	140	**V4295A1031**
Rp 1 1/4	140	**V4295A1049**
Rp 1 1/2	140	**V4295A1056**
Rp 2	140	**V4295A1064**
Rp 2 1/2	140	**V4295A1072**
Rp 3	140	**V4295A1080**
Rp 3/8	350	**V4295A1098**
Rp 1/2	350	**V4295A1106**
Rp 3/4	350	**V4295A1114**
Rp 1	350	**V4295A1122**
Rp 1 1/4	350	**V4295A1130**
Rp 1 1/2	350	**V4295A1148/U**
Rp 2	350	**V4295A1155**

24 Vac versions

Valve dimension	Max. operating pressure mbar	Type
Rp 1/2	140	**V8295A1016**
Rp 3/4	140	**V8295A1024**
Rp 1	140	**V8295A1032**
Rp 1 1/4	140	**V8295A1040**
Rp 1 1/2	140	**V8295A1057**
Rp 2	140	**V8295A1065**

Single Gas Valves

Safety shut-off gas valve, normally open for North American market V4295S1

Class "B" Safety Shutoff Gas Valve,
For control and regulation of gaseous fuels in gas power burners, gas boilers, ovens, furnaces and other gas consuming appliances.

V4295S1

Gas valve type	non regulated ON/OFF normally OPEN (vent), fast closing.
Media	natural gas, propane, air.
Materials	aluminium die cast body.
Approvals	CSA, GOST, AGA
Pipe connection	Internal threads
Threads type	NPT
Max. operating pressure	140 mbar
Maximum opening time	1 s
Maximum closing time	1 s
Ambient temperature	-40 ... 63 °C
Additional description	Upstream and downstream taps 1/4" NPT

120 Vac versions

Valve dimension	Type
Rp 3/4	**V4295S1005**
Rp 1	**V4295S1013**
Rp 1 1/4	**V4295S1021**

24 Vac versions

Valve dimension	Type
Rp 3/4	**V8295S1006**

Single Gas Valves

Safety shut-off gas valve, normally closed for North American market V4297A1-S1
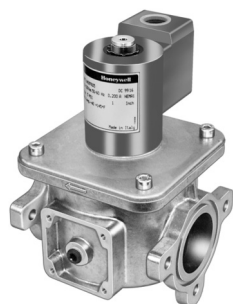
For control gas flow to commercial and industrial burners.
- V4297A1: Safety Shutoff normally closed Gas Valve, NEMA 1.
- V4297S1: Non regulated ON/OFF normally open Gas Valve, NEMA 1.

V4297A1

Gas valve type	non regulated ON/OFF normally closed, fast opening.
Media	natural gas, propane, air.
Materials	aluminium die cast body.
Approvals	CSA, UL
Pipe connection	Copernicus
Max. operating pressure	345 mbar
Maximum opening time	1 s
Maximum closing time	1 s
Additional description	• Pressure switch C6097 can be fitted direct to the flange. • Two upstream pressure taps 1/4" NPT • One downstream pressure tap 1/4" NPT

V4297A1 Normally closed

Valve dimension	Ambient temperature °C	Optional CPI-switch	Type
DN25	-40 ... 54	32004925-001	**V4297A1005**
DN50	-40 ... 54	32004925-001	**V4297A1013**

V4297S1 Normally open

Valve dimension	Ambient temperature °C	Optional CPI-switch	Type
DN25	-40 ... 63	32004925-001	**V4297S1003**

V4297S1

Pipe adaptor

Copernicus to 1 1/2" NPT internal, including 3 bolts and grease.	**32000109-004/U**
Copernicus to 1 1/2" BSP internal, including 3 bolts and grease.	**32000109-009/U**
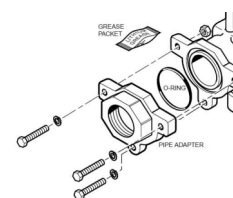
V5197A-PIPE-ADAPTOR

Closed position indicator (CPI)

Closed position indicator (CPI). Icluding LED indicator red/green.	**32004925-001**
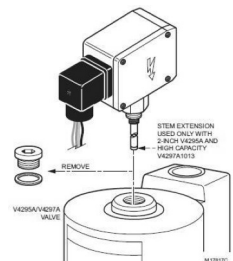
32004925-001

Visual position indicator

Visual position indicator. To indicate the open and closed position of the valve.	**KTCPI001**

KTCPI001-VISUAL-INDICATOR

Single Gas Valves

Fluid power actuators for safety shut-off gas valve V5055 and VE5000-series
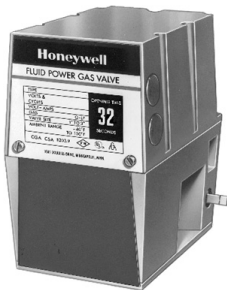
Fluid power actuators for Class "A" Safety Shutoff Gas Valves V5055 and VE5000-series.
For control and regulation of gaseous fluids in gas power burners, gas boilers, ovens, furnaces and other gas consuming appliances.

V4055

Gas valve type	non regulated ON/OFF normally closed, fast or slow opening.
Materials	aluminium die cast enclosure.
Approvals	CE (EN161), GOST, AGA, CSA • Only in combination with Honeywell V5055 and VE5000 series valve bodies.
Maximum opening time	16 s
Maximum closing time	1 s
Electrical connection	screw terminals
Ambient temperature	-23 ... 70 °C
Additional description	• V4055 models are for on/off control. Combined with valves that have characterized opening (V5055B) a fixed opening curve can be realized. • V4062 models are for high/low/off control, typically used with valve bodies that have characterized opening (V5055B)

Standard pressure actuators for on/off control

Max. operating pressure (mbar)	Supply voltage	Protection class	Comment	Type
360	120 Vac	NEMA 3 / IP44		**V4055A1031/U**
360	120 Vac	NEMA 3 / IP44	With damper arm shaft	**V4055A1098/U**
360	230 Vac	NEMA 3 / IP44	With damper arm shaft	**V4055A1114/U**
360	230 Vac	NEMA 3 / IP44		**V4055A1130/U**
360	240 Vac	NEMA 3 / IP44		**V4055A1239/U**

Standard pressure actuators for on/off control , with Proof-of-Closure Switch

Max. operating pressure (mbar)	Supply voltage	Protection class	Comment	Type
360	120 Vac	NEMA 3 / IP44	With damper arm shaft	**V4055D1019/U**
360	120 Vac	NEMA 3 / IP44		**V4055D1035/U**

High pressure actuators for on/off control

Max. operating pressure (mbar)	Supply voltage	Protection class	Comment	Type
500	120 Vac	NEMA 3 / IP44	With damper arm shaft	**V4055B1039/U**
500	230 Vac	NEMA 3 / IP44		**V4055B1088/U**
500	240 Vac	NEMA 3 / IP44		**V4055B1096/U**

High pressure actuators for on/off control, with Proof-of-Closure Switch

Max. operating pressure (mbar)	Supply voltage	Protection class	Comment	Type
500	120 Vac	NEMA 4 / IP54	With damper arm shaft	**V4055E1040/U**

Standard pressure actuator model for high/low/off control

Max. operating pressure (mbar)	Supply voltage	Protection class	Comment	Type
360	230 Vac	NEMA 3 / IP44	With damper arm shaft	**V4062A1099/U**

Accessories

Auxiliary Switch Bag Assembly (not for models with maximum flow limit switch).	**133568/U**
Valve-Closed Indication Switch Bag Assembly	**133569/U**
Damper Crank Arm (damper arm and clip)	**7616BR/U**

Single Gas Valves

Safety shut-off gas valve, normally closed, used with fluid power actuator V4055

Class "A" Safety Shutoff Gas Valve, for fluid power actuator.
For control and regulation of gaseous fluids in gas power burners, gas boilers, ovens, furnaces and other gas consuming appliances.

VE5000A3

Gas valve type	non regulated ON/OFF normally closed, fast opening.
Media	natural gas, propane, air. Special versions for biogas available upon request.
Materials	aluminium die cast body.
Approvals	CE (EN161), GOST, AGA
Pipe connection	PN16 Flanges as per EN 1092-1
Max. operating pressure	360 mbar
Maximum opening time	1 s
Maximum closing time	1 s
Ambient temperature	-15 ... 60 $^{\circ}$C
Additional description	Maximum inlet pressure depends on actuator model:
	• VE4065/80: 360mB maximum with V4055A or V4062A
	• VE4100: 360mB maximum with V4055B or V4062B

Valve bodies

Valve dimension	Type
DN65	**VE5065A3005**
DN80	**VE5080A3004**
DN80	**VE5080A3012**
DN100	**VE5100A3000**

Single Gas Valves

Safety shut-off gas valve, normally closed, used with fluid power actuator V4055 or V4062

Class "A" Safety Shutoff Gas Valve, for fluid power actuator.
For control and regulation of gaseous fluids in gas power burners, gas boilers, ovens, furnaces and other gas consuming appliances.

Gas valve type	non regulated ON/OFF normally closed, fast or slow opening.
Media	natural gas, propane, air.
Materials	aluminium die cast body.
Approvals	CE (EN161), GOST, AGA, CSA
Maximum closing time	1 s
Ambient temperature	-15 ... 60 °C
Additional description	Maximum inlet pressure depends on actuator model V4055 / V4062

V5050

Valve bodies for Europe (CE), fast open

Valve dimension	Pipe connection	Threads type	Max. operating pressure mbar	Maximum opening time s	Comment	Type
Rp 1 1/2	Internal threads	BSP	360	1		**V5055A1145/U**

Valve bodies for America (CSA), fast open

Valve dimension	Pipe connection	Threads type	Max. operating pressure mbar	Maximum opening time s	Comment	Type
Rp 1	Internal threads	NPT	360	1		**V5055A1004/U**
Rp 1 1/2	Internal threads	NPT	360	1		**V5055A1020/U**
Rp 2	Internal threads	NPT	360	1		**V5055A1038/U**
–	Flanges	–	360	1	ANSI flanges	**V5055A1228/U**

Single Gas Valves

V5055A

V5055-FLANGED

Valve bodies for America (CSA), fast open, with overtravel and proof of closure option

Valve dimension	Pipe connection	Threads type	Max. operating pressure mbar	Maximum opening time s	Comment	Type
Rp 2	Internal threads	NPT	360	1		**V5055C1000/U**
Rp 3	Internal threads	NPT	360	1		**V5055C1026/U**
Rp 1	Internal threads	NPT	360	1		**V5055C1034/U**
Rp 1 1/2	Internal threads	NPT	360	1		**V5055C1059/U**
–	Flanges	–	360	1	ANSI flanges	**V5055C1109/U**

Valve bodies for America (CSA), fast open, suitable for high inlet pressure

Valve dimension	Pipe connection	Threads type	Max. operating pressure mbar	Maximum opening time s	Comment	Type
Rp 2	Internal threads	NPT	1000	1	POC in actuator	**V5055D1032/U**

Valve bodies for America (CSA), fast open, suitable for high inlet pressure, with overtravel and proof of closure option

Valve dimension	Pipe connection	Threads type	Max. operating pressure mbar	Maximum opening time s	Comment	Type
Rp 2	Internal threads	NPT	1000	1	POC in actuator	**V5055E1005/U**

Valve bodies for Europe (CE), slow open

Valve dimension	Pipe connection	Threads type	Max. operating pressure mbar	Maximum opening time s	Comment	Type
Rp 2	Internal threads	BSP	360	32		**V5055B1192/U**

Valve bodies for America (CSA), slow open

Valve dimension	Pipe connection	Threads type	Max. operating pressure mbar	Maximum opening time s	Comment	Type
Rp 1 1/2	Internal threads	NPT	360	32		**V5055B1028/U**
Rp 2	Internal threads	NPT	360	32		**V5055B1069/U**
Rp 3	Internal threads	NPT	360	32		**V5055B1085/U**

Replacement parts

Seal and bonnet assembly for V5055B, 2", 2-1/2" and 3". To use with V5055A models, characterizing part can be removed.	**133417BA/U**

Single Gas Valves

Throttle valve for firing rate control V5197A

The V5197A are firing rate valves used to provide variable flow control

Gas valve type	Fine control of gas flow, driven by actuator.
Media	Air, natural gas, liquefied petroleum (LP), and manufactured gases.
Materials	Unpainted cast aluminium, brass and stainless steel internal parts, NBR seals
Approvals	• Threaded flanged: CE (EN161), UL, CSA, GOST • Flanged: CE (EN161)
Max. operating pressure	1000 mbar
Ambient temperature	-40 ... 66 °C
Additional description	Pressure switch C6097 can be fitted direct to flange. Maximum flow can be set by adjustment screw on bottom. Adaptable for several actuators by different adaptor kits.

V5197A-THREADED-FLANGED

Threaded

Pipe connection	Type
Threaded flanged ¾ "..2"	V5197A1003
Threaded flanged 2"..3"	V5197A1011

Flanged

Pipe connection	Type
PN16 Flanges as per EN1092-1 DN65	V5197A1029
PN16 Flanges as per EN1092-1 DN80	V5197A1037

V5197A-PN16-FLANGED
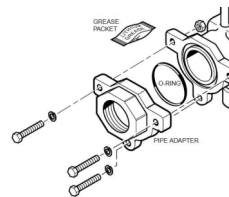
V5197A Pipe adaptor

Copernicus to 1 1/2" NPT internal including 3 bolts and grease	32000109-004/U
Copernicus to 1 1/2" BSP internal including 3 bolts and grease	32000109-009/U

32000109

V5197 Actuator linkages

for ML7999 actuator (black)	KTFRG01
for LKS160 actuator (yellow)	KTFRG02
for MT4000 actuator (green)	KTFRG03
for MF4000 actuator (white)	KTFRG04
for MODUTROL actuator (blue)	KTFRG05
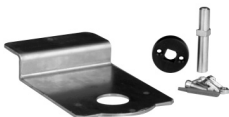
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KTFRG02-KIT-LKS-160-44-A
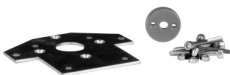
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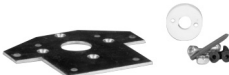
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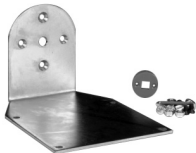
KTFRG05-KIT-MODUTROL-A

Single Gas Valves

Butterfly valve VF5000 series (normal or reduced capacity)

Manually operated butterfly valves are used to control and govern the burner airlock of gas burners. can be equipped with MT4000 and MF4000 series actuator.

VF5000

CE

Gas valve type	Manually operated valve for flow control
Media	Air, natural gas, manufactured gases
Materials	Aluminium alloy die-cast. Viton O-ring seals. Valve plate shaft: Stainless steel.
Approvals	CE
Max. operating pressure	500 mbar
Ambient temperature	-15 ... 100 °C
Additional description	Standard flanging to fit between two flanges in accordance with DIN 2633.

Manual

Valve dimension	Type
DN25	**VF5025A3007**
DN32	**VF5032A3003**
DN40	**VF5040A3006**
DN50	**VF5050A3005**
DN65	**VF5065A3003**
DN80	**VF5080A3002**
DN100	**VF5100A3008**
DN125	**VF5125A3005**
DN150	**VF5150A3003**

Manual with reduced capacity

Valve dimension	Type
DN25	**VF5025R3007**
DN40	**VF5040R3008**
DN40	**VF5050R3007**
DN40	**VF5065R3005**
DN40	**VF5080R3004**
DN40	**VF5100R3000**

KTFFMT4

VF5000 actuator linkages

For MT4000 actuator	**KTFFMT4**
For MF4000 actuator	**KTFFMF4**

Single Gas Valves

Pneumatic shut off valve, normally closed type 8000

Automatic shut off valve for use with variety of gaseous media.
For use with industrial burners on ovens, furnaces and other gas consuming appliances.
Connections:
- ISO 7-1 threaded or DIN PN16 Flanged
- **Available on request:** Special versions with NPT pipe thread, ANSI Flanged or with Socket welded nipple.

Other options, available on request:
- special firesafe- and NACE versions
- partial stroke testing

MAXON8000

Gas valve type	Pneumatic actuated shut off valve
Media	Natural gas, propane, butane, hydrogen
	• **Available on request:** Special versions for oxygen, coke oven gas, refinery gas, biogas.
Ambient temperature	-40 ... 60 $^\circ$C
Materials	Carbon steel body
	• **Available on request:** Special versions with stainless steel or low temperature carbon steel (as low as -50C).
Approvals	• GAD, EN161, PED, FM, AGA, TR (Russia)
	• SIL-3 Capable (meets IEC61508)
	• **Available on request:** UL, CSA, KTL and/or INMETRO approved models
Maximum closing time	1 s
Note	• Maximum operating pressures to be reduced with **25%** when used with hydrogen (H_2)

230 Vac, 50/60 Hz versions

Valve dimension	Pipe connection	Threads type	Max. operating pressure bar	Product description	Type
Rp 1	Internal threads	BSP	17,6	SSOV 100S8111-CA22-D1B03	**324721A**
Rp 1 1/2	Internal threads	BSP	17,6	SSOV 150S8111-CA22-D1B03	**324722A**
Rp 2	Internal threads	BSP	17,6	SSOV 200S8111-CA22-D1B03	**324723A**
DN65	Flanges	–	12,1	SSOV 250C8111-DA22-D1B03	**324724A**
DN80	Flanges	–	9,3	SSOV 300C8111-DA22-D1B03	**324726A**
DN100	Flanges	–	9,3	SSOV 400C8111-DA22-D1B03	**324727A**

120 Vac, 50/60 Hz versions

Valve dimension	Pipe connection	Threads type	Max. operating pressure bar	Product description	Type
Rp 1	Internal threads	BSP	17,6	SSOV 100S8111-CA22-A1B03	**324721B**
Rp 1 1/2	Internal threads	BSP	17,6	SSOV 150S8111-CA22-A1B03	**324722B**
Rp 2	Internal threads	BSP	17,6	SSOV 200S8111-CA22-A1B03	**324723B**
DN65	Flanges	–	12,1	SSOV 250C8111-DA22-A1B03	**324724B**
DN80	Flanges	–	9,3	SSOV 300C8111-DA22-A1B03	**324726B**
DN100	Flanges	–	9,3	SSOV 400C8111-DA22-A1B03	**324727B**

Single Gas Valves

24 Vdc versions

Valve dimension	Pipe connection	Threads type	Max. operating pressure bar	Product description	Type
Rp 1	Internal threads	BSP	17,6	SSOV 100S8111-CA22-G1B03	**324721C**
Rp 1 1/2	Internal threads	BSP	17,6	SSOV 150S8111-CA22-G1B03	**324722C**
Rp 2	Internal threads	BSP	17,6	SSOV 200S8111-CA22-G1B03	**324723C**
DN65	Flanges	–	12,1	SSOV 250C8111-DA22-G1B03	**324724C**
DN80	Flanges	–	9,3	SSOV 300C8111-DA22-G1B03	**324726C**
DN100	Flanges	–	9,3	SSOV 400C8111-DA22-G1B03	**324727C**

24 Vdc versions, ATEX Cat.2GD

Valve dimension	Pipe connection	Threads type	Max. operating pressure bar	Product description	Type
Rp 1	Internal threads	BSP	17,6	SSOV 100S8113-CA22-J1B03	**324721J**
Rp 1 1/2	Internal threads	BSP	17,6	SSOV 150S8113-CA22-J1B03	**324722J**
Rp 2	Internal threads	BSP	17,6	SSOV 200S8113-CA22-J1B03	**324723J**
DN65	Flanges	–	12,1	SSOV 250C8113-DA22-J1B03	**324724J**
DN80	Flanges	–	9,3	SSOV 300C8113-DA22-J1B03	**324726J**
DN100	Flanges	–	9,3	SSOV 400C8113-DA22-J1B03	**324727J**

Single Gas Valves

MAXON-MA

Electro Mechanical gas valve, normally closed type MA

Automatic shut off valve for use with variety of gaseous media.
For use with industrial burners on ovens, furnaces and other gas consuming appliances.
Connections:
- ISO 7-1 threaded or DIN PN16 Flanged
- **Available on request:** Special versions with NPT pipe thread, ANSI Flanged or with Socket welded nipple.

Gas valve type	Electro mechanically actuated shut off valve
Media	Natural gas, propane, butane, hydrogen
	• **Available on request:** Special versions for oxygen, coke oven gas, refinery gas, biogas.
Ambient temperature	-40 ... 60 °C
Materials	Carbon steel body
	• **Available on request:** Special versions with stainless steel or low temperature carbon steel (as low as -50C).
Approvals	• GAD, EN161, PED, FM, AGA, TR (Russia)
	• SIL-3 Capable (meets IEC61508)
	• **Available on request:** UL and CSA approved models
Maximum closing time	1 s
Electrical connection	screw terminals
Protection class	IP65
Note	• Maximum operating pressures to be reduced with **25%** when used with hydrogen (H_2)

230 Vac, 50/60 Hz versions

Valve dimension	Pipe connection	Threads type	Max. operating pressure bar	Product description	Type
Rp 1	Internal threads	BSP	8,62	5000 100SMA11 CA22-CC13B0	**325521A**
Rp 1 1/2	Internal threads	BSP	4,83	5000 150SMA11 CA22-CC13B0	**325522A**
Rp 2	Internal threads	BSP	4,83	5000 200SMA11 CA22-CC13B0	**325523A**
DN65	Flanges	–	3,45	5000 250CMA11 DA22-CC23B0	**325531A**
DN80	Flanges	–	2,76	5000 300CMA11 DA22-CC23B0	**325532A**
DN100	Flanges	–	2,76	5000 400CMA11 DA22-CC23B0	**325533A**

120 Vac, 50/60 Hz versions

Valve dimension	Pipe connection	Threads type	Max. operating pressure bar	Product description	Type
Rp 1	Internal threads	BSP	8,62	5000 100SMA11 CA22-AA13B0	**325521B**
Rp 1 1/2	Internal threads	BSP	4,83	5000 150SMA11 CA22-AA13B0	**325522B**
Rp 2	Internal threads	BSP	4,83	5000 200SMA11 CA22-AA13B0	**325523B**
DN65	Flanges	–	3,45	5000 250CMA11 DA22-AA23B0	**325531B**
DN80	Flanges	–	2,76	5000 300CMA11 DA22-AA23B0	**325532B**
DN100	Flanges	–	2,76	5000 400CMA11 DA22-AA23B0	**325533B**

24 Vdc versions

Valve dimension	Pipe connection	Threads type	Max. operating pressure bar	Product description	Type
Rp 1	Internal threads	BSP	8,62	5000 100SMA11 CA22-FE24B0	**325521C**
Rp 1 1/2	Internal threads	BSP	4,83	5000 150SMA11 CA22-FE24B0	**325522C**
Rp 2	Internal threads	BSP	4,83	5000 200SMA11 CA22-FE24B0	**325523C**
DN65	Flanges	–	3,45	5000 250CMA11 DA22-FE24B0	**325531C**
DN80	Flanges	–	2,76	5000 300CMA11 DA22-FE24B0	**325532C**
DN100	Flanges	–	2,76	5000 400CMA11 DA22-FE24B0	**325533C**

Single Gas Valves

Throttle valve VT5000 Series

These gas valves allow flow modulation with the possibility to set both minimum flow, by regulating the initial angle of the motor, and maximum flow by adjusting the regulator screw at the bottom of the valve.

These valves are suitable for gaseous fluids in gas power burners, atmospheric gas boilers, melting furnaces, incinerators and other gas consuming appliances. The VT5000 series throttle valves are available in two versions: model VT5025 (with 1/2, 3/4" and 1" flanges) and model VT5050 (with 1 1/4", 1 1/2" and 2" flanges). There is also one model with factory mounted actuator (MT4000): VT4025A.

VT4025A1009

CE

Gas valve type	Actuator operated throttle valve for flow control
Media	Air, natural gas, manufactured gases
Materials	Aluminium alloy die-cast. Viton O-ring seals. Valve dish: Stainless steel.
Approvals	CE
Pipe connection	Threaded flanges
Threads type	BSP
Max. operating pressure	360 mbar
Ambient temperature	-15 ... 60 °C
Additional description	• Uses Honeywell KTVT-series flanges for direct mounting in a pipe train or can be attached directly to the in- or outlet of VQ400-series dual valves or VR400-series combi valves for special applications.
	• For selection of suitable actuator, refer to MT4000, MF4000, LKS160 or Modutrol IV chapters.

Factory mounted actuator MT4000

Valve dimension	Maximum opening time s	Maximum closing time s	Protection class	Electrical connection	Comment	Type
DN25	30	30	IP40	conduit	Incl. MT4000A1027	**VT4025A1009**

With mounting bracket for actuator

VT50XXM

Valve dimension	Maximum opening time s	Maximum closing time s	Protection class	Electrical connection	Comment	Type
DN25	–	–	–	–	For Modutrol IV	**VT5025M1005**
DN25	–	–	–	–	For MF4000	**VT5025M1013**
DN25	–	–	–	–	For MT4000	**VT5025M1021**
DN25	–	–	–	–	For LKS160	**VT5025M2003**
DN50	–	–	–	–	For Modutrol IV	**VT5050M1003**
DN50	–	–	–	–	For MF4000	**VT5050M1011**
DN50	–	–	–	–	For MT4000	**VT5050M1029**
DN50	–	–	–	–	For LKS160	**VT5050M2001**
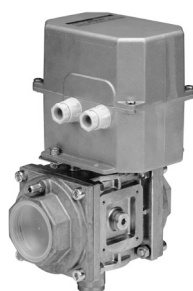
Flange kits for VT series throttle valves. Comes with 2x flanges, gaskets and, screws for mounting.

DN20 flange kit for VT4025 and VT5025. Has Rp 3/4" internal pipe thread (ISO 7-1)	**KTVT20**
DN25 flange kit for VT4025 and VT5025. Has Rp 1" internal pipe thread (ISO 7-1)	**KTVT25**
DN32 flange kit for VT5050. Has Rp 1-1/4" internal pipe thread (ISO 7-1)	**KTVT32**
DN40 flange kit for VT5050. Has Rp 1-1/2" internal pipe thread (ISO 7-1)	**KTVT40**
DN50 flange kit for VT5050. Has Rp 2" internal pipe thread (ISO 7-1)	**KTVT50**

Dual Gas Valves

Combination valve VQ-Modular

VQ-MODULAR

Class "A" Combination Gas Valve, up to 2" connection size. Special flanges are available for pipe sizes from 1/2" up to 2". Modular design:
- other valves can be fitted to each side of the valve body, such as a vent valve, pilot valve or or external bypass valve;
- special gas pressure switch models are available for direct mounting on either side of the valve body.

For control and regulation of gaseous fuels in gas power burners, gas boilers, ovens, furnaces and other gas consuming appliances.
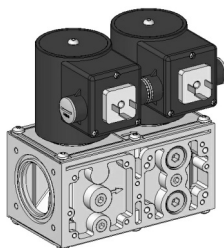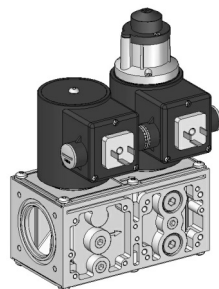
Gas valve type	2 safety shutoff valves in series, without pressure regulator.
First safety valve V1	Always fast opening.
Second safety valve V2	Available models:

- MA - fast open
- MB - fast open with flow rate adjuster (factory set at fully open)
- MC - adjustable slow open (1..30 sec) with flow rate adjuster and step-open feature (factory settings: no step, ca. 6 sec slow-open and maximum flow)

Port connection	Honeywell flanges
Media	Designed for use with natural gas, butane or propane.
Materials	

- Valve body: aluminium die cast body.
- Closing spring: AISI 302 steel.
- Valve plunger: Chrome plated Fe 360B steel sliding on anti-friction bearing.
- Seals and gaskets: Hydrocarbon resistant NBR rubber type.

Approvals
- CE approved, class "A" in accordance with EN161
- GOST
- AGA

VQ425MA

Note
- The VQ-Modular is designed for a maximum operating frequency of one cycle per minute.
- The small body size models are designed for ca. 500k cycles of operation.
- The large body size models are designed for ca. 300k cycles of operation.

Max. operating pressure	360 mbar
Ambient temperature	-15 ... 60 $^{\circ}$C
Maximum closing time	1 s
Additional description	

- The valve solenoids are suitable for permanent energizing, such as applications in continuous operation.
- Various pressure tap points are available on both sides of the valve body as well as on the flanges.
- An optional Closed Position Indication Switch (CPI) can be mounted on the bottom of the first safety valve V1

VQ425MC

Dual Gas Valves

VQ-Modular series dual valve

Supply voltage	Valve size inch	Maximum opening time s	General features	Electrical connection	Protection class	Power con-sumption W	Maximum flow m³/h	Optional CPI-switch	Spare coil V1	Spare coil V2	**Type**
115/ 230 Vac	3/4 .. 2	–		PG11 or DIN plug	IP54 or IP65	15	8	MS06-series	See table	See table. Not for MC.	**VQ4xxMx**

First and second valve fast opening

Supply voltage	Valve size inch	Maximum opening time s	General features	Electrical connection	Protection class	Power con-sumption W	Maximum flow m³/h	Optional CPI-switch	Spare coil V1	Spare coil V2	**Type**
230 Vac	3/4	1		PG11	IP54	15	8	MS062001	BB052302PG	BB052302PG	**VQ420MA1004**
230 Vac	3/4	1		DIN plug	IP65	15	8	MS062001	BB052302DIN	BB052305DIN	**VQ420MA1012**
230 Vac	1	1		PG11	IP54	21,1	11	MS062501	BB052326PG	BB052326PG	**VQ425MA1005**
230 Vac	1	1		DIN plug	IP65	21,1	11	MS062501	BB052326DIN	BB052326DIN	**VQ425MA1013**
115 Vac	1	1		DIN plug	IP65	23,9	11	MS062501	BB051126DIN	BB051126DIN	**VQ425MA1038**
230 Vac	1.1/2	1		PG11	IP54	46,5	31	MS064001	BB052306PG	BB052306PG	**VQ440MA1006**
230 Vac	1.1/2	1		DIN plug	IP65	46,5	31	MS064001	BB052306DIN	BB052306DIN	**VQ440MA1014**
230 Vac	1.1/2	1		DIN plug	IP65	46,5	31	MS064001	BB052306DIN	BB052306DIN	**VQ440MA1030**
230 Vac	1.1/2	1	Viton	DIN plug	IP65	46,5	31	MS064001	BB052306DIN	BB052306DIN	**VQ440MA1048**
230 Vac	2	1		PG11	IP54	61	40	MS065001	BB052309PG	BB052309PG	**VQ450MA1007**
230 Vac	2	1		DIN plug	IP65	61	40	MS065001	BB052309DIN	BB052309DIN	**VQ450MA1015**

First valve fast opening. Second valve fast opening and with flow rate adjuster

Supply voltage	Valve size inch	Maximum opening time s	General features	Electrical connection	Protection class	Power con-sumption W	Maximum flow m³/h	Optional CPI-switch	Spare coil V1	Spare coil V2	**Type**
230 Vac	3/4	1		PG11	IP54	15	8	MS062001	BB052302PG	BB152305PG	**VQ420MB1003**
230 Vac	3/4	1		DIN plug	IP65	15	8	MS062001	BB052302DIN	BB152305DIN	**VQ420MB1011**
230 Vac	1	1		PG11	IP54	21,1	11	MS062501	BB052326PG	BB152324PG	**VQ425MB1004**
230 Vac	1	1		DIN plug	IP65	21,1	11	MS062501	BB052326DIN	BB152324DIN	**VQ425MB1012**
230 Vac	1.1/2	1		PG11	IP54	46,5	31	MS064001	BB052306PG	BB152342PG	**VQ440MB1005**
230 Vac	1.1/2	1		DIN plug	IP65	46,5	31	MS064001	BB052306DIN	BB152342DIN	**VQ440MB1013**
230 Vac	2	1		PG11	IP54	61	40	MS065001	BB052309PG	BB152307PG	**VQ450MB1006**
230 Vac	2	1		DIN plug	IP65	61	40	MS065001	BB052309DIN	BB152307DIN	**VQ450MB1014**

First valve fast opening. Second valve adjustable slow opening, step-open and flow rate adjuster

Supply voltage	Valve size inch	Maximum opening time s	General features	Electrical connection	Protection class	Power con-sumption W	Maximum flow m³/h	Optional CPI-switch	Spare coil V1	Spare coil V2	**Type**
230 Vac	3/4	30		PG11	IP54	15	8	MS062001	BB052302PG	–	**VQ420MC1002**
230 Vac	3/4	30		DIN plug	IP65	15	8	MS062001	BB052302DIN	–	**VQ420MC1010**
230 Vac	1	30		PG11	IP54	21,1	11	MS062501	BB052326PG	–	**VQ425MC1003**
230 Vac	1	30		DIN plug	IP65	21,1	11	MS062501	BB052326DIN	–	**VQ425MC1011**
115 Vac	1	30		PG11	IP54	23,9	11	MS062501	BB051126PG	–	**VQ425MC1029**
230 Vac	1.1/2	30		PG11	IP54	46,5	31	MS064001	BB052306PG	–	**VQ440MC1004**
230 Vac	1.1/2	30		DIN plug	IP65	46,5	31	MS064001	BB052306DIN	–	**VQ440MC1012**
115 Vac	1.1/2	30		DIN plug	IP65	52	31	MS064001	BB051152DIN	–	**VQ440MC1029**
230 Vac	2	30		PG11	IP54	61	40	MS065001	BB052309PG	–	**VQ450MC1005**
230 Vac	2	30		DIN plug	IP65	61	40	MS065001	BB052309DIN	–	**VQ450MC1013**
230 Vac	2	30	Factory mounted 1" by-pass valve	DIN plug	IP65	61	40	MS065001	BB052309DIN	–	**VQ450BB1005M**

Dual Gas Valves
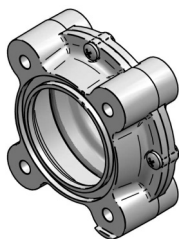
HFVR

Fine particle filter, for mounting on inlet side (to be ordered separately)

Filter size 50 micron. Pack size 10pcs.	**HFVR050**
Filter size 150 micron. Pack size 10pcs.	**HFVR150**

KTCOMB

Flange kits without screen, for mounting on outlet side (to be ordered separately)

Flange kit for VQ420/25M. Contains 2x Rp 1/2"	**KTCOMB15**
Flange kit for VQ420/25M. Contains 2x Rp 3/4"	**KTCOMB20**
Flange kit for VQ420/25M. Contains 2x Rp 1"	**KTCOMB25**
Flange kit for VQ440/50M. Contains 2x Rp 1 1/4"	**KTCOMB32**
Flange kit for VQ440/50M. Contains 2x Rp 1 1/2"	**KTCOMB40**
Flange kit for VQ440/50M. Contains 2x Rp 2"	**KTCOMB50**

Flange kits with screen, for mounting on inlet side (to be ordered separately)

Flange kit for VQ420/25M. Contains 2x Rp 1/2"	**KTCOMS15**
Flange kit for VQ420/25M. Contains 2x Rp 3/4"	**KTCOMS20**
Flange kit for VQ420/25M. Contains 2x Rp 1"	**KTCOMS25**
Flange kit for VQ440/50M. Contains 2x Rp 1 1/4"	**KTCOMS32**
Flange kit for VQ440/50M. Contains 2x Rp 1 1/2"	**KTCOMS40**
Flange kit for VQ440/50M. Contains 2x Rp 2"	**KTCOMS50**

Side valves: By-Pass Valves (to be ordered separately)

By-pass valves	**VB420-series**

Side valves: Pilot Valves (to be ordered separately)

Pilot valves	**VP420-series**

Side valves: Vent Valves, normally open (to be ordered separately)

Vent valves	**VV420-series**

Gas Pressure Switches (to be ordered separately)

Standard gas pressure switches for direct mount	**C6097A2x00-series**
Slim size gas pressure switches for direct mount	**C60VR40xxx**

DIN connector (to be ordered separately)

Standard DIN connector, colour black. For DIN/IP65 models only	**CO020012**

C6097A2200   **C60VR40**   **CO020012**

Dual Gas Valves

Side valves for VQ-Modular

Class "A" add-on side valves, for use with VQ-Modular dual valves, 3/4" size.
- VB420-series: internal by-pass of the second main valve, to provide two-stage control.
- VP420-series: integrated pilot valve with external Rp 3/4" outlet.
- VV420-series: integrated norrmaly open vent valve to depressurize space between the two main valves during stand-by. Models for left or right side mount.

VB420

Gas valve type	Add-on safety shutoff valve, uses 4 srews for fixation and a gasket for sealing.
Media	Natural gas, butane or propane.
Materials	• Valve body: aluminium die cast body. • Closing spring: AISI 302 steel. • Valve plunger: Chrome plated Fe 360B steel sliding on anti-friction bearing. • Seals and gaskets: Hydrocarbon resistant NBR rubber type.
Approvals	**Only** approved in combination with the VQ-Modular series dual valves. • CE (EN161) • GOST • AGA
Note	The VB-VP-VV models side valves are designed for: • a maximum operating frequency of one cycle per minute. • ca. 500k cycles of operation.
Valve size	3/4 inch
Max. operating pressure	360 mbar
Ambient temperature	-15 ... 60 °C
Maximum closing time	1 s
Maximum flow	14,8 m^3/h
Additional description	• The valve solenoids are suitable for permanent energizing, such as applications in continuous operation.

Internal by-pass valve, fast opening and with flow rate adjuster.
For mounting on either side of the valve body.

Supply voltage	Maximum opening time s	Electrical connection	Protection class	Power consumption W	Spare coil V1	**Type**
115 Vac	1	screw terminals	IP54	26	BB151107PG	**VB420B1005**
230 Vac	1	screw terminals	IP54	20	BB152305PG	**VB420B1013**
115 Vac	1	DIN plug	IP65	26	BB151107DIN	**VB420B1021**
230 Vac	1	DIN plug	IP65	20	BB152305DIN	**VB420B1039**

Internal by-pass valve, with adjustable slow opening, step-open and flow rate adjuster.
For mounting on either side of the valve body.

Supply voltage	Maximum opening time s	Electrical connection	Protection class	Power consumption W	Spare coil V1	**Type**
115 Vac	30	screw terminals	IP54	26	BB151107PG	**VB420C1006**
230 Vac	30	screw terminals	IP54	20	BB152305PG	**VB420C1014**
115 Vac	30	DIN plug	IP65	26	BB151107DIN	**VB420C1022**
230 Vac	30	DIN plug	IP65	20	BB152305DIN	**VB420C1030**

Dual Gas Valves

VP420

Pilot valve, fast opening and with flow rate adjuster. With Rp 3/4" internal pipe thread. For mounting on either side of the valve body.

Supply voltage	Maximum opening time	Electrical connection	Protection class	Power consumption	Spare coil V1	**Type**
	s			W		
115 Vac	1	screw terminals	IP54	26	BB151107PG	**VP420B1003**
230 Vac	1	screw terminals	IP54	20	BB152305PG	**VP420B1011**
115 Vac	1	DIN plug	IP65	26	BB151107DIN	**VP420B1029**
230 Vac	1	DIN plug	IP65	20	BB152305DIN	**VP420B1037**

Pilot valve, with adjustable slow opening, step-open and flow rate adjuster. With Rp 3/4" internal pipe thread. For mounting on either side of the valve body.

Supply voltage	Maximum opening time	Electrical connection	Protection class	Power consumption	Spare coil V1	**Type**
	s			W		
115 Vac	30	screw terminals	IP54	26	BB151107PG	**VP420C1004**
230 Vac	30	screw terminals	IP54	20	BB152305PG	**VP420C1012**
115 Vac	30	DIN plug	IP65	26	BB151107DIN	**VP420C1020**
230 Vac	30	DIN plug	IP65	20	BB152305DIN	**VP420C1038**

VV420-RIGHT

Normally open vent valve series. With Rp 3/4" internal pipe thread, for mounting on the right side of the valve body.

Supply voltage	Maximum opening time	Electrical connection	Protection class	Power consumption	Spare coil V1	**Type**
	s			W		
115 Vac	1	screw terminals	IP54	26	BB151107DIN	**VV420A1002**
230 Vac	1	screw terminals	IP54	20	BB152310DIN	**VP420A1010**
115 Vac	1	DIN plug	IP65	26	BB151107DIN	**VP420A1028**
230 Vac	1	DIN plug	IP65	20	BB152310DIN	**VP420A1036**

VV420-LEFT

Normally open vent valve series. With Rp 3/4" internal pipe thread, for mounting on the left side of the valve body.

Supply voltage	Maximum opening time	Electrical connection	Protection class	Power consumption	Spare coil V1	**Type**
	s			W		
115 Vac	1	screw terminals	IP54	26	BB151107DIN	**VV420A1044**
230 Vac	1	screw terminals	IP54	20	BB152310DIN	**VV420A1051**
115 Vac	1	DIN plug	IP65	26	BB151107DIN	**VV420A1069**
230 Vac	1	DIN plug	IP65	20	BB152310DIN	**VV420A1077**

CO020012

DIN connector (to be ordered separately)

Standard DIN connector, colour black.	**CO020012**

Semi Automatic Gas Valves

Class "A" Semi-automatic safety valve, normally closed VG400AA

Class "A", manually open, Safety Shutoff Solenoid Gas Valve with threaded connections.
For use in gas leak detection systems.

Gas valve type	non regulated ON/OFF normally closed, manual opening.
Media	natural gas, propane, air
Materials	aluminium die cast body
Approvals	CE (EN161), GOST.
Pipe connection	Internal thread as per ISO 7/1 (Rp)
Threads type	NPT
Maximum closing time	1 s
Ambient temperature	-15 ... 60 $^{\circ}$C
Protection class	IP65
Additional description	Valve is normally closed, has to be opened manually and will close as soon as the coil is energized.

VG4XXAA

220...240 Vac versions

Valve dimension	Max. operating pressure mbar	Type
Rp 1/2	500	**VG415AA1004**
Rp 3/4	500	**VG420AA1007**
Rp 1	500	**VG425AA1002**

DIN plug

DIN face connector colour BLACK	**CO020012**
DIN face connector colour GRAY	**CO020014**

Class "A" Semi-automatic safety valve, normally open VG400SA

Class "A", manually closed, Safety Shutoff Solenoid Gas Valve with threaded connections.

Gas valve type	non regulated ON/OFF normally open, manual closing.
Media	natural gas, propane, air
Materials	aluminium die cast body
Approvals	CE (EN161), GOST.
Pipe connection	Internal thread as per ISO 7/1 (Rp)
Threads type	NPT
Maximum opening time	1 s
Ambient temperature	-15 ... 60 $^{\circ}$C
Protection class	IP65
Additional description	Valve is normally open, has to be closed manually and will open as soon as the coil is energized.

VG4XXSA

220...240 Vac versions

Valve dimension	Max. operating pressure mbar	Type
Rp 1/2	500	**VG415SA1002**
Rp 3/4	500	**VG420SA1005**
Rp 1	500	**VG425SA1000**

DIN plug

DIN face connector colour BLACK	**CO020012**
DIN face connector colour GRAY	**CO020014**

Semi Automatic Gas Valves

Manual reset gas valve, normally closed VG4000A1

Class "A", manually open, Safety Shutoff Solenoid Gas Valve with threaded connections.
For use in gas leak detection systems or other applications requiring the safety gas valve to be manually open.

VG4000A1

Gas valve type	non regulated ON/OFF normally closed, manual opening
Media	natural gas, propane, air
Materials	aluminium die cast body
Protection class	IP54. IP65 versions available upon request
Electrical connection	PG11
Approvals	CE (EN161)
Port connection	internal threads
Threads type	BSP
Ambient temperature	-15 ... 60 ^{o}C
Maximum closing time	1 s
Additional description	• Additional voltages (110Vac, 24Vac, 24-28Vdc) are also available. • Optional Closed Position Indication Switch (CPI switch) is ordered separately. • The valve has to be open manually when energised and closes when power is removed.

220...240 Vac versions

Valve size (inch)	Max. operating pressure (mbar)	Type
1 1/4	500	**VG4032A1006**
1 1/2	500	**VG4040A1009**
2	500	**VG4050A1008**
2 1/2	360	**VG4065A1006**

Manual reset gas valve, normally closed, flanged connections VG4000A3

Class "A", manually open, Safety Shutoff Solenoid Gas Valve with flanged connections.
For use in gas leak detection systems or other applications requiring the safety gas valve to be manually open.

VG4000A3

Gas valve type	non regulated ON/OFF normally closed, manual opening
Media	natural gas, propane, air
Materials	aluminium die cast body
Protection class	IP54
Electrical connection	PG11
Approvals	CE (EN161)
Max. operating pressure	360 mbar
Port connection	flanges ISO7005
Ambient temperature	-15 ... 60 ^{o}C
Maximum closing time	1 s
Additional description	• Additional voltages (110Vac, 24Vac, 24-28Vdc) are also available. • Optional Closed Position Indication Switch (CPI switch) is ordered separately. • The valve has to be open manually when energised and closes when power is removed.

220...240 Vac versions

Valve size (inch)	Type
2 1/2	**VG4065A3002**
3	**VG4080A3001**
4	**VG4100A3007**

Semi Automatic Gas Valves

Manual reset gas valve, normally open VG4000S

VG4000S

CE

Normally open gas valve, manually closed.
For use in applications requiring a normally open gas valve with manual closing.

Gas valve type	non regulated ON/OFF normally open, manual closing
Media	natural gas, propane, air
Materials	aluminium die cast body
Protection class	IP54. IP65 versions available upon request
Electrical connection	PG11
Approvals	CE (EN161)
Max. operating pressure	360 mbar
Ambient temperature	-15 ... 60 ^{o}C
Maximum closing time	1 s
Additional description	• Additional voltages (12Vdc, 24-28Vdc) are also available.
	• The valve has to be closed manually when energised and opens when power is removed.

220...240 Vac versions

Valve size inch	Port connection	Threads type	**Type**
1 1/4	internal threads	BSP	**VG4032S1005**
1 1/2	internal threads	BSP	**VG4040S1008**
2	internal threads	BSP	**VG4050S1007**
2 1/2	internal threads	BSP	**VG4065S1005**
3	internal threads	BSP	**VG4080S1004**
2 1/2	flanges ISO7005	–	**VG4065S3001**
3	flanges ISO7005	–	**VG4080S3000**
4	flanges ISO7005	–	**VG4100S3006**

Burner Controllers

Burner Controls EC/RM7800-series

The EC/RM7800 series are microprocessor-based industrial burner controls for automatically fired gas, oil or combination fuel single burner applications.
For all type of burners with unlimited capacity.

7800-SERIES

Approvals	• CE approved according EN298 for **continuous** operation (when used with correct flame amplifier and flame sensor).
	• SIL-3 Capable certified
	• APAVE accepted (CE approved models)
	• CSA/UL approved (120Vac models only)
Ambient temperature	-40 ... 60 °C
Maximum humidity	85 %rh
Note	About Flame Failure Response Times (FFRT):
	• European 7800-series burner controllers (EU): 1.0 or 2.0s (depends on flame amplifier).
	• American 7800-series burner controllers (US): 0.8 or 3.0s (depends on flame amplifier).
Flame detector	Depends on plug-in amplifier
Additional description	• Modular design with plug-in modules. Selectable pre-purge time by ST7800A1xxx/U module selection.
	• Accepts all existing Honeywell optical flame detectors and flame rods.
	• All information regarding the burner control (6 last lockout conditions, flame signal, hours of operation ...) are available on the keyboard display module or through communication.

European models 120Vac (RM78xx)

Control model	Outputs	Operation	Pilot	Pre-purge timer	Pilot ignition time	Main ignition time	Post purge time	Number of ignition attempts	Flame failure response time	Valve proofing system	Comment	Type
Full	HF/LF/Modulate	Cont.	Selectable	•	3/5s	3/5s	2s	1	1,0/2,0s	–		**RM7850A1001/U**
Full	HF/LF/Modulate	Cont.	Selectable	•	3/5s	3/5s	15s	1	1,0/2,0s	–		**RM7850A1019/U**
Full	HF/LF/Modulate	Cont.	Selectable	•	3/5s	3/5s	30s	1	1,0/2,0s	–		**RM7850A1027/U**

European models 230Vac (EC78xx)

Control model	Outputs	Operation	Pilot	Pre-purge timer	Pilot ignition time	Main ignition time	Post purge time	Number of ignition attempts	Flame failure response time	Valve proofing system	Comment	Type
Atmosferic	LF/Modulate	Cont.	Selectable	•	5/10s	5/10s	–	1	1,0/2,0s	–		**EC7820A1026/U**
Atmosferic	LF/Modulate	Cont.	Selectable	•	5/10s	5/10s	–	3	1,0/2,0s	–		**EC7820A1034/U**
Full	HF/LF/Modulate	Cont.	Selectable	•	3/5s	3/5s	15s	1	1,0/2,0s	–		**EC7850A1064/U**
Full	HF/LF/Modulate	Cont.	Selectable	•	3/5s	3/5s	2s	1	1,0/2,0s	–		**EC7850A1072/U**
Full	HF/LF/Modulate	Cont.	Selectable	•	3/5s	3/5s	30s	1	1,0/2,0s	–		**EC7850A1080/U**
Full	HF/LF/Modulate	Cont.	Selectable	•	3/5s	3/5s	15s	1	1,0/2,0s	–		**EC7850A1122/U**
Full	–	Cont.	–	–	5/10s	–	–	selectable	1,0/2,0s	–		**EC7890B1028/U**

Burner Controllers

American models 120Vac (RM78xx)

Control model	Outputs	Ope-ration	Pilot	Pre-purge timer	Pilot ignition time	Main ignition time	Post purge time	Number of ignition attempts	Flame failure response time	Valve proofing system	Comment	Type
Flame switch	2xSPDT	Cont.	–	–	–	–	–	–	0,8/3,0s	–		**RM7823A1016/U**
Full	–	Cont.	Interrupted	•	4/10s	–	–	–	0,8/3,0s	–		**RM7838B1013/U**
Full	–	Cont.	Interrupted	•	4/10s	–	–	–	0,8/3,0s	–		**RM7838C1004/U**
Full	HF/LF/ Modulate	Cont.	Interrupted	•	4/10s	–	15s	–	0,8/3,0s	–		**RM7840E1016/U**
Atmosferic	LF/ Modulate	Cont.	Interrupted	•	4/10s	–	15s	–	0,8/3,0s	–		**RM7840G1014/U**
Full	HF/LF/ Modulate	Cont.	Interrupted	•	4/10s	–	15s	–	0,8/3,0s	–		**RM7840L1018/U**
Full	HF/LF/ Modulate	Cont.	Selectable	•	4/10s	–	15s	–	0,8/3,0s	–		**RM7840L1026/U**
Full	HF/LF/ Modulate	Cont.	Interrupted	•	4/10s	–	15s	–	0,8/3,0s	Integrated	Uses S7800A1142/U display for programming	**RM7840L1075/U**
Atmosferic	on/off	Cont.	Interrupted	–	4/10s	–	15s	–	0,8/3,0s	–		**RM7840M1017/U**
Primary	–	Cont.	–	–	4/10s	–	–	–	0,8/3,0s	–		**RM7885A1015/U**
Primary	–	Inter-mit.	Intermittent	–	4/10s	–	–	–	0,8/3,0s	–	No shutter check	**RM7890A1015/U**
Primary	–	Cont.	Intermittent	–	4/10s	–	–	–	0,8/3,0s	–		**RM7890B1014/U**
Primary	–	Cont.	Intermittent	–	–	–	–	–	0,8/3,0s	–	Fixed 4s safety time.	**RM7890B1030/U**
Primary	–	Cont.	Intermittent	•	4/10s	–	–	–	0,8/3,0s	–	No air flow switch check, no delayed main valve	**RM7895A1014/U**
Primary	–	Cont.	Intermittent	•	4/10s	–	–	–	0,8/3,0s	–	With air flow switch check, but no delayed main valve	**RM7895B1013/U**
Primary	–	Cont.	Intermittent	•	4/10s	10s	–	–	0,8/3,0s	–	No air flow switch check, but with delayed main valve	**RM7895C1020/U**
Primary	–	Cont.	Interrupted	•	4/10s	–	15s	–	0,8/3,0s	–		**RM7896C1012/U**
Primary	–	Cont.	Selectable	•	4/10s	–	0s	–	0,8/3,0s	Integrated	Uses S7800A1142/U display for programming	**RM7897A1002/U**

American models 230Vac (EC78xx)

Control model	Outputs	Ope-ration	Pilot	Pre-purge timer	Pilot ignition time	Main ignition time	Post purge time	Number of ignition attempts	Flame failure response time	Valve proofing system	Comment	Type
Flame switch	2xSPDT	Cont.	–	–	–	–	–	–	0,8/3,0s	–		**EC7823A1004/U**
Full	HF/LF/ Modulate	Cont.	Interrupted	•	4/10s	–	15s	–	0,8/3,0s	Integrated	Uses S7800A1142/U display for programming	**EC7840L1014/U**
Primary	–	Inter-mit.	Intermittent	–	4/10s	–	–	–	0,8/3,0s	–	No shutter check	**EC7890A1011/U**
Primary	–	Cont.	Intermittent	–	4/10s	–	–	–	0,8/3,0s	–		**EC7890B1010/U**

American models 24VDC (RM7824)

Control model	Outputs	Ope-ration	Pilot	Pre-purge timer	Pilot ignition time	Main ignition time	Post purge time	Number of ignition attempts	Flame failure response time	Valve proofing system	Comment	Type
Primary	–	Cont.	–	–	4/10s	–	–	–	0,8/3,0s	–	C7024E/F UV detector only	**RM7824A1006/U**

Burner Controllers

R78XX

Flame amplifiers

Used with RM7824A 24VDC model only. For UV sensor C7024E/F. Self-Check. Not CE approved. FFRT: 3.0s	R7824C1002/U
For flame rod (cable<5m). FFRT: EU=1.0s / US=0.8s	R7847A1025/U
For flame rod (cable<5m). FFRT: EU=2.0s / US=3.0s	R7847A1033/U
For flame rod (cable>5m) and UV sensor C7012A/C/G. FFRT: EU=1.0s / US=0.8s	R7847A1074/U
For flame rod (cable>5m) and UV sensor C7012A/C/G. FFRT: EU=2.0s / US=3.0s	R7847A1082/U
For flame rod (cable<5m). Ampli-Check. FFRT: EU=1.0s / US=0.8s	R7847B1023/U
For flame rod (cable<5m). Ampli-Check. FFRT: EU=2.0s / US=3.0s	R7847B1031/U
For flame rod (cable>5m) and UV sensor C7012A/C/G. Ampli-Check. FFRT: EU=1.0s / US=0.8s	R7847B1064/U
For flame rod (cable>5m) and UV sensor C7012A/C/G. Ampli-Check. FFRT: EU=2.0s / US=3.0s	R7847B1072/U
For C7012E/F UV sensor. Shutter-Check. Not CE approved. FFRT: EU=2.0s / US=3.0s	R7847C1005/U
For UV sensors C7027/35/44. FFRT: EU=1.0s / US=0.8s	R7849A1015/U
For UV sensors C7027/35/44. FFRT: EU=2.0s / US=3.0s	R7849A1023/U
For UV sensors C7027/35/44. Ampli-Check. FFRT: EU=1.0s / US=0.8s	R7849B1013/U
For UV sensors C7027/35/44. Ampli-Check. FFRT: EU=2.0s / US=3.0s	R7849B1021/U
For UV sensors C7927 and visible light C7962. Ampli-Check. Not CE approved. FFRT: EU=2.0s / US=3.0s	R7851B1000/U
For UV sensors C7927 and visible light C7962. Ampli-Check. Not CE approved. FFRT: EU=1.0s / US=0.8s	R7851B1018/U
For UV sensors C7961E/F. Shutter-Check. Not CE approved. FFRT: EU=2.0s / US=3.0s	R7851C1008/U
For IR sensors C7915. Not CE approved. FFRT: EU=2.0s / US=3.0s	R7852A1001/U
For IR sensors C7915. Ampli-Check. Not CE approved. FFRT: EU=2.0s / US=3.0s	R7852B1009/U
For UV sensors C7061A/F. Shutter-Check. FFRT: EU=2.0s / US=3.0s	R7861A1026/U
For UV sensors C7061A/F. Shutter-Check. FFRT: EU=1.0s / US=0.8s	R7861A1034/U
For UV sensors C7076A/D/F. Shutter-Check. FFRT: EU=2.0s / US=3.0s	R7886A1001/U

Purge timers

ST7800

Prepurge time = 2s.	ST7800A1005/U
Prepurge time = 7s.	ST7800A1013/U
Prepurge time = 10s.	ST7800A1021/U
Prepurge time = 30s.	ST7800A1039/U
Prepurge time = 40s.	ST7800A1047/U
Prepurge time = 60s.	ST7800A1054/U
Prepurge time = 90s.	ST7800A1062/U
Prepurge time = 2.5min.	ST7800A1070/U
Prepurge time = 4.0min.	ST7800A1088/U
Prepurge time = 6.0min.	ST7800A1096/U
Prepurge time = 9.0min.	ST7800A1104/U
Prepurge time = 12.0min.	ST7800A1112/U
Prepurge time = 15.0min.	ST7800A1120/U
Prepurge time = 22.0min.	ST7800A1138/U
Prepurge time = 30.0min.	ST7800A1146/U

Wiring bases

Q7800

Mounting subbase for 7800-series. Panel mount.	Q7800A1005/U
Mounting subbase for 7800-series. Wall mount.	Q7800B1003/U
Conversion subbase to replace RA890 devices by RM7890 or EC7890.	Q7800F1004/U

Burner Controllers

S7800

Keyboard display modules

Language: English. With integrated Modbus communication option.	**S7800A1001/U**
Language: French	**S7800A1035/U**
Language: German	**S7800A1043/U**
Language: Italian	**S7800A1050/U**
Language: Spanish	**S7800A1068/U**
Language: Portuguese	**S7800A1126/U**
Language: English. Enhanced model, needed to program Enhanced 7800-series models (with VPS).	**S7800A1142/U**
Language: Spanish. Enhanced model, needed to program Enhanced 7800-series models (with VPS).	**S7800A1167/U**

Remote Communication Modules

Data Controlbus Module for communication or for remote S7800 mounting.	**S7810A1009/U**
MODBUS communication card. For US models only, not CE approved.	**S7810M1003/U**
MODBUS communication card. CE approved.	**S7810M1029/U**
Remote Reset Module.	**S7820A1007/U**

S7810

Expanded annunciator (NA only)

Expanded Annunciator to show additional information about faults in the limit string, **only** for use in Americas. Voltage: 120V, 50/60Hz. Uses Q7800 mounting base (not included).	**S7830A1005/U**

S7830A1005

Parts

5-wire connector for S7800/10/20	**203541/U**
Remote mounting bracket for S7800	**203765/U**
Flush mounting bracket for S7800	**205321B/U**
Display extension cable assembly. Cable length 1.5 m	**221818A/U**
Display extension cable assembly. Cable length ca. 3 m. Note: assure no electrical noise is present to avoid connection problems, due to extra long cable.	**221818C/U**
Nema 4 cover assembly for remote mounting of S7800 display.	**50023821-001/U**
Nema 4 cover assembly for remote mounting of S7800 display. Incl. remote reset button and wiring.	**50023821-002/U**

Burner Controls DBC2000-series

The Honeywell DBC2000 is a microprocessor-based integrated burner controller for automatically fired gas, oil or combination fuel industrial single burner power burner applications. The DBC2000 system consists of the relay module and wiring subbase. The Standard Model provides the minimum requirements to control an industrial burner system; the Enhanced Model includes an integrated Valve Proofing System; the Ultimate model includes bus communication on top of this. For all type of burners with unlimited capacity in intermittent operation. An integrated timer assures an automated recycle sequence after ca 24h uninterrupted heat demand.

DBC2000

Approvals	• CE approved according EN298 for **intermittent** operation (when used with correct flame sensor). • AGA certified
Protection class	IP40
Ambient temperature	-10 ... 60 °C
Maximum humidity	90 %rh
Note	Extra features: • Integrated 24h auto recycle timer • Selectable Pilot or Direct Main Burner Ignition operation. • Selectable post-purge (15s) or no-post-purge (0s) operation.

Burner Controllers

Control model	Full
Outputs	HF/LF/Modulate
Operation	24h auto-recycle
Pilot	Selectable intermittent / interrupted
Pilot ignition time	3s (Pilot only time: 5s)
Post purge time	15/0s
Number of ignition attempts	1
Flame detector	UV/FR
Additional description	DBC2000 models have two integrated flame amplifiers: UV Power Tube (UV) and Rectification (FR), that are selectable by a jumper at the back of the unit. Default is FR (jumper present). Applicable flame sensors: • Flame rod (FR) • UV sensor family C7027/35/44 (UV) • UV sensor family C7012A/G (FR) • IR sensor family IRD820/1020 (FR)

230Vac versions

Prepurge time	Main ignition time	Flame failure response time	Valve proofing system	Bus system description	Comment	**Type**
35s	3s	<1s	–	–	Standard Model	**DBC2000E1018**
0s	3s	<1s	–	–	Standard Model	**DBC2000E1026**
60s	3s	<1s	–	–	Standard Model	**DBC2000E1034**
35s	3s	<1s	Integrated	–	Enhanced Model	**DBC2000E2019**
35s	3s	<1s	Integrated	Modbus Slave	Ultimate Model (future release)	**DBC2000E3010**

115Vac versions

Prepurge time	Main ignition time	Flame failure response time	Valve proofing system	Bus system description	Comment	**Type**
35s	3s	<1s	–	–	Standard Model	**DBC2000E1000**
35s	3s	<1s	Integrated	–	Enhanced Model	**DBC2000E2001**
35s	3s	<1s	Integrated	Modbus Slave	Ultimate Model (future release)	**DBC2000E3002**

C7008

Accessories for use with DBC2000 (see dedicated chapter for details)

Industrial flame rod.	**C7008-series**
PurplePeeper standard UV detector and IP67 protection.	**C7012A/G-series**
MiniPeeper standard UV detector and IP54 protection.	**C7027-series**
MiniPeeper with field replaceable tube and IP65 protection.	**C7035-series**
MiniPeeper UV sensor with side view and IP54 protection.	**C7044-series**
Infrared sensor (not CE approved and for 230Vac applications only).	**IRD820/1020**
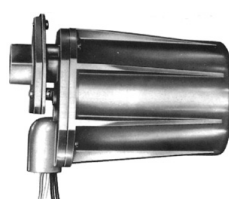
C7012

C7027   **C7035**   **C7044**   **IRD-1020**

Burner Controllers

Burner Controls R7243-series

Industrial intermittent pilot burner controller, for use in intermittent operation.

Protection class	IP40 (incl. base, plate and correct cable glands)
Approvals	CE, according EN298
Supply voltage	220..240 Vac
Runtime	10,5 s
Response time	1,5s
First safety time	3s
Pilot ignition time	3s
Main ignition time	3s
Number of ignition attempts	1
Flame detector	Rectification
Flame failure response time	<1s
Operation	Intermit.
Comment	Incl. mounting base and PG plate

R7243

IRD820

IRD1020

C7008

	Type
	R7243A1019

Applicable flame sensors

IR-Flicker detector IRD 820 GAS Industrial	**16202U**
IR-Flicker detector IRD 1020.1 right-view	**16531U**
IR-Flicker detector IRD 1020.1 axial-view	**16532U**
IR-Flicker detector IRD 1020.1 left-view	**16533U**
IR-Flicker detector IRD 1020.1 left-view	**16533U**
M93 holder for IRD (pack size: 25 pcs)	**59093**
Plug type, 3 core cable, 0.6 m with tag wire ends (pack size: 25 pcs)	**7236001**
Industrial flame rod assembly. Electrode length: 300 mm (12")	**C7008A1018/U**
Industrial flame rod assembly. Electrode length: 600 mm (24")	**C7008A1034/U**

Flame Sensors

UV flame sensors C7027/35/44 ("MiniPeeper")

Compact analogue UV flame sensor to detect ultraviolet radiations emitted by combustion flames. Used with Honeywell burner controls to provide flame supervision for commercial and industrial burner applications.

C7027A

Approvals	• CE approved according to EN298 only in combination with matching Honeywell flame amplifiers and burner controls.
	• UL/CSA approved for USA only in combination with matching Honeywell flame amplifiers and burner controls.
	• Only for intermittent operation. The burner has to recycle at least once per 24 hours.
Additional description	• Rugged, compact, with encapsulated sensing tube for maximum protection.
	• Quick and easy installation on standard sight pipe.
	• Detects UV radiation in the 310nm range of the spectrum.
	• Maximum **recommended** cable length: ca. 50m

C7027 with clamp type connector

Mechanical connection	Cable length m	Ambient temperature °C	Protection class	Comment	Type
1/2"	2,4	-18 ... 102	IP54		**C7027A1023/U**
1/2"	2,4	-40 ... 102	IP54		**C7027A1031/U**
1/2"	2,4	-18 ... 102	IP54		**C7027A1056/U**

C7027 with 1/2" NPT threaded spud connector

C7027A1064

Mechanical connection	Cable length m	Ambient temperature °C	Protection class	Comment	Type
1/2"	2,4	-18 ... 102	IP54		**C7027A1049/U**
1/2"	7,3	-40 ... 102	IP54		**C7027A1064/U**

C7035 with field replaceable UV tube

C7035A1049

Mechanical connection	Cable length m	Ambient temperature °C	Protection class	Comment	Type
1"	1,8	-18 ... 121	IP67		**C7035A1023/U**
1"	1,8	-40 ... 121	IP67		**C7035A1031/U**
1"	1,8	-18 ... 121	IP67		**C7035A1049/U**

C7044 for side or end viewing

C7044

Mechanical connection	Cable length m	Ambient temperature °C	Protection class	Comment	Type
mounting bracket	1,8	-18 ... 102	IP54		**C7044A1006/U**

C7927 solid state UV sensor (for EC/RM78xx only)

C7927A

Mechanical connection	Cable length m	Ambient temperature °C	Protection class	Comment	Type
1/2"	1,8	-18 ... 102	IP54	Not CE (EN298) approved.	**C7927A1016/U**

Used with controllers

Industrial flame switch with inegrated flame amplifier.	**BC1000A2/B2**
Industrial burner controller with inegrated flame amplifier.	**DBC2000E**
Industrial burner controller with plug-in flame amplifier.	**EC/RM78xx series**
Industrial flame switch with inegrated flame amplifier.	**R4343E**

Flame Sensors

Used with flame Amplifiers (EC/RM78xx and R4348 only)

Amplifier of the Honeywell R4348 series for use with C7027/35/44 sensors	**R7323**
Amplifier of the Honeywell 7800 series burner control for use with C7027/35/44 sensors	**R7849A**
Ampli-check amplifier of the Honeywell 7800 series burner control for use with C7027/35/44 sensors	**R7849B**
Ampli-check amplifier of the Honeywell 7800 series burner control for use with C7927 solid state UV sensor	**R7851B**

Accessories

Swivel mount for adjustable positioning of the UV sensor	**118367A/U**
Heat block for C7027 sensor (1/2")	**136733/U**

Replacement tube for C7035

Ultraviolet sensing tube (-40° to 121°C) for C7035 sensor	**129464N/U**
Ultraviolet sensing tube (-18° to 121°C) for C7035 sensor	**129464M/U**

UV flame sensors C7012A/C/E/F/G

Solid-state electronic UV flame sensor to detect ultraviolet radiation emitted by the combustion of most carbon-containing fuels such as natural gas, LP gases, and oil.
Used with Honeywell burner controls to provide flame supervision in continuous operation for industrial burner applications.

C7012A

Approvals	• CE approved according to EN298 only in combination with matching Honeywell flame amplifiers and burner controls.
	• C7012E/F models are approved for use in continuous operation, by using dynamic self-check.
	• C7012C/F models are UL listed for use in explosion hazardous locations; Class 1, groups C and D; and Class 2, groups E, F, and G.
Cable length	2,4 m
Additional description	• Two flame detectors can be wired in parallel to reduce nuisance shutdowns in difficult flame sighting applications.
	• Quick and easy installation on standard 3/4" NPT sight pipe (Ex-proof models 1" NPT).
	• The "DIN" models have an additional grounding wire (green/yellow)

Standard models for intermittent operation

Mechanical connection	Ambient temperature ^{o}C	Protection class	Supply voltage	Comment	Note	**Type**
3/4" NPT	-4 ... 79	IP66	110..120 Vac			**C7012A1145/U**
3/4" NPT	-4 ... 79	IP66	240 Vac			**C7012A1194/U**
3/4" NPT	-4 ... 79	IP66	220 Vac	"DIN" version		**C7012G1019/U**

Standard models for continuous operation (with mechanical shutter)

Mechanical connection	Ambient temperature ^{o}C	Protection class	Supply voltage	Comment	Note	**Type**
3/4" NPT	-29 ... 79	IP66	110..120 Vac		Shutter coil voltage: 120V only	**C7012E1104/U**
1" NPT	-40 ... 79	IP66	110..120 Vac		Shutter coil voltage: 120V only	**C7012E1120/U**
3/4" NPT	-29 ... 79	IP66	240 Vac		Shutter coil voltage: 120V only	**C7012E1153/U**
3/4" NPT	-29 ... 79	IP66	220 Vac	"DIN" version	Shutter coil voltage: 120V only	**C7012E1187/U**
3/4" NPT	-29 ... 79	IP66	110 Vac	"DIN" version	Shutter coil voltage: 120V only	**C7012E1195U**

Flame Sensors

C7012F

UL listed explosion proof models for intermittent operation

Mechanical connection	Ambient temperature °C	Protection class	Supply voltage	Comment	Note	**Type**
1" NPT	-29 ... 79	NEMA 7	110..120 Vac	Ex approved in USA only		**C7012C1042/U**

UL listed explosion proof models for continuous operation (with mechanical shutter)

Mechanical connection	Ambient temperature °C	Protection class	Supply voltage	Comment	Note	**Type**
1" NPT	-29 ... 79	NEMA 7	110..120 Vac	Ex approved in USA only	Shutter coil voltage: 120V only	**C7012F1052/U**

Used with controllers

Industrial burner controller used with plug-in flame amplifier R78xx-series.	**EC/RM78xx series**
Industrial flame switch used with plug-in flame amplifier R72xx or R73xx series.	**R4348B1008**
Industrial flame switch with LED indicator and 4-20 mA analogue output for flame signal, used with plug-in flame amplifier.	**R4348B1057**
Industrial flame switch (230Vac) with integrated rectification flame amplifier.	**R4343D1009**
Industrial flame switch (115Vac) with integrated rectification flame amplifier.	**R4343D1017**

Standard amplifier for the Honeywell R4348 series for use with C7012A/C/G sensors.

FFRT = 1 sec, max.	**R7321A1012**

Ampli-check amplifier for the Honeywell R4348 series for use with C7012A/C/G sensors.

FFRT = 2...4 sec (US model)	**R7247B1003/U**
FFRT = 2...4 sec (EU model)	**R7247B1029**
FFRT = 2 sec, max (EU model)	**R7247B1037**

Self-check amplifier for the Honeywell R4348 series for use with C7012E/F sensors.

FFRT = 2...4 sec (US model)	**R7247C1001/U**
FFRT = 2 sec, max (US model)	**R7247C1019/U**
FFRT = 2...4 sec (EU model)	**R7247C1027**
FFRT = 2 sec, max (EU model)	**R7247C1035**

Standard amplifier for the Honeywell EC/RM78xx series for use with C7012A/C/G sensors.

FFRT = 1.0 or 0.8 sec	**R7847A1074/U**
FFRT = 2.0 or 3.0 sec	**R7847A1082/U**

Ampli-check amplifier for the Honeywell EC/RM78xx series for use with C7012A/C/G sensors.

FFRT = 1.0 or 0.8 sec	**R7847B1064/U**
FFRT = 2.0 or 3.0 sec	**R7847B1072/U**

Self-check amplifier for the Honeywell EC/RM78xx series for use with C7012A/C/G sensors.

FFRT = 2.0 or 3.0 sec. Note: not CE approved (GAD) for use in Europe. When used with EC78xx controls (230Vac), take precautions to reduce line voltage shutter voltage to prevent damage to the connected C7012E/F !!	**R7847C1005/U**

Accessories

Swivel mount for adjustable positioning of the UV sensor	**118367A/U**
Mounting flange with 1" NPT internal thread for mounting on 1" sight pipe (to replace standard 3/4" NPT flange), for C7012A/E/G only	**124198/U**
Quartz focussing lens	**124204/U**

Replacement parts

Ultraviolet sensing tube for C7012 sensor	**113228/U**
Coil and shutter assembly for C7012E/F models only	**190971B/U**

Flame Sensors

UV flame sensors C7061A/F

C7061A

Solid-state electronic UV flame sensor to detect ultraviolet radiation emitted by the combustion of most carbon-containing fuels such as natural gas, LP gases, and oil.
Used with Honeywell burner controls to provide flame supervision in continuous operation for industrial burner applications.

Approvals	• CE approved according to EN298 only in combination with matching Honeywell flame amplifiers and burner controls.
	• C7061-series models are approved for use in continuous operation, by using dynamic self-check.
	• C7061F1 models are ATEX approved for use in explosion hazardous locations; II G Ex d IIC T6, zone 1&2.
	• C7061F2 models are UL listed for use in explosion hazardous locations; Class 1, groups C and D; and Class 2, groups E, F, and G.
Ambient temperature	-40 ... 80 °C
Additional description	• Two flame detectors can be wired in parallel to reduce nuisance shutdowns in difficult flame sighting applications.
	• Quick and easy installation on standard 3/4" NPT sight pipe (Ex-proof models: 1" NPT).
	• Uses the same UV sensing ("Power") tube as used with C7027/35/44 series "MiniPeeper": no external power supply.
	• The "DIN" models have an additional grounding wire (green/yellow)

European models for continuous operation, with mechanical shutter

Mechanical connection	Cable length m	Protection class	Comment	Note	**Type**
3/4" NPT	2,4	IP66	"DIN" model, with 5-wire cable	Single shutter coil voltage: 120V only	**C7061A1004/U**
3/4" NPT	0	IP66		Dual shutter coil voltage: 120/230V	**C7061A1020/U**
3/4" NPT	0	IP66	With focussing lens	Dual shutter coil voltage: 120/230V	**C7061A1079/U**

ATEX certified Ex-proof European models for continuous operation, with mechanical shutter (Ex: CENELEC II G Ex d IIC T6; zone 1&2)

Mechanical connection	Cable length m	Protection class	Comment	Note	**Type**
1" NPT	0	IP67	Incl. cable gland	Dual shutter coil voltage: 120/230V	**C7061F1003**

C7061F

American models for continuous operation, with mechanical shutter

Mechanical connection	Cable length m	Protection class	Comment	Note	**Type**
3/4" NPT	2,4	IP66		Single shutter coil voltage: 120V only	**C7061A1012/U**
3/4" NPT	2,4	IP66	With focussing lens	Single shutter coil voltage: 120V only	**C7061A1061/U**

Flame Sensors
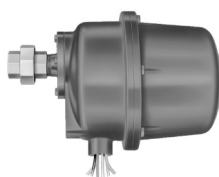
C7061F2

UL listed Ex-proof American models for continuous operation, with mechanical shutter (Ex: Class I, gr.C/D and Class II, gr.E/F/G)

Mechanical connection	Cable length m	Protection class	Comment	Note	Type
1" NPT	2,4	NEMA 7	Ex-proof in Americas only	Single shutter coil voltage: 120V only	**C7061F2001/U**

Used with controllers

Industrial burner controller used with plug-in flame amplifier.	**EC/RM78xx series**
Industrial flame switch used with plug-in flame amplifier.	**R4348B1008**
Industrial flame switch with LED indicator and 4-20 mA analogue output for flame signal, used with plug-in flame amplifier.	**R4348B1057**

Self-check amplifier for the Honeywell R4348 series.

FFRT = 1 sec, max	**R7061A1008**
FFRT = 2 sec, max	**R7061A1016**

Self-check amplifier for the Honeywell EC/RM78xx series.

FFRT = 2.0 or 3.0 sec. Note: When used with C7061 models with 120V shutter voltage only and with EC78xx controls (230Vac), take precautions to reduce line voltage shutter voltage to prevent damage to the connected C7061 !!	**R7861A1026/U**
FFRT = 1.0 or 0.8 sec. Note: When used with C7061 models with 120V shutter voltage only and with EC78xx controls (230Vac), take precautions to reduce line voltage shutter voltage to prevent damage to the connected C7061 !!	**R7861A1034/U**

Accessories

Swivel mount for adjustable positioning of the UV sensor	**118367A/U**
Mounting flange for C7061A with 1" NPT internal thread for mounting on 1" sight pipe (to replace standard 3/4" NPT flange)	**124198/U**
Quartz focussing lens	**124204/U**

Replacement parts

Ultraviolet sensing tube for C7061 sensors, -40..102C	**129464N/U**
Coil and shutter assembly	**190971B/U**

Flame Sensors

UV flame sensors C7076A/D/F

C7076A1007

UV flame sensor to detect ultraviolet radiation emitted by combustion flames.
Used with Honeywell burner controls to provide flame supervision in continuous operation for industrial burner applications, that use solid fuel or heavy oil, dirty gas, hydrogen, sulphur, etc. as fuel.

Approvals	• CE approved according to EN298 only in combination with matching Honeywell flame amplifiers and burner controls.
	• Approved for use in continuous operation, by using dynamic self-check.
	• C7076F models are ATEX approved for use in explosion hazardous locations (zone 1)
	• C7076A/D models are UL/FM approved for use in the Americas
Additional description	• Integrated air purge connection on standard model (C7076A).
	• Quick and easy installation on standard 1" NPT sight pipe.

Standard enclosure (IP65)

Mechanical connection	Ambient temperature °C	Protection class	Supply voltage	Comment	Note	Type
1" NPT	-40 ... 70	IP65	110..120 Vac		Shutter coil voltage: 120V only	**C7076A1007/U**
1" NPT	-40 ... 70	IP65	220..240 Vac			**C7076A1031/U**

Ex-proof enclosure (ATEX: II G Ex d IIC T6 Zone 1&2)
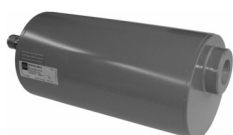
C7076F1006

Mechanical connection	Ambient temperature °C	Protection class	Supply voltage	Comment	Note	Type
1" NPT	-40 ... 70	IP66	220..240 Vac		Shutter coil voltage: 120V only	**C7076F1006/U**
1" NPT	-40 ... 70	IP66	110..120 Vac		Shutter coil voltage: 120V only	**C7076F1014/U**

Ex-proof enclosure (NFPA70: Div.1, Class 1, Gr.C/D and Class 2, Gr. E/F/G)

C7076D1027

Mechanical connection	Ambient temperature °C	Protection class	Supply voltage	Comment	Note	Type
1" NPT	-40 ... 71	NEMA 7	110..120 Vac	Approved in USA only	Shutter coil voltage: 120V only	**C7076D1027/U**

Used with controllers

Industrial burner controller with plug-in flame amplifier.	**EC/RM78xx series**
Industrial flame switch with plug-in flame amplifier.	**R4348B**

Used with flame Amplifiers (EC/RM78xx and R4348 only)

Amplifier of the Honeywell R4348 series for use with C7076 sensors	**R7476**
Amplifier of the Honeywell 7800 series burner control for use with C7076 sensors	**R7886**

Accessories

Swivel mount for adjustable positioning of the UV sensor	**118367A/U**

Replacement tube for C7035

Ultraviolet sensing tube for C7076 sensor	**191053/U**

Flame Switches

	Flame relays BC1000

BC1000

The BC1000A/B series is a flame switch for intermittent operation to indicate presence or absence of a flame and to be applied in commercial or industrial burner installations.
- The BC1000A is specially designed to be used as manual start/stop burnercontroller. For all type of burners with unlimited capacity.

Approvals	• CE approved according EN298 (for **intermittent** operation) • GOST • AGA
Protection class	IP00
Ambient temperature	-20 ... 60 °C
Maximum humidity	90 %rh
Note	• The BC1000A1/B1 models will operate also with the "Satronic" IRD820/1020 range of infrared sensors. Note that this combination is NOT CE approved for use on installations that fall under the GAD (Gas Appliances Directive).
Additional description	• BC1000A/B provides a Safe Start function which checks if a flame signal is present when applying power to the device. • BC1000A1/B1 models are for use with rectification type flame sensors, such as flame rods and C7012A/G UV sensors. • BC1000A2/B2 models are for use with Honeywell UV sensor models C7027, C7035 and C7044.

230Vac versions

Outputs	Operation	Flame failure response time	Flame detector	Supply voltage	Comment	**Type**
1xSPST	Manual stop/start	2s	Rectification	220..240 Vac	Flame rod (or C7012A/G)	**BC1000A0220F**
1xSPST	Manual stop/start	2s	UV	220..240 Vac	C7027, C7035, C7044	**BC1000A0220U**
1xSPDT	Flame switch	<1s	Rectification	220..240 Vac	Flame rod (or C7012A/G)	**BC1000B1018**
1xSPDT	Flame switch	<1s	UV	220..240 Vac	C7027, C7035, C7044	**BC1000B2019**

115Vac versions

Outputs	Operation	Flame failure response time	Flame detector	Supply voltage	Comment	**Type**
1xSPST	Manual stop/start	2s	Rectification	110..120 Vac	Flame rod (or C7012A/G)	**BC1000A0110F**
1xSPST	Manual stop/start	2s	UV	110..120 Vac	C7027, C7035, C7044	**BC1000A0110U**
1xSPDT	Flame switch	<1s	Rectification	110..120 Vac	Flame rod (or C7012A/G)	**BC1000B1000**
1xSPDT	Flame switch	<1s	UV	110..120 Vac	C7027, C7035, C7044	**BC1000B2001**

Accessories for use with BC1000A1/B1 (see dedicated chapter for details)

Industrial flame rod.	**C7008-series**
PurplePeeper standard UV detector and IP67 protection.	**C7012A/G-series**
Infrared sensor (not CE approved and for 230Vac applications only).	**IRD820/1020**

C7008

Accessories for BC1000A2/B2 (see dedicated chapter for details)

MiniPeeper standard UV detector and IP54 protection.	**C7027-series**
MiniPeeper with field replaceable tube and IP65 protection.	**C7035-series**
MiniPeeper UV sensor with side view and IP54 protection.	**C7044-series**

IRD-1020

C7027

C7035

C7044

Flame Switches

Flame relay R4343

The R4343D/E series is a flame switch for intermittent operation to indicate presence or absence of a flame and to be applied in commercial or industrial burner installations. light.

- Flame current meter jack socket on the front permits monitoring of flame signal strength, by using any appropriate microampere meter (0-10uA minimum scale).
- Plug-in mounts onto a sub base (included) for surface mounting.

Providing an indication of absense or presence of a flame in intermittent industrial oil/gas burner applications by an open or closed relay contact.

R4343E1030

C E

C7008

C7027

C7035

C7044

IRD-1020

Approvals	• CE approved according EN298 (for intermittent operation)
Protection class	IP40
Ambient temperature	-10 ... 60 °C
Maximum humidity	90 %rh
Note	The R4343D models will operate also with the "Satronic" IRD820/1020 range of infrared sensors. Note that this combination is NOT CE approved for use on installations that fall under the GAD (Gas Appliances Directive).
Outputs	1xDPDT
Operation	Intermit.
Additional description	• R4343D models are for use with rectification type flame sensors, such as flame rods and C7012A/G UV sensors. • R4343E models are for use with Honeywell UV sensor models C7027, C7035 and C7044.

Ionisation flame detectors

Flame failure response time	Flame detector	Supply voltage	Type
<1s	Rectification	110..120 Vac	**R4343D1009**
<1s	Rectification	220..240 Vac	**R4343D1017**
<2s	Rectification	115/230 Vac	**R4343D1041-ST005**

UV flame detectors

Flame failure response time	Flame detector	Supply voltage	Type
<1s	UV	110..120 Vac	**R4343E1006**
<1s	UV	220..240 Vac	**R4343E1014**
<2s	UV	115/230 Vac	**R4343E1048-ST005**

Accessories (see dedicated chapter for details)

Industrial flame rod.	**C7008-series**
MiniPeeper standard UV detector and IP54 protection.	**C7027-series**
MiniPeeper with field replaceable tube and IP65 protection.	**C7035-series**
MiniPeeper UV sensor with side view and IP54 protection.	**C7044-series**
Infrared sensor (not CE approved)	**IRD820/1020**

Flame Switches

Flame relays R4348	

The R4348B is a flame switch for continuous operation to indicate presence or absence of a flame and to be applied in large commercial or industrial burner installations.

- The R4348B includes a 3-pole flame relay which is energized when flame is sensed and de-energized when "no-flame" is sensed as well as a 3-pole line voltage "load relay". For all type of burners with unlimited capacity.

R4348

Approvals	• CE approved according EN298 (for **continuous** operation)
Protection class	IP40
Ambient temperature	-20 ... 60 °C
Maximum humidity	90 %rh
Note	Order mounting/wiring sub base separately.
Outputs	3xSPST + 2xDPDT
Operation	Flame switch
Flame failure response time	1,0/2,0s
Flame detector	Depends on plug-in amplifier
Additional description	• R4348B provides potential free relay outputs enable Honeywell sensors and amplifiers to be used with a wide range of logic circuits according to customer needs, including a Safe Start function which checks if a flame signal is present at burner start. • Accepts all flame rods or all Honeywell C7012, C7027, C7035, C7044, C7061 and C7076 optical flame detectors, by selecting the correct plug-in flame amplifier. • The R4348B (with rectification amplifier) will operate also with the "former Satronic" IRD820/1020 range of infrared sensors. Note that this combination is NOT CE approved for use in installations that fall under the GAD (Gas Appliances Directive).

All models

Comment	Type
Standard Model	**R4348B1008**
Enhanced model with LED meter and 4-20mA output	**R4348B1057**

Accessories

Mounting and wiring sub base for panel mount	**46176612-501**

Applicable flame detectors, refer to specific chapter

PurplePeeper UV detector, standard version. Intermittent operation.	**C7012A/G**
PurplePeeper UV detector, self-checking version. Continous operation	**C7012E/F**
MiniPeeper UV detector, standard version. Intermittent operation.	**C7027A**
MiniPeeper UV detector, with field replaceable UV tube and high temperature specification. Intermittent operation.	**C7035A**
MiniPeeper UV detector, with side view option. Intermittent operation.	**C7044A**
MiniPeeper self-checking UV detector. Continuous operation.	**C7061A/F**
Special self-checking adjustable UV detector to detect flames from heavy oil, solid fuels and dirty gases. Continuous operation.	**C7076A/F**

Flame Switches

Applicable flame amplifiers.

UV plug-in amplifiers with Self-Check, for use with C7061A/F UV flame sensors. Purple coulour. Response time 1 sec, max.	**R7061A1008**
UV plug-in amplifiers with Self-Check, for use with C7061A/F UV flame sensors. Purple coulour. Response time 2 sec, max.	**R7061A1016**
Rectification plug-in amplifiers with Ampli-Check, for use with flame rod and C7012A/G UV flame sensors. Green colour. Response time 2..4 sec. US model.	**R7247B1003/U**
Rectification plug-in amplifiers with Ampli-Check, for use with flame rod and C7012A/G UV flame sensors. Green colour. Response time 2..4 sec.	**R7247B1029**
Rectification plug-in amplifiers with Ampli-Check, for use with flame rod and C7012A/G UV flame sensors. Green colour. Response time 2 sec, max.	**R7247B1037**
Rectification plug-in amplifiers with Self-Check, for use with C7012E/F self-checking UV flame sensors. Green colour. Response time 2..4 sec. US model.	**R7247C1001/U**
Rectification plug-in amplifiers with Self-Check, for use with C7012E/F self-checking UV flame sensors. Green colour. Response time 2 sec, max. US model.	**R7247C1019/U**
Rectification plug-in amplifiers with Self-Check, for use with C7012E/F self-checking UV flame sensors. Green colour. Response time 2..4 sec.	**R7247C1027**
Rectification plug-in amplifiers with Self-Check, for use with C7012E/F self-checking UV flame sensors. Green colour. Response time 2 sec, max.	**R7247C1035**
Rectification plug-in amplifiers for use with flame rod or C7012A/G UV flame sensors. Green colour. Response time 1 sec, max.	**R7321A1012**
UV plug-in amplifiers for use with C7027, C7035 or C7044 UV flame sensors. Purple coulour. Response time 1 sec, max.	**R7323A1020**
UV plug-in amplifiers with Self-Check, for use with C7076A/F UV flame sensors. Blue colour. Response time 2..4 sec. US model.	**R7476A1007**
UV plug-in amplifiers with Self-Check, for use with C7076A/F UV flame sensors. Blue colour. Response time 2 sec, max. US model.	**R7476A1015**
UV plug-in amplifiers with Self-Check, for use with C7076A/F UV flame sensors. Blue colour. Response time 2..4 sec.	**R7476B1005**
UV plug-in amplifiers with Self-Check, for use with C7076A/F UV flame sensors. Blue colour. Response time 2 sec, max.	**R7476B1013**

Flame Monitoring Systems ("IRIS")

Industrial flame monitoring - S700/S800 Viewing Heads

S700

CE

FM APPROVED

CSA
c us

SIL3 Capable

S800

The S700 and S800 viewing head is capable to detect the flame of almost every available fuel type or fuel mixture and have a high flame discrimination capabilty because of adjustable background radiation sensitivity.
Industrial process burners, multiple burner systems, incinerators, ovens, kilns, etc.

Approvals	• CE approved according EN298 for **continuous** operation (approval pending). • FM, CSA approved • SIL3 capable
Protection class	• NEMA 4x, IP64
Ambient temperature	0 ... 50 °C
Maximum humidity	85 %rh
Note	• All S70x/80x/700/800 series Flame Safety Products are approved by FM Global for use in SIL 3 environment. • All S706/S706 UV viewing heads are immune to X-Rays and Gamma radiation, making them ideal for a broad variety of industrial applications. • Other than any other flame scanner, the S706/S806 UV viewing heads perform background pulse counting for tube health and therefore don't need a mechanical shutter system for self-checking.
Operation	Cont.
Additional description	• S702 and S802 models: Germanium photo diode with spectral response 1110 to 1660 nm • S706 and S806 models: UVton Tube with response 185 to 260 nm • Fali-safe: no mechanical shutter needed because of the use of electronic monitoring and digital signal processing. • Technology: Flicker (S702/S802 - IR) and Pulse Count (S706/S806 - UV) • Works in combination with 700DCSP, 700ACSP and 800SP and on the 3rd channel of the P531 and P532 signal processors.

Flame scanner heads , with cable connector. Incl. 4.5 m cable and connector.

Product description	Flame detector	Type
Single IR viewing head.	IR	**S702**
Single IR viewing head, with built-in HF filter.	IR	**S702HF**
Single UV viewing head.	UV	**S706**
Single UV viewing head, with built-in HF filter.	UV	**S706HF**
Single IR viewing head, in stainless steel enclosure.	IR	**S802**
Single IR viewing head, with built-in HF filter. In stainless steel enclosure.	IR	**S802HF**
Single UV viewing head, in stainless steel enclosure	UV	**S806**

Flame scanner heads with factory mounted potted 3 m cable

S700PF

Product description	Flame detector	Type
Single IR viewing head.	IR	**S702PF**
Single IR viewing head, with built-in HF filter.	IR	**S702HFPF**
Single UV viewing head.	UV	**S706PF**

Flame Monitoring Systems ("IRIS")

700XXSP

Signal Processors for use with S5xx and S55x Viewing Heads. Refer to specific chapter for details.

Description	Model
Single channel signal procesing unit for S700/S800 series viewing heads, 85...264 Vac	**700ACSP**
Single channel signal procesing unit for S700/S800 series viewing heads, 24 Vdc	**700DCSP**
Single channel signal procesing unit for S700/S800 series viewing heads, 85...264 Vac	**800SP**
3 channel signal procesing unit without display. S700/S800 viewing head connects on 3rd channel only. Voltage: 85...264 Vac	**P531AC**
3 channel signal procesing unit without display. S700/S800 viewing head connects on 3rd channel only. Voltage: 24 Vdc	**P531DC**
3 channel signal procesing unit including display. S700/S800 viewing head connects on 3rd channel only. Voltage: 85...264 Vac	**P532AC**
3 channel signal procesing unit including display. S700/S800 viewing head connects on 3rd channel only. Voltage: 24 Vdc	**P532DC**

800SP

P531

P532
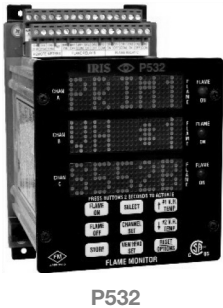
Flame Monitoring Systems ("IRIS")

IRIS-700-1

IRIS-700-2

IRIS-700-3

IRIS-700CRLT

Parts and accessories: Mounting

Description	Part
Swivel mount for S700/S800. 1" x 1/2" NPT	700-1
Swivel mount for S700/S800. Flanged x 1/2" NPT	700-2
Swivel mount for S700/S800. 1/2" x 1/2" NPT	700-3
S700 cooling jacket for Vortex cooler	700ACC
Liquid tight cable restaint for S700/S800	700CRLT
Delrin adapter replacement for S700. 1/2" NPT model	700DA
Liquid tight cable adapter for S700/S800. 3/8" NPT model	700LTA
Right angle adapter for S700/S800. 1/2" x 1/2" M/F	700RAA
Ultem heat insulating nipple for S700. 1/2" (view) - 1/4" air purge.	700UA
Delrin adapter replacement for S800. 1/2" model.	800DA
Ultem heat insulating nipple for S800. 1/2" (view) - 1/4" air purge.	800UA
1/2 in. NPT Ultem heat insulating nipple for S700/S800 series viewing heads	R-518-13
1/2" NPT locking coupler with high temperature gasket	R-518-CL13-HTG
1/2" NPT Ultem locking coupler adapter only	R-518-PT13
1/2" NPT Ultem locking coupler adapter with quartz lens	R-518-PT13L

IRIS-700DA   **IRIS-700LTA**   **IRIS-700RAA**

IRIS-700UA   **IRIS-800DA**   **IRIS-800UA**

R-518-13   **R-518-CL13-HTG**   **R-518-PT13**

Flame Monitoring Systems ("IRIS")

ASY782

ASY784

C330

Parts and accessories: Electrical

Connector cable with LED and 15-ft cable with braided shield for S700/S800.	**ASY782**
Viewing head connector kit for S700/S800 without cable.	**ASY784**
Four conductor cable with braided shield for S700/S800. Length: 10 m	**C330-010**
Four conductor cable with braided shield for S700/S800. Length: 20 m	**C330-010**
Four conductor cable with braided shield for S700/S800. Length: 50 m	**C330-010**
Four conductor cable with braided shield for S700/S800. Length: 150 m	**C330-010**
Four conductor cable with braided shield for S700/S800. Length: 300 m	**C330-010**

Parts and accessories: Tools

FlameTools software for setup and monitoring of signal processors/viewing heads. Requires call-in to Honeywell with product serial number to get password.	**FLAME**
Detachable program user interface module/keypad for P531 signal processors	**P532UI**
Ultra violet light source	**UVSOURCE**

P532UI

UV-SOURCE

Signal processors, single channel

Single channel input for S700/S800 viewing heads. And one model for flame detection with a flame rod.

Temperature range	0 ... 50 $^{\circ}$C
Hardware outputs	• Flame relay: 2 x SPDT
	• Self-check relay: 1 x SPDT
	• 0..20 mA or 4..20 mA (selectable)

Model for flame detection by flame rod.

Product description	Supply voltage	Type
Flame monitoring system for use with a flame rod.	85..264 Vac	**600U**

600U

Flame Monitoring Systems ("IRIS")

Standard models, 700xxSP series

Product description	Supply voltage	Type
Adjustable sensitivity signal processor for S700/S800	85..264 Vac	**700ACSP**
Adjustable sensitivity signal processor for S700/S800	24 Vdc	**700DCSP**

700XXSP

Slim line models, 800SP series

Product description	Supply voltage	Type
Slim-line adjustable sensitivity signal processor for S700/S800	85..264 Vac	**800SP**

800SP

Cables

Cable for flame sensor, length 10 m	C330-010
Cable for flame sensor, length 20 m	C330-020
Cable for flame sensor, length 50 m	C330-050
Cable for flame sensor, length 150 m	C330-150
Cable for flame sensor, length 300 m	C330-300

C330

Viewing heads S700/S800 with cable & connector

Single IR viewing head.	S702
Single IR viewing head, with built-in HF filter.	S702HF
Single UV viewing head.	S706
Single IR viewing head, stainless steel.	S802
Single IR viewing head, with built-in HF filter, stainless steel.	S802HF
Single UV viewing head, stainless steel.	S806

S700

S800

Viewing heads S700/S800 with moulded cable

Single IR viewing head ("pig-tail").	S702PF
Single IR viewing head, with built-in HF filter ("pig-tail").	S702HFPF
Single UV viewing head ("pig-tail").	S706PF

S700PF

Rectifying flame rod for 600U

Flame rod assembly. Electrode length: 305 mm (12")	C7008A1018/U
Flame rod assembly. Electrode length: 610 mm (24")	C7008A1034/U

C7008

Flame Monitoring Systems ("IRIS")

Industrial flame monitoring - Uniscan 2

The U2 (Uniscan 2) all-in-one viewing head with integrated signal processor delivers flame discrimination in the toughest environments. With automatic setup and the ability to monitor UV and IR flame components simultaneously or separately, the Uniscan 2 all-in-one flame scanner offers improved burner up time and reliability.
Industrial process burners, multiple burner system.

U2

Touch screen user interface	A tempered and fully sealed glass touch wheel sensor: no mechanical moving buttons.
Power supply	24 Vac; 2,6 VA
Protection class	• NEMA 4x, IP66 • Zone 2 Class 1 Div 2 Group A, B, C and D • IECEx II 2G Ex d IIC T6 (zone 1&2 or zone 2)
Ambient temperature	-40 ... 70 °C
Maximum humidity	85 %rh
Approvals	• CE approved according EN298 for **continuous** operation (approval pending). • CSA/UL/FM approved • IECEx approved • ATEX approved (pending) • SIL 3 certified
Housing (HxWxD)	260 mm; 240 mm; 235 mm
Weight	3,5 kg
Output signal	• 4-20 mA for remote meter or DCS and local display • 4-20 mA with scale multiplier (convertible to 0-20 mA)
Relay outputs	Wire flame and self-check relay contacts in serial to obtain fail-safe operation. • Flame relay - one normally open contact (SPST) • Self-check relay - one normally closed contact (SPST)
Note	• All viewing heads are immune to X-Rays and Gamma radiation, making them ideal for myriad industrial applications. • Other than any other flame scanner, the Uniscan 2 viewing heads perform background pulse counting for UV tube health and therefore doesn't need a mechanical shutter system for self-checking.
Operation	Cont.
Additional description	• Sensor: Solid State UV sensor, UV Tube (UVTron), Solid State IR sensor or a combination of these three sensors • Response UVSS: 310 nm / UVTron: 210 nm / IR: 1400 nm • Technology: Flicker (UVSS), Pulse Count (UVTron) and Flicker (IR) • Self-check: Electronic "shutter": no mechanical moving parts • All-in-one flame scanner: no additional wiring cabinet needed • Uniscan 2 viewing heads use Modbus communication (RS485) for remote configuration and status reading. • Uniscan 2 viewing heads have a dual LED display for flame signal monitoring onsite.

Flame Monitoring Systems ("IRIS")

Uniscan 2 models

Product description	Flame detector	Comment	Type
Combination DC signal processor and triple sensor Viewing Head. Excluding cable, connector, PT adapter, air purge coupler	UVTron+UVSS+IR	Ex d IIC T6 - Zone 2	**U2-1010**
Combination DC signal processor and triple sensor Viewing Head, with 3m cable. Excl. PT adapter, air purge coupler	UVTron+UVSS+IR	Ex d IIC T6 - Zone 1 & 2	**U2-1010-PF**
Combination DC signal processor and triple sensor Viewing Head, with ca. 15m cable. Excl. PT adapter, air purge coupler	UVTron+UVSS+IR	Ex d IIC T6 - Zone 1 & 2	**U2-1010-PF-050**
Combination DC signal processor and triple sensor Viewing Head, with ca. 30m cable. Excl. PT adapter, air purge coupler	UVTron+UVSS+IR	Ex d IIC T6 - Zone 1 & 2	**U2-1010-PF-100**

C12S

Parts and accessories - cables and connectors

12 conductor cable with braided shield for Uniscan 2. Including factory mounted connector. Cable length: 10 m.	**C12S-010**
12 conductor cable with braided shield for Uniscan 2. Including factory mounted connector. Cable length: 20 m.	**C12S-020**
12 conductor cable with braided shield for Uniscan 2. Including factory mounted connector. Cable length: 50 m.	**C12S-050**
12 conductor cable with braided shield for Uniscan 2. Including factory mounted connector. Cable length: 150 m.	**C12S-150**
12 conductor cable with braided shield for Uniscan 2. Including factory mounted connector. Cable length: 300 m.	**C12S-300**
Quick disconnect connector only for all U2 non-pipe fitting models	**R-518-10**

Flame Monitoring Systems ("IRIS")

1

ISO-UNIT

ISO-UNITSS

M-701-2-FLG

M-701-2-SS

M-701-3

Parts and accessories - mounting accessories

Description	Part
1" NPTF sealing union with quartz window and 1/2" NPTF purge port	ISO-UNIT
1" NPTF stainless steel sealing union with quartz window and 1/2" NPTF purge port	ISO-UNITSS
1" NPTF sealing union with quartz window and 1/2" NPTF purge port. High pressure version with 1/2" thick high pressure quartz window	ISO-UNITHPGT
Swivel mount, 2" pipe slip-on to 1" NPT connection	M-701-1
Flanged swivel mount, 2" flanged to 1" NPTF	M-701-2-FLG
Swivel mount, 2" NPT female to 1" NPT female. Stainless steel construction	M-701-2-SS
Flanged swivel mount, 3-bolt, 4.5" flanged to 1" NPTF	M-701-3
Swivel mount, 3" NPTF to 1" NPTF connection	M-701-3P
Swivel mount, 2-bolt to 1" NPTF connection	M-701-4
Swivel mount bushing 1" x 1/2" NPT, 1/2" connection	M-701-5
1" NPT locking coupler with high temperature gasket	R-518-CL12-HTG
1" NPT aluminum locking quick disconnect/cam and groove coupler adapter with 1/2" NPT purge port. Used with U2 processor/viewing heads	R-518-CL12-PG
1/2" NPT locking coupler with high temperature gasket	R-518-CL13-HTG
1" NPT Ultem insulating locking coupler adapter. Used with U2 processor/viewing head	R-518-PT12
1" NPT Ultem locking coupler adapter with quartz lens	R-518-PT12L
1/2" NPT Ultem locking coupler adapter only	R-518-PT13
1/2" NPT Ultem locking coupler adapter with quartz lens	R-518-PT13L

M-701-3P

M-701-4

R-518-CL12-HTG

R-518-CL12-PG

R-518-CL13-HTG

R-518-PT12

R-518-CL13-HTG

R-518-PT12L

R-518-PT13

Flame Monitoring Systems ("IRIS")

UV-SOURCE

Parts and accessories - tools

FlameTools software for setup and monitoring of signal processors/viewing heads. Requires call-in to Honeywell with product serial number to get password.	**FLAME**
ISO-Union wrench set	**ISO-WRENCH**
Ultra violet light source	**UVSOURCE**

Parts and accessories - various parts

Replacement O-ring for ISO-UNIT, ISO-UNITSS and ISO-UNITHPGT	**ISO-OR**
Replacement quartz window for ISO-Unit and ISO-UnitSS	**ISO-QW**
Replacement retainer ring for ISO-UNIT, ISO-UNITSS and ISO-UNITHPGT	**ISO-RR**
Orifice and retaining ring set. Used for all viewing heads	**M-702-6**
High temperature gasket for 1" locking coupler	**PT-GA1**
Quartz lens for 1" locking coupler	**PT-QL1**

M-702-6

Flame Monitoring Systems ("IRIS")

Industrial flame monitoring - Viewing Heads

The S55xBE viewing head delivers flame discrimination in the toughest environments and is capable to detect the flame of almost every available fuel type or fuel mixture. With automatic setup, three channels and the ability to monitor UV and IR flame components simultaneously or separately, the P532 signal processor offers improved burner up time and reliability.
Industrial process burners, multiple burner systems, incinerators, ovens, kilns, etc.

S550BE

Approvals	• CE approved according EN298 for **continuous** operation (approval pending). • GOST, FM, UL, CSA & NRTL/C Approved • IECEx certification for specific models (global) • ATEX certification for specific models (Europe)
Protection class	• NEMA 4x, IP64 • S55xBE: Zone 2 Class 1 Div 2 Group A, B, C and D • S55xBE: IECEX Cat 3 (Zone 2) II 3G IIC T5 • S55xBE-EX: ATEX {EX} II 2 G Ex d IIC T6 for use in Zone 1 and 2
Ambient temperature	-40 ... 70 °C
Maximum humidity	85 %rh
Note	• All Sxxx / Pxxx series Flame Safety Products are approved by FM Global for use in SIL 3 environment. • All S5xx viewing heads are immune to X-Rays and Gamma radiation, making them ideal for a broad variety of industrial applications. • Other than any other flame scanner, the S55xB(E) viewing heads perform background pulse counting for tube health and therefore don't need a mechanical shutter system for self-checking.
Operation	Cont.
Additional description	• Sensor: UV Tube, Solid State IR sensor or both UV+IR • Response UV: 200 nm Peak / IR: 1400 nm Peak • Technology: Pulse Count (UV) and Flicker (IR) • Self-check: Electronic (no mechanical moving parts) • Works in combination with P522, P531, or P532 signal processors.

Flame scanner heads S55xBE

Product description	Flame detector	Comment	Type
Dual UV/IR viewing head, with Turck connector (included)	UVTron+IR	Dual LED display for flame signal	**S550BE**
Single IR viewing head, with Turck connector (included)	IR	Single LED display for flame signal	**S552BE**
Single UV viewing head, with Turck connector (included)	UVTron	Single LED display for flame signal	**S556BE**
Dual UV/IR viewing head, with pipe fitting connection and 4.5m (15ft) C328 cable.	UVTron+IR	Dual LED display for flame signal	**S550BE-PF**
Single IR viewing head, with pipe fitting connection and 4.5m (15ft) C328 cable.	IR	Single LED display for flame signal	**S552BE-PF**
Single UV viewing head, with pipe fitting connection and 4.5m (15ft) C328 cable.	UVTron	Single LED display for flame signal	**S556BE-PF**

Flame scanner heads S55xBE-EX (Explosion proof). Availability expected.

Product description	Flame detector	Comment	Type
Dual UV/IR viewing head with exlosion proof enclosure	UVTron+IR	ATEX (Ex d IIC T6) - Zone 1 & 2	**S550BE-EX**
Single IR viewing head with exlosion proof enclosure	IR	ATEX (Ex d IIC T6) - Zone 1 & 2	**S552BE-EX**
Single UV viewing head with exlosion proof enclosure	UVTron	ATEX (Ex d IIC T6) - Zone 1 & 2	**S556BE-EX**

S550BE-EX

Flame Monitoring Systems ("IRIS")

S550B

Flame scanner heads S550B

Product description	Flame detector	Comment	**Type**
Model replaced by S550BE	UVTron+IR	Spares only	**S550B**
Model replaced by S552BE	IR	Spares only	**S552B**
Model replaced by S556BE	UVTron	Spares only	**S556B**

S5XX

Flame scanner heads S5xx

Product description	Flame detector	Comment	**Type**
UV scanner with mechanical shutter	UVTron	Spares only	**S506**
IRX2 scanner with Si and PbS sensor and electronic shutter	IR	Spares only	**S509**
IRGS scanner Ge sensor and electronic shutter	IR	Spares only	**S511**
IR scanner with PbS sensor and electronic shutter	IR	Spares only	**S512**

P522

Signal Processors for use with S5xx and S55x Viewing Heads. Refer to specific chapter for details.

2 channel signal processing unit, 85...264Vac	**P522AC**
2 channel signal processing unit, 24VDC	**P522DC**
3 channel signal procesing unit without display, 85...264Vac	**P531AC**
3 channel signal procesing unit without display, 24VDC	**P531DC**
3 channel signal procesing unit including display, 85...264Vac	**P532AC**
3 channel signal procesing unit including display, 24VDC	**P532DC**

P531
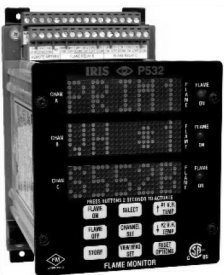
P532

Flame Monitoring Systems ("IRIS")

ACC5XX

ISO-UNIT

ISO-UNITSS

M-701-2

M-701-2-FLG

M-701-2-SS

Parts and accessories: Mounting

Air cooling canister for Model 5XX viewing heads. 1/4 inch air inlet port. Use with vortex coolers	**ACC5XX**
Replacement O-ring for ISO-UNIT, ISO-UNITSS and ISO-UNITHPGT	**ISO-OR**
Replacement quartz window for ISO-Unit and ISO-UnitSS	**ISO-QW**
Replacement retainer ring for ISO-UNIT, ISO-UNITSS and ISO-UNITHPGT	**ISO-RR**
1" NPTF sealing union with quartz window and 1/2" NPTF purge port	**ISO-UNIT**
1" NPTF stainless steel sealing union with quartz window and 1/2" NPTF purge port	**ISO-UNITSS**
1" NPTF sealing union with quartz window and 1/2" NPTF purge port. High pressure version with 1/2" thick high pressure quartz window	**ISO-UNITHPGT**
Swivel mount, 2" pipe slip-on to 1" NPT connection	**M-701-1**
Swivel mount for S55xBE series viewing heads. 2" NPT female to 1" NPT female	**M-701-2**
Flanged swivel mount, 2" flanged to 1" NPTF	**M-701-2-FLG**
Swivel mount, 2" NPT female to 1" NPT female. Stainless steel construction	**M-701-2-SS**
Flanged swivel mount, 3-bolt, 4.5" flanged to 1" NPTF	**M-701-3**
Swivel mount, 3" NPTF to 1" NPTF connection	**M-701-3P**
Swivel mount, 2-bolt to 1" NPTF connection	**M-701-4**
Swivel mount bushing 1" x 1/2" NPT, 1/2" connection	**M-701-5**
Orifice and retaining ring set. Used for all viewing heads	**M-702-6**
High temperature gasket for 1" locking coupler	**PT-GA1**
Quartz lens for 1" locking coupler	**PT-QL1**
1" NPT Ultem heat and electrical insulating nipple for S55xB/BE series viewing heads swivel mount.	**R-518-12**
1/2 in. NPT Ultem heat insulating nipple for S700/S800 series viewing heads	**R-518-13**
1" NPT locking coupler with high temperature gasket	**R-518-CL12-HTG**
1" NPT aluminum locking quick disconnect/cam and groove coupler adapter with 1/2" NPT purge port. Used with U2 processor/viewing heads	**R-518-CL12-PG**
1/2" NPT locking coupler with high temperature gasket	**R-518-CL13-HTG**
1" NPT Ultem insulating locking coupler adapter. Used with U2 processor/viewing head	**R-518-PT12**
1" NPT Ultem locking coupler adapter with quartz lens	**R-518-PT12L**
1/2" NPT Ultem locking coupler adapter only	**R-518-PT13**
1/2" NPT Ultem locking coupler adapter with quartz lens	**R-518-PT13L**
Lens plate assembly replacement for Model S5xx series Viewing heads	**S5XXLPA**

M-701-3

M-701-3P

M-701-4

M-702-6

R-518-12

R-518-13

Flame Monitoring Systems ("IRIS")

R-518-CL12-HTG

R-518-CL12-PG

R-518-CL13-HTG

R-518-PT12

R-518-PT12L

R-518-PT13

Parts and accessories: Electrical

C328

Four conductor cable with braided shield for S55xB, S55xBE and S256B viewing heads. Cable length: 10 m	C328-010
Four conductor cable with braided shield for S55xB, S55xBE and S256B viewing heads. Cable length: 20 m	C328-020
Four conductor cable with braided shield for S55xB, S55xBE and S256B viewing heads. Cable length: 50 m	C328-050
Four conductor cable with braided shield for S55xB, S55xBE and S256B viewing heads. Cable length: 150 m	C328-150
Four conductor cable with braided shield for S55xB, S55xBE and S256B viewing heads. Cable length: 300 m	C328-300
Liquid tight viewing head cable adapter for old type S5XX series viewing heads only. 1/2" NPTF conduit connection	LTA5XX
Liquid tight viewing head cable adapter for S55xBE series viewing heads. 1/2" NPTF conduit connection	LTA55XBE
Amphenol-Tuchel receptacle (Viewing head quick disconnect)	R-518-07
Amphenol-Tuchel plug for S5xx and S55xB viewing heads quick disconnect connector	R-518-08
Quick disconnect connector only for all S55xBE viewing head models	R-518-09
Quick disconnect connector only for all U2 non-pipe fitting models	R-518-10
Rear panel board for P520 processor with terminals	REARPCB
Cable restraint for S5xx viewing heads	S5XXCR
Cable restraint for S5xx viewing heads, liquid tight	S5XXCRLT

LTA

R-518-08

S5XXCR

S5XXCRLT

Parts and accessories: Tools

FlameTools software for setup and monitoring of signal processors/viewing heads. Requires call-in to Honeywell with product serial number to get password.	FLAME
ISO-Union wrench set	ISO-WRENCH
Detachable program user interface module/keypad for P531 signal processors	P532UI
Ultra violet light source	UVSOURCE

P532UI

UV-SOURCE

Flame Monitoring Systems ("IRIS")

Signal processors, independent dual channel, P531, P532

Independent dual channel input for viewing heads: S55xBx (channel 1 and 2) or S700/S800 (channel 3).
Battery backup 24V DC

Temperature range	-40 ... 60 °C
R.H. range	50 ... 80 %rh
Bus system description	• Modbus
	• RS422 (differential)
Hardware outputs	• Flame relay: 3 x DPDT
	• Self-check relay: 1 x SPDT
	• Alarm relay: 1 x SPST
	• 0..20 mA or 4..20 mA (selectable)

P531

With LED-indication, and optional user interface (P532UI)

Power supply	Type
24 V DC	**P531DC**
85..264 24 V AC	**P531AC**

With user interface integrated

Power supply	Type
24 V DC	**P532DC**
85..264 24 V AC	**P532AC**

Optional user interface for P531

User interface	**P532UI**
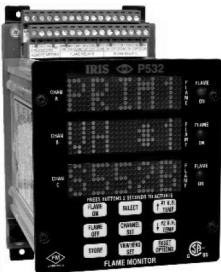
P532

P532UI

Flame Monitoring Systems ("IRIS")

C328

Cables

Cable for flame sensor, length 10 m	**C328-010**
Cable for flame sensor, length 20 m	**C328-020**
Cable for flame sensor, length 50 m	**C328-050**
Cable for flame sensor, length 150 m	**C328-150**
Cable for flame sensor, length 300 m	**C328-300**

Viewing heads S55xBx

Dual UV/IR viewing head, with Turck connector (included)	**S550BE**
Single IR viewing head, with Turck connector (included)	**S552BE**
Single UV viewing head, with Turck connector (included)	**S556BE**
Dual UV/IR viewing head, with pipe fitting connection and 4.5m (15ft) C328 cable.	**S550BE-PF**
Single IR viewing head, with pipe fitting connection and 4.5m (15ft) C328 cable.	**S552BE-PF**
Single UV viewing head, with pipe fitting connection and 4.5m (15ft) C328 cable.	**S556BE-PF**
Dual UV/IR viewing head in ATEX Ex d IIC T6 housing	**S550BE-EX**
Single IR viewing head in ATEX Ex d IIC T6 housing	**S552BE-EX**
Single UV viewing head in ATEX Ex d IIC T6 housing	**S556BE-EX**
Model replaced by S550BE	**S550B**
Model replaced by S552BE	**S552B**
Model replaced by S556BE	**S556B**

S550BE

S550BE-EX

Viewing heads S700/S800

IR viewing head (aluminium enclosure)	**S702**
UV viewing head (aluminium enclosure)	**S706**
IR viewing head (stainless steel enclosure)	**S802**
UV viewing head (stainless steel enclosure)	**S806**

S550B

S700

S800

Flame Monitoring Systems ("IRIS")

Signal processors, selectable dual channel, P522

Selectable dual channel input for viewing heads: S5xx or S55xBx.
Battery backup 24V DC

Temperature range	0 ... 50 °C
R.H. range	50 ... 80 %rh
Bus system description	RS422 (differential)
Hardware outputs	• Flame relay: 2 x SPDT
	• Self-check relay: 1 x SPST
	• Alarm relay: 1 x SPST
	• 0..20 mA or 4..20 mA (selectable)

P522

With LED-indication

Power supply	Type
24 V DC	**P522DC**
85..264 24 V AC	**P522AC**

Cables

Cable for flame sensor, length 10 m	**C328-010**
Cable for flame sensor, length 20 m	**C328-020**
Cable for flame sensor, length 50 m	**C328-050**
Cable for flame sensor, length 150 m	**C328-150**
Cable for flame sensor, length 300 m	**C328-300**

C328

Viewing heads S5xx

With mechanical shutter	**S506**
IRX2 scanner with Si and PbS sensor and electronic shutter	**S509**
IRGS scanner Ge sensor and electronic shutter	**S511**
IR scanner with PbS sensor and electronic shutter	**S512**

S5XX

Viewing heads S55xBx

Dual UV/IR viewing head, with Turck connector (included)	**S550BE**
Single IR viewing head, with Turck connector (included)	**S552BE**
Single UV viewing head, with Turck connector (included)	**S556BE**
Dual UV/IR viewing head, with pipe fitting connection and 4.5m (15ft) C328 cable.	**S550BE-PF**
Single IR viewing head, with pipe fitting connection and 4.5m (15ft) C328 cable.	**S552BE-PF**
Single UV viewing head, with pipe fitting connection and 4.5m (15ft) C328 cable.	**S556BE-PF**
Dual UV/IR viewing head in ATEX Ex d IIC T6 housing	**S550BE-EX**
Single IR viewing head in ATEX Ex d IIC T6 housing	**S552BE-EX**
Single UV viewing head in ATEX Ex d IIC T6 housing	**S556BE-EX**
Model replaced by S550BE	**S550B**
Model replaced by S552BE	**S552B**
Model replaced by S556BE	**S556B**

S550BE   **S550BE-EX**   **S550B**

Flame Monitoring Systems ("IRIS")

Fibre optics extensions for viewing heads

FASA

The Honeywell FASA-GLASS and FASA-QUARTZ fibre optic extensions for viewing heads make it possible to sight a flame in a hostile environment, in the presence of:

- excessive vibration
- intense heat
- corrosive chemicals
- explosive gases or dust
- A fibre optic bundle is used to transmit flame radiation to the remotely located flame detector/viewing head. Flexible stainless steel tubes enclose the fibre optic bundle with forced air injection for cooling.
- A lens is used to focus the flame to one end of the fibre optic bundle, with the other end coupled directly to the viewing head.
- Extensions of ca. 33 cm (1ft) are available to extend to maximal a little less than 4 m (12ft)

For IR only detection systems the glass fibre extensions are used
For UV only and dual UV/IR detection systems the quartz fibre extensions are used

Temperature range   -40 ... 400 $^{\circ}$C

Infrared: glass fibre optics. Excluding lens cartridges and viewing head adapters.

Product description	Type
Glass fibre optics complete assembly for IR with guide pipes and flex connection.	**FASA-GLASS**
Length adder for FASA-GLASS. Adds ca. 33 cm (1ft) length.	**FASA-GLASS-FT**

FOLC-9DC

Ultraviolet: quartz fibre optics. Excluding lens cartridges and viewing head adapters.

Product description	Type
Glass fibre optics complete assembly for UV with guide pipes and flex connection.	**FASA-QUARTZ**
Length adder for FASA-QUARTZ. Adds ca. 33 cm (1ft) length.	**FASA-QUARTZ-FT**

S55XFOAD

Universal add-on accessories for FASA-GLASS and FASA QUARTZ

Fibre optic lens cartridge and coupler - 9 degree connection.	**FOLC-9C**
Fibre optic lens cartridge and coupler - straight connection.	**FOLC-SC**
Fibre optics adapter for S55xBE viewing head.	**S550FOAD**
Fibre optics adapter with air purge connection for S55xBE viewing head.	**S550FOADY-FT**
Fibre optics adapter in aluminum with air purge connection for S55xBE viewing head.	**S550FOADY-FT-AL**
Fibre optics adaptor for S700 series viewing heads with lens and retainer ring.	**S700FOAD**
Fibre optics adaptor for S800 series viewing heads with lens and retainer ring.	**S800FOAD**

S55XFOADY-FT

Flame Monitoring Systems ("IRIS")

Heavy duty gas pilot ignitors

GHE

The GHE igniters are non-fouling, inextinguishable, high-energy electric igniters suitable for most liquid and gaseous fuels. They are available for both 47 mm (1-7/8") and 73 mm (2-7/8") diameter support tubes, in lengths to suit the application.

The unique high energy circuit makes use of a controlled capacitor discharge to produce a high energy spark at a pulse rate of approximately 3 to 5 times per second that ignites liquid or gaseous fuels more reliably and consistently.

The GHE igniter assembly is comprised of two major parts; a high energy source of ignition and an internal mix air-gas delivery system.

The GHE Igniters are supplied with:

- 0.9 m (36") stainless steel flexible gas hose
- 0.9 m (36") stainless steel flexible air hose
- burner mounting tube
- high energy probe
- igniter tip 305 mm (12") long x 12.7 mm (1/2") outer diameter

Product description	Type
Gas pilot ignitor assembly (300 - 900 kW)	**GHE1-3**
Gas pilot ignitor assembly (600 - 1500 kW)	**GHE2-5**

Accessories

Assembly length adder, adds ca. 33 cm (1ft) length, for GHE1-3 and GHE2-5.	**IGADD**
Add quick disconnect/cam and groove coupler (only GHE2-5) in place of the standard flange connection to the burner mounting tube.	**QDADD**
Igniter cable 10 ft with canon plug for POWERPACK-12-CS. From power pack to igniter. For GHE1-3 and GHE2-5.	**IGN-CPC-10**
Igniter cable length adder, adds ca. 33 cm (1ft) to the length. Multiple adders can be used of more length is needed. For GHE1-3 and GHE2-5.	**IGN-CPC-ADD**
12 Joule Power Pack, 120/230Vac, 50/60Hz	**POWERPACK-12-CS**
NEMA 4X enclosure for igniter powerpack.	**NEMA-4X-ADD**

Replacement parts

GHE igniter probe assembly without burner mounting tube, flange, gas insert or air/gas flex hoses. Includes high energy probe, igniter tip and junction box with receptacle.	**IPASS**
Length adder for IPASS, adds ca. 33 cm (1ft).	**HEPADD**
Igniter Spark tip / probe.	**GT-LITE**
Replacement igniter probe junction box with canon plug receptacle for GHE igniters.	**IGN-CPC-LB**
Replacement internal GHE igniter cable with contact.	**HV-HT**
Cable adder for HV-HT, adds ca 33 cm (1ft) of length.	**HV-HT-FT**

Flame Monitoring Systems ("IRIS")

Flare monitoring system

WATCHDOGIII

Watchdog III is a flare stack monitoring system, guarding against the venting of hazardous gases in the atmosphere.
Can be used for continuous onsite flare monitoring
- the fail-safe and well proven UVtron technology is used for flame detection.

Totally immune to sunlight:
- can be installed anywhere in a 360 degree circle around the chimney. Operates in the 210 nm range of the spectrum (UV)

The viewing head can be mounted outside a explosion hazardous location:
- the watchdog can detect a flare more than 300 m away.

The signal processing unit can be mounted inside a nearby wiring cabinet.

P222

Temperature range	-40 ... 80 °C
Bus system description	Serial communication: RS422/485 (differential • 4800, 9600, 19200 or 38400 baud (selectable)
Hardware outputs	• Early indication: 2 x SPDT • Delayed indication: 1 x SPDT • 0..20 mA or 4..20 mA (selectable)

Complete set

Product description	Supply voltage	Type
Complete set, consists of P222, S256B, 3.5 m cable and connector.	85..264 Vac	**WATCHDOGIII**

Individual components

Product description	Supply voltage	Type
Watchdog Signal Processor only with mounting base and terminal.	85..264 Vac	**P222**
Watchdog III UV Digital flare stack pilot monitor viewing head. Powered by P222.	24 Vdc	**S256B**

S256B

Cables

Cable for flame sensor, length 10 m	**C328-010**
Cable for flame sensor, length 20 m	**C328-020**
Cable for flame sensor, length 50 m	**C328-050**
Cable for flame sensor, length 150 m	**C328-150**
Cable for flame sensor, length 300 m	**C328-300**

C328

Accessories

Amphenol-Tuchel plug for S256B viewing head quick disconnect connector.	**R-518-08**

R-518-08

Gas-Air Ratio Controllers

ControLinks - Electronic Fuel-Air Ratio Control System
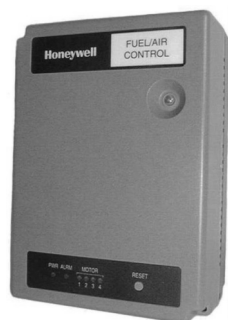
When used with the ML7999 actuators, ControLinks represents a value-added replacement of a mechanical cam and linkage assembly controlling the relationship between fuel, airflow and flue gas recirculation (if used) in Commercial or Industrial burners.
Commercial and small and medium sized industrial modulating gas, oil and dual fuel burners.

Approvals	CE, CSA, UL, FM, GOST
Ambient temperature	-40 ... 60 °C
Maximum humidity	85 %rh
Note	ControLinks can operate fully independent from the used burner controller. However using the Honeywell 7800-series gets the most out of the system, by extended status and fault indication via the Microsoft™ Windows™ CE based full colour system display S7999D.
Additional description	• Works with serial number controlled fail-safe direct coupled actuators, also known as "Linkage Less". • Can store 2 fully independent fuel/air curves, that are electrically selectable • Can connect up to 4 actuators, 1 for air, 2 for fuels and 1 for flue gas recirculation. Minimal 2 actuators are needed to operate the system.

R7999

Controller

Protection class	Supply voltage	Power consumption W	Angle of rotation °	Runtime s	Torque Nm	Type
IP40	110..120 Vac	10	–	–	–	**R7999A1005/U**
IP40	220..240 Vac	10	–	–	–	**R7999B1003/U**

Mounting and wiring base

Protection class	Supply voltage	Power consumption W	Angle of rotation °	Runtime s	Torque Nm	Type
IP40	–	–	–	–	–	**Q7999A1006/U**

Special fail-safe actuator for ControLinks

Protection class	Supply voltage	Power consumption W	Angle of rotation °	Runtime s	Torque Nm	Type
IP54	85..264 Vac	15	90	30	11,3	**ML7999A2001/U**

Q7999

Colour touch, Windows CE based Configuration and Status display

Protection class	Supply voltage	Power consumption W	Angle of rotation °	Runtime s	Torque Nm	Type
IP40	24 Vac	12	–	–	–	**S7999D1048/U**

Accessories for ML7999 actuators

Mounting bracket for 1-1/2" and 2" V5197 valves	**32003396-001/U**
Mounting bracket for 2-1/2", 3" and 4" V5197 valves	**32003396-002/U**
Auxiliary switch kit (1x SPDT switch) for ML7999	**201052A/U**
Auxiliary switch kit (2x SPDT switch)for ML7999	**201052B/U**
Mounting plate for auxiliary switch kit for ML7999	**50036542-001/U**
Shaft adapter kit for ML7999 (3/8" - 9.5 mm)	**201391/U**
Shaft adapter kit for ML7999 (5/16" - 16.4 mm	**32003167-001/U**
Weather proofing kit (NEMA 3 - IP54) for ML7999	**32002935-001/U**
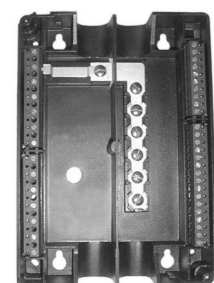
ML7999

S7999D1048

Valve Proofing Systems

Valve proving system A4021

The A4021 is a self-checking microprocessor based Valve Proving System (VPS). The A4021 checks the effective closure of automatic shut-off valves by measuring the pressure. differential between two valves during the test sequence.
- The A4021 is specially designed to be used as proving system to check the effective closure of the valves before burner start up (pre-configuration) or at the end of a heat demand (post-configuration).

A4021A1002

Approvals	CE approved (50Hz) according EN1643 (PIN: CE-0063AS1822)
Protection class	IP40, only with subbase ZL030001
Ambient temperature	-10 ... 60 °C
Maximum humidity	95 %rh
Outputs	1xSPST
Operation	Automatic
Runtime	60 s
Comment	Test time per valve 25sec.
Additional description	• Remote reset.
	• Alarm output potential free NO contact.
	• Uses the NO contact of a standard gas pressure switch, that is set to 1/2x the nominal inlet pressure.
	• Suggested gas pressure switches: C6097 series C60VR40xxx series

230Vac versions

	Type
	A4021A1002

115Vac versions

	Type
	A4021A1010

Accessoires

Subbase for A4021A series	ZL030001
Mounting bracket for VQ400 and VE5000 series	1030002020
Gas pressure switch, flange mounted or G1/4" theaded	**C6097-series**
Gas pressure switch, flange mounted	**C60VR4-series**

C6097A2210

Pressure Regulators and Gasfilters

Gas pressure regulators HUP-HUPF series
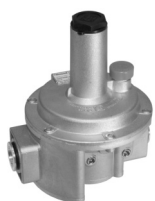
Spring-loaded gas pressure regulator with inlet pressure compensation and zero shut-off.
All gas-consuming appliances

Media	manufactured gases (town gas) natural gases (group H - methane) liquefied petroleum gas (LPG) non-aggressive gases air
Materials	• body: aluminium die cast, UNI 5076/3051 • filter (HUPF): self-extinguishing synthetic fiber for gases conform EN437 galvanized electro welded mesh • filter (HUPF): mesh 50um
Approvals	CE (EN88-1), GOST, AGA
Max. operating pressure	500 mbar
Ambient temperature	-15 ... 60 °C
Pressure setpoint range	10 ... 30 mbar
Filter mesh	50 micron
Additional description	• The outlet pressure is kept constant with changing gas flow as a function of the spring setting. The zero shut-off prevents the outlet pressure from increasing when there is no gas flow through the regulator. • The HUPF-series have a field replaceable filter element. • There are two inlet pressure taps on each side of the regulator: Rp 1/4" • The outlet pressure range can be adjusted by an adjustment screw on to of the regulator. Other pressure ranges than the standard can be selected by changing the spring.

HUPF025B110

Threaded connection. With incorporated gas filter.

Pipe connection	Threads type	Pipe size	Comment	Type
Internal thread as per ISO 7/1 (Rp)	BSP	Rp 1/2		**HUPF015B110**
Internal thread as per ISO 7/1 (Rp)	BSP	Rp 3/4		**HUPF020B110**
Internal thread as per ISO 7/1 (Rp)	BSP	Rp 1		**HUPF025B110**
Internal thread as per ISO 7/1 (Rp)	BSP	Rp 1 1/4		**HUPF032B110**
Internal thread as per ISO 7/1 (Rp)	BSP	Rp 1 1/2		**HUPF040B110**
Internal thread as per ISO 7/1 (Rp)	BSP	Rp 2		**HUPF050B110**

Flanged connection. With incorporated gas filter.

Pipe connection	Threads type	Pipe size	Comment	Type
PN16 Flanges as per EN 1092-1	–	DN40	pre-mounted flange assembly	**HUPF040B310**
PN16 Flanges as per EN 1092-1	–	DN50	pre-mounted flange assembly	**HUPF050B310**
PN16 Flanges as per EN 1092-1	–	DN65	full casted body	**HUPF065B310**
PN16 Flanges as per EN 1092-1	–	DN80	full casted body	**HUPF080B310**
PN16 Flanges as per EN 1092-1	–	DN100	full casted body	**HUPF100B310**

HUPF050B310

Adjustment springs HRSP150 for HUPF015, HUPF020 and HUPF025

Green spring (5 ... 13 mbar)	**HRSP150M1**
Red spring (7 ... 20 mbar)	**HRSP150M2**
White spring (10 ... 30 mbar). This is the factory default.	**HRSP150M3**
Yellow spring (25 ... 70 mbar)	**HRSP150M4**
Violet spring (65 ... 150 mbar)	**HRSP150M7**
Orange spring (140 ... 300 mbar)	**HRSP150M8**

Pressure Regulators and Gasfilters

Adjustment springs HRSP153 for HUPF032 and HUPF040

Green spring (5 ... 13 mbar)	**HRSP153M1**
Red spring (7 ... 20 mbar)	**HRSP153M2**
White spring (10 ... 30 mbar). This is the factory default.	**HRSP153M3**
Yellow spring (25 ... 70 mbar)	**HRSP153M4**
Violet spring (65 ... 150 mbar)	**HRSP153M7**
Orange spring (140 ... 300 mbar)	**HRSP153M8**

Adjustment springs HRSP155 for HUPF050

Green spring (5 ... 13 mbar)	**HRSP155M1**
Red spring (7 ... 20 mbar)	**HRSP155M2**
White spring (10 ... 30 mbar). This is the factory default.	**HRSP155M3**
Yellow spring (25 ... 70 mbar)	**HRSP155M4**
Violet spring (65 ... 150 mbar)	**HRSP155M7**
Orange spring (140 ... 300 mbar)	**HRSP155M8**

Adjustment springs HRSP156 for HUPF065, HUPF080 and HUPF100

Green spring (5 ... 13 mbar)	**HRSP156M1**
Red spring (7 ... 20 mbar)	**HRSP156M2**
White spring (10 ... 30 mbar). This is the factory default.	**HRSP156M3**
Yellow spring (25 ... 70 mbar)	**HRSP156M4**
Violet spring (65 ... 150 mbar)	**HRSP156M7**
Orange spring (140 ... 300 mbar)	**HRSP156M8**

Replacement filter catridges

When ordering KTFL3 replacement filter cartridges, also the production date code (format: yyww) and / or the production lot code (format: F3yddddy) of the regulator housing must be included when ordering. For example: F301237 indicates day 123 of the year 2007.	_cartridges_
Replacement filter cartridge for HUPF015/020/025 (current)	**KTFL3-2100A**
Replacement filter cartridge for HUPF032/040 (current)	**KTFL3-2200A**
Replacement filter cartridge for HUPF050 (current)	**KTFL3-2300A**
Replacement filter cartridge for HUPF065B (< F300877) and HUPF080B (< F300297)	**KTFL3-2400A**
Replacement filter cartridge for HUPF065/080/100 (current)	**KTFL3-2400A**
Replacement filter cartridge for HUPF100 (< F301437)	**KTFL3-2500A**

Replacement membrane kits

When ordering KTMB3 mebrane kits, also the production date code (format: yyww) and / or the production lot code (format: F3yddddy) of the regulator housing must be included when ordering. For example: F301237 indicates day 123 of the year 2007.	_membranes_
Replacement membrane kit for HUPF032/040 (< F302555)	**KTMB3-0400A**
Replacement membrane kit for HUPF032/040 (F302565 ... F301816)	**KTMB3-1300A**
Replacement membrane kit for HUPF032/040 (current)	**KTMB3-1800A**
Replacement membrane kit for HUPF050 (< F301805)	**KTMB3-0500A**
Replacement membrane kit for HUPF050 (F301815 ... F301086)	**KTMB3-1400A**
Replacement membrane kit for HUPF050 (current)	**KTMB3-1700A**
Replacement membrane kit for HUPF065 (< F300877) and HUPF080 (< F300297)	**KTMB3-1500A**
Replacement membrane kit for HUPF065/080/100 (current)	**KTMB3-1900A**
Replacement membrane kit for HUPF100 (< F301437)	**KTMB3-1600A**

Pressure Regulators and Gasfilters

	Gas filter HUF

HUF025B160

Gas filter with filter element
All gas-consuming appliances

Media	manufactured gases (town gas) natural gases (group H - methane) liquefied petroleum gas (LPG) non-aggressive gases air
Materials	• body: aluminium die cast, UNI 5076/3051 • filter: self-extinguishing synthetic fiber for gases conform EN437 galvanized electro welded mesh • filter: mesh 50um
Approvals	CE (EN13611) ,GOST, Gas Appliance Directive 2009/142/EC, based on DIN 3386
Max. operating pressure	10000 mbar
Ambient temperature	-15 ... 80 ^{o}C
Additional description	• exchangable filter element • inlet pressure tap Rp 1/4" outlet pressure tap Rp 1/4"

Threaded

Pipe connection	Threads type	Pipe size	Type
Internal thread as per ISO 7/1 (Rp)	BSP	Rp 1/2	**HUF015B160**
Internal thread as per ISO 7/1 (Rp)	BSP	Rp 3/4	**HUF020B160**
Internal thread as per ISO 7/1 (Rp)	BSP	Rp 1	**HUF025B160**
Internal thread as per ISO 7/1 (Rp)	BSP	Rp 1 1/4	**HUF032B160**
Internal thread as per ISO 7/1 (Rp)	BSP	Rp 1 1/2	**HUF040B160**
Internal thread as per ISO 7/1 (Rp)	BSP	Rp 2	**HUF050B160**

Flanged
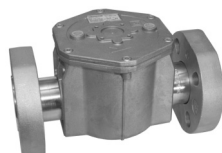
HUF040B360

Pipe connection	Threads type	Pipe size	Type
PN16 Flanges as per EN 1092-1	–	DN40	**HUF040B360**
PN16 Flanges as per EN 1092-1	–	DN50	**HUF050B360**
PN16 Flanges as per EN 1092-1	–	DN65	**HUF065B360**
PN16 Flanges as per EN 1092-1	–	DN80	**HUF080B360**
PN16 Flanges as per EN 1092-1	–	DN100	**HUF100B360**
PN16 Flanges as per EN 1092-1	–	DN150	**HUF150B360**

Filter replacement catridge

When ordering KTFL replacement filter cartridges, also the production date code (format: yyww) and / or the production lot code (format: F1ydddy) of the filter housing is included when ordering see example on this page.	**KTFL1=series**
HUF015B/020B/025B1 (current)	**KTFL1-1200A**
HUF025B1 (before F102405) and HUF025B3 (current)	**KTFL1-1300A**
HUF050B (before F103507)	**KTFL1-1400A**
HUF065B (before F101778) and HUF080B (before F101358)	**KTFL1-1500A**
HUF100B (before F102608)	**KTFL1-1600A**
HUF150B (current)	**KTFL1-1700A**
HUF032B/040B/050B (current)	**KTFL1-1800A**
HUF065B (between F101788 and F101319) and HUF080B (between F101368 and F1011319)	**KTFL1-1900A**
HUF065B/080B/100B (current)	**KTFL1-2000A**

Gas and Air Pressure Switches

Pressure switch for general gas- and air application C6097

The C6097 Pressure Switches are safety devices used in positive-pressure or differential-pressure systems to sense gas or air pressure changes.

C6097A2210

Kind of pressure	differential pressure, relative
Pressure connection	Two models are available: pipe mount or flange mount on valve body. • Pipe mount models: positive pressure: G1/4" • Pipe mount models: negative pressure: G1/8" • Flange mount models: direct mount on valve body
Electrical connection	PG11 or DIN plug
Protection class	IP54
Housing material	• Bottom part: aluminium die cast • Case: blue coloured polybutylene terephthalate • Cover: transparent polycarbonate
Media temp.	-15 ... 80 °C
Ambient temperature	-15 ... 60 °C
Switch function/capacity	• Switch action: SPDT • Max voltage: 250Vac • Min voltage: 24Vac • Max resistive load: 5 A • Max inductive load (pf=0.6): 3 A • Min load: 50 mA
Approvals	• C6097A1/B1 models: UL (US+C), CSA (US+C), FM • C6097A2 models: CE (EN1864) - PIN: 0063AR1571
Mounting position	horizontal or vertical
Additional description	• C6097A1 models are calibrated for pressure fall (approved for use as minimum pressure limiter in NA) and have psi or in.wc scale • C6097B1 models are calibrated for pressure rise (approved for use as maximum pressure limiter in NA) and have psi or in.wc scale • C6097A2 models are calibrated for nominal pressure (CE approved for use as minimum or maximum pressure limiter in EU) and have mbar scale

European models for pipe mount, G1/4" connection. Uses PG11 cable gland.

Pressure adjustment range mbar	Differential pressure setpoint range mbar	Max. pressure mbar	Comment	**Type**
1 ... 10	... 0,4	200	CE Approved	**C6097A2110**
2,5 ... 50	... 0,6	300	CE Approved	**C6097A2210**
30 ... 150	... 2,8	500	CE Approved	**C6097A2310**
100 ... 500	... 7	600	CE Approved	**C6097A2410**

European models for pipe mount, G1/4" connection. Uses DIN connector (not included).

Pressure adjustment range mbar	Differential pressure setpoint range mbar	Max. pressure mbar	Comment	**Type**
1 ... 10	... 0,4	200	CE Approved	**C6097A2110D**
2,5 ... 50	... 0,6	300	CE Approved	**C6097A2210D**
30 ... 150	... 2,8	500	CE Approved	**C6097A2310D**
100 ... 500	... 7	600	CE Approved	**C6097A2410D**

Gas and Air Pressure Switches

European models for flange mount on valve body. Uses DIN connector (not included).

Pressure adjustment range mbar	Differential pressure setpoint range mbar	Max. pressure mbar	Comment	Type
2,5 ... 50	... 0,6	300	CE Approved	**C6097A2200**
30 ... 150	... 2,8	500	CE Approved	**C6097A2300**
100 ... 500	... 7	600	CE Approved	**C6097A2400**

American models for pipe mount, G1/4" connection. Auto recycle. Break on pressure fall.

Pressure adjustment range mbar	Differential pressure setpoint range mbar	Max. pressure mbar	Comment	Type
1 ... 12,5	6 ... 10,5	300	CSA/UL/FM Approved	**C6097A1004/U**
7 ... 52	0,6 ... 1,2	600	CSA/UL/FM Approved	**C6097A1053/U**
30 ... 150	2,7 ... 6	600	CSA/UL/FM Approved	**C6097A1079/U**

**C6097-
AUTORECYCLE**

American models for flange mount. Manual reset. Break on pressure fall.

Pressure adjustment range mbar	Differential pressure setpoint range mbar	Max. pressure mbar	Comment	Type
7 ... 52	0,6 ... 1,2	600	CSA/UL/FM Approved	**C6097A1061/U**

American models for pipe mount, G1/4" connection. Manual reset. Break on pressure fall.

Pressure adjustment range mbar	Differential pressure setpoint range mbar	Max. pressure mbar	Comment	Type
7 ... 52	6 ... 10,5	500	CSA/UL/FM Approved	**C6097A1012/U**

**C6097-
MANUALRESET**

American models for pipe mount, G1/4" connection. Manual reset. Break on pressure rise.

Pressure adjustment range mbar	Differential pressure setpoint range mbar	Max. pressure mbar	Comment	Type
30 ... 150	25 ... 30	600	CSA/UL/FM Approved	**C6097B1002/U**

American models for pipe mount, G1/4" connection. Auto recycle. Break on pressure rise.

Pressure adjustment range mbar	Differential pressure setpoint range mbar	Max. pressure mbar	Comment	Type
103 ... 480	7 ... 21	600	CSA/UL/FM Approved	**C6097B1101/U**

American models for flange mount. Manual reset. Break on pressure rise.

Pressure adjustment range mbar	Differential pressure setpoint range mbar	Max. pressure mbar	Comment	Type
7 ... 52	6 ... 10,5	600	CSA/UL/FM Approved	**C6097B1036/U**

CO020012

DIN plug (for specific C6097A2 models only)		**CO020012**

Gas and Air Pressure Switches

Pressure switch for general gas- and air application C6045D

C6045D

CE

For monitoring pressure of air and non-aggressive (fuel)gases.

Kind of pressure	differential pressure, relative
Pressure connection	• positive pressure: G1/4"
	• negative pressure: G1/8"
Electrical connection	PG13,5
Protection class	IP40
Housing material	aluminium die casting
Media temp.	-15 ... 70 $^{\circ}$C
Ambient temperature	-15 ... 70 $^{\circ}$C
Switch function/capacity	SPDT Microswitch 250Vac; capacity: 2 A (inductive); 10 A resistive
Approvals	CE (EN1864) - PIN: 0063AR3085/2
Mounting position	horizontal or vertical
Additional description	Large mambrane for maximum accuracy

Direct mount on G1/4" connection

Pressure adjustment range	Max. pressure	Type
mbar	mbar	
0,2 ... 3	100	**C6045D1043**
1 ... 10	100	**C6045D1050**
5 ... 50	200	**C6045D1019**
15 ... 150	300	**C6045D1027**

Including mounting bracket with screws

Pressure adjustment range	Max. pressure	Type
mbar	mbar	
0,2 ... 3	100	**C6045D1068**
1 ... 10	100	**C6045D1092**
5 ... 50	200	**C6045D1076**
15 ... 150	300	**C6045D1084**

Including mounting bracket with screws and 2m (L) x 4mm (ID) tubing and nipples for air duct applications

Pressure adjustment range	Max. pressure	Type
mbar	mbar	
0,2 ... 3	100	**C6045D1118**
1 ... 10	100	**C6045D1100**

C6045D-BRACKET

Mounting bracket with screws(20sets per carton)	**45.002.208-001B**

Gas and Air Pressure Switches

Pressure switch for gas application C60VR

Pressure switch for gas application to be mounted on VQ400 dual valves and VRB00/VR400/V4730 combination gas valves.
- The C60VR40xxx has an adjustable setpoint and performs minimum gas pressure supervision in a safe start interlock circuit.
- The C60VR40xxx is designed to be fitted directly on the valve body of the applicable gas valve body, using two mounting screws and an O-ring.

C60VR40

Kind of pressure	overpressure, relative
Pressure connection	Flanged, directly on valve body.
Electrical connection	DIN plug
Protection class	IP00 (IP54 with DIN plug mounted)
Housing material	• Body: aluminium • Cover: reinforced PBT glassfibre
Ambient temperature	-10 ... 70 $^{\circ}$C
End switch function/capacity	• Switch action: 1x SPDT • Resistive: 5A • Inductive (COS PHI = 0.6): 0.5A
Approvals	• C60VR40 models: CE (EN 1854) • C60VRT40 models: UL
Mounting position	horizontal
Comment	Max. pressure: 2 bar < 15 min
Additional description	DIN plug not included.

Models for Europe

Pressure adjustment range mbar	Differential pressure mbar	Max. pressure mbar	Type
5 ... 40	1,5 ... 2,5	100	**C60VR40040**
30 ... 110	4 ... 12	600	**C60VR40110**
110 ... 300	15 ... 30	600	**C60VR40300**

Models for USA

Pressure adjustment range mbar	Differential pressure mbar	Max. pressure mbar	Type
5 ... 40	1,5 ... 2,5	600	**C60VRT40040**

Parts

CO020012

DIN Plug	**CO020012**

Ignition Generators

Electronic Spark Ignition generator, ZT93x-series

The ZT 93x-series high frequency (20 kHz) spark ignition transformer is suitable for use with medium sized oil, gas and dual fuel burners.
- the single pole model (ZT931) is designed for use with gas burners (spark to ground)
- the dual pole model (ZT930) is designed for use with oil and/or dual fuel burners (spark between 2 electrodes)

ZT930

Weight	280 g
Protection class	IP40, for models with 1 mm clip connection for high voltage cable.
Ambient temperature	-10 ... 60 °C
Note	The duty cycle is maximal **33%** during 3 minutes of operation.
Additional description	The ZT93x-series ignition transformer is available in 2 versions:

- with 1 mm high voltage cable connection. This is the more robust model for optimal insulation of the high voltage and strong fixation of the cable in the transformer. To be used with the 1 mm clip and 7 mm diameter high voltage silicone cable.
- with 4 mm high voltage cable connection. This is the general purpose model, that can be used with several brands of high voltage cables available in the market.

Dual pole models (oil and dual fuel); ZT930-series

Features	Supply voltage	Output voltage	Current	Power consumption W	Comment	Output frequency kHz	Type
1 mm HV	220..240 Vac	2x 7 kV	40 mA rms	60		... 20	**13121U**
4 mm HV	220..240 Vac	2x 7 kV	40 mA rms	60		... 20	**13124U**
4 mm HV	110..120 Vac	2x 7 kV	40 mA rms	60		... 20	**13224U**
4 mm HV	24 Vdc	2x 7 kV	17 mA rms	60	Pack size 50 pcs!	... 20	**13174**

Single pole models (gas); ZT931-series

ZT931

Features	Supply voltage	Output voltage	Current	Power consumption W	Comment	Output frequency kHz	Type
1 mm HV	220..240 Vac	1x 14 kV	40 mA rms	60		... 20	**13131U**
4 mm HV	220..240 Vac	1x 14 kV	40 mA rms	60		... 20	**13134U**
4 mm HV	220..240 Vac	1x 14 kV	40 mA rms	60		... 20	**1313405U**
1 mm HV	110..120 Vac	1x 14 kV	40 mA rms	60		... 20	**13231U**
4 mm HV	110..120 Vac	1x 14 kV	40 mA rms	60		... 20	**13234U**

North American model

Q624A

Features	Supply voltage	Output voltage	Current	Power consumption W	Comment	Output frequency kHz	Type
6 mm HV	110..120 Vac	1x 10 kV	40 mA rms	66		... 0,06	**Q624A1014/U**
6 mm HV	110..120 Vac	1x 14 kV	40 mA rms	40		... 20	**Q652B1006/U**
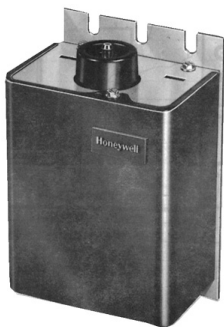
Accessories for ZT93x-series

High voltage silicone cable with 4 mm high voltage connector. Can be used with ZT93x-4 mm models. Diameter: 7 mm, standard length: 1000mm. Only available in pack size **25 pcs**.	**72710**
High voltage silicone cable for ZT93x-1 mm models with 1 mm clip. Diameter: 7 mm, standard length: 1000mm. Only available in pack size **25 pcs**.	**7271009**
Power supply cable, with moulded connector. For all ZT93x models, standard length: 300mm. Only available in pack size **25 pcs**.	**7283001**
High voltage insulation and fixation clip for ZT93x-1mm models, for use with general 7 mm high voltage cable. Only available in pack size **25 pcs**.	**77993**

Servo Motors

Modutrol IV servo motors
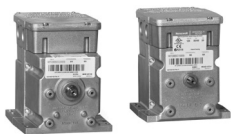
MODUTROL-4

Modutrol IV Motors are spring return and non-spring return motors used to control dampers and valves.

- M62xx models are three-wire floating control motors for use with controllers that provide a switched spdt or floating output and have an internal electrically isolated feedback potentiometer that provides indication of the motor shaft position.
- M72xx models accept a current or voltage signal from an electronic controller to position the motor shaft to any point between open and closed.
- M91xx and M94xx models use a 135Ohm modulating proportional signal to position the motor shaft to any point between open and closed.

Modutrol IV motors are used for damper and valve control in industrial burner applications and air handling installations.

Approvals	• CE, UL, FM, CSA, Gost
Protection class	IP54
	• Weather protection kit is available as accessory to upgrade to IP64
Ambient temperature	-40 ... 66 $^{\circ}$C
Maximum humidity	85 %rh
Features	• Screw terminals are standard.
	• Adapter bracket for matching shaft height of older motors (ModIII) is available.
	• Most models have field adjustable stroke (90 to 160).
	• Die-cast aluminium housing.
	• Two adjustable internal SPDT auxiliary switches are factory mounted.
	• Dual shaft ends for normally open or normally closed valve or damper application. Both shaft ends offer the same torque rating.
Input voltage	• Default: 24 Vac
	• Via optional built-in transformer: 24/120/230 Vac
	• Line frequency: 50/60 Hz
End switches	2
Function	Normally Closed
Additional description	• Modutrol motor timings are independant of line frequency.
	• Torque ratings for dual-ended shaft motors are the sum of the shaft torques (power-end torque plus auxiliary-end torque).
	• Breakaway torque is the maximum torque available to overcome occasional large loads such as a seized damper or valve. The breakaway torque is 1.5x the normal rated torque.
	• Other models than listed in this catalogue are available outside Europe. Most models can be replaced by the available European models.

Servo Motors

Modutrol IV family

Supply voltage	Power consumption W	Input signal	Angle of rotation °	Comment	Runtime s	Torque Nm	Position feedback	Note	Model	Type
24/120/ 230 Vac	See table	See table	See table		See table	See table	–		Series 2/3	**M62xx-M72xx-M9xxx**

3-point control non-spring return (M62x4)

Supply voltage	Power consumption W	Input signal	Angle of rotation °	Comment	Runtime s	Torque Nm	Position feedback	Note	Model	Type
24 Vac	14	SPDT	Adj. 90 .. 160	Factory set at 90	Var. 15 .. 27	8,5	10kohm	Linear feedback	Series 2	**M6274F1009-F/U**
24 Vac	13	SPDT	Adj. 90 .. 160	Factory set at 90	Var. 30 .. 53	17	10kohm	Linear feedback	Series 2	**M6284F1078-F/U**
24 Vac	11	SPDT	Adj. 90 .. 160	Factory set at 160	Var. 120..214	34	10kohm	Linear feedback	Series 2	**M6294F1009-F/U**
24 Vac	14	SPDT	Adj. 90 .. 160	Factory set at 90	Var. 60 .. 107	34	10kohm	Linear feedback	Series 2	**M6294F1017-F/U**

3-point control spring return (M62x5)

Supply voltage	Power consumption W	Input signal	Angle of rotation °	Comment	Runtime s	Torque Nm	Position feedback	Note	Model	Type
24 Vac	23	SPDT	Adj. 90 .. 160	Factory set at 160	Var. 30 .. 53	6,8	10kohm	Linear feedback	Series 2	**M6285F1001-F/U**

Analogue input control non-spring return (M72x4)

Supply voltage	Power consumption W	Input signal	Angle of rotation °	Comment	Runtime s	Torque Nm	Position feedback	Note	Model	Type
24 Vac	14	4-20 mA	Adj. 90 .. 160	Factory set at 90	Var. 15 .. 27	8,5	–		Series 2	**M7274Q1009/U**
24/120/ 230 Vac	13	4-20 mA	Fixed 90		Var. 30 .. 53	17	–		Series 2	**M7284Q1082/U**
24 Vac	13	2-10 Vdc	Adj. 90 .. 160	Factory set at 160	Var. 30 .. 53	17	–		Series 2	**M7284Q1098/U**
24 Vac	13	4-20 mA	Adj. 90 .. 160	Factory set at 90	Var. 30 .. 53	17	–		Series 2	**M7284Q1106/U**
24 Vac	14	4-20 mA	Adj. 90 .. 160	Factory set at 90	Var. 60 .. 107	34	–		Series 2	**M7294Q1015/U**

MXXX4

MXXX5

Servo Motors

Analogue input control spring return (M72x5)

Supply voltage	Power consumption W	Input signal	Angle of rotation °	Comment	Runtime s	Torque Nm	Position feedback	Note	Model	Type
24 Vac	23	4-20 mA	Adj. 90 .. 160	Factory set at 90	Var. 30 .. 53	6,8	–		Series 2	**M7285Q1024/U**
24 Vac	23	2-10 Vdc	Adj. 90 .. 160	Factory set at 160	Var. 30 .. 53	6,8	–		Series 2	**M7285Q1032/U**

Potentiometer control non-spring return (M9xx4)

Supply voltage	Power consumption W	Input signal	Angle of rotation °	Comment	Runtime s	Torque Nm	Position feedback	Note	Model	Type
24 Vac	12	0-150 Ohm	Adj. 90 .. 160	Factory set at 160	Var. 30 .. 53	8,5	–		Series 3	**M9174F1001/U**
24 Vac	14	0-150 Ohm	Adj. 90 .. 160	Factory set at 90	Var. 30 .. 53	17	–		Series 3	**M9184F1034/U**
24 Vac	14	0-1500 hm	Adj. 90 .. 160	Factory set at 90	Var. 15 .. 27	8,5	–		Series 3	**M9484F1023/U**
24 Vac	14	0-150 Ohm	Adj. 90 .. 160	Factory set at 160	Var. 30 .. 53	17	–		Series 3	**M9484F1057/U**
24 Vac	15	0-150 Ohm	Adj. 90 .. 160	Factory set at 90	Var. 60 .. 107	34	–		Series 3	**M9494F1003/U**

Potentiometer control spring return (M9xx5)

Supply voltage	Power consumption W	Input signal	Angle of rotation °	Comment	Runtime s	Torque Nm	Position feedback	Note	Model	Type
24 Vac	24	0-150 Ohm	Adj. 90 .. 160	Factory set at 160	Var. 30 .. 53	6,8	–		Series 3	**M9185F1002/U**

Accessories

Replacement dual internal auxiliary switch kit	**220736B/U**
Adapter bracket to adjust shaft height when replacing old ModII or ModIII motors.	**220738A/U**
Adjustable cranc arm kit	**221455A/U**
Weatherproofing kit. Protects motor from driving rain when mounted in any position	**4074ERU/U**
Internal multi tap transformer for use on 120 or 230Vac voltage or to provide galvanic insulation. 24/120/230V to 24V.	**50017460-001/U**
Cranc arm assembly short	**7617ADW/U**
Cranc arm assembly long	**7617BR/U**
Single auxiliary 135Ohm potentiometer. Can be used as feedback potentiometer or to control slave M9xxx motors.	**Q181A1007/U**
Dual auxiliary 135Ohm potentiometer. Can be used as feedback potentiometer or to control slave M9xxx motors.	**Q181A1015/U**
Damper linkage. Includes mounting bracket, damper arm, motor crankarm, and 2 ball joints	**Q605A1070/U**
External auxiliary switch kit.	**Q607D1008/U**
Adapter to convert M9xxx motors to analogue input version. Note: control accuracy <5%. For improved control accuracy, use M7xxx motor.	**Q7230A1005/U**

Servo Motors

Servo motors for industrial butterfly and throttle valves

The MT4000, MF4000, ML7999B and LKS160 are non-spring return motors used to control dampers and valves.
The motors are used for damper and valve control in industrial burner applications.

| Approvals | • MT4000, MF4000 and LKS160: CE, GOST, AGA |
| | • ML7999B: UL, CSA, CE, GOST, AGA |

Ambient temperature	-40 ... 60 $^{\circ}$C
Maximum humidity	90 %rh
Angle of rotation	90 $^{\circ}$
End switches	3

MF4000

MF4000 heavy duty actuator for use with modulating gas valves

Supply voltage	Input signal	Runtime s	Torque Nm	Model	Setpoint potentiometer	Shaft mounting	Protection class	Type
230 Vac	SPDT	30	10	–	-	12 mm round	IP65	**MF4000A1048**
230 Vac	SPDT	60	15	–	-	12 mm round	IP65	**MF4000A1071**
230 Vac	SPDT	60	15	extra relay	-	12 mm round	IP65	**MF4000B1070**
230 Vac	SPDT	15	5	extra relay	1k	12 mm round	IP65	**MF4000P1018**
230 Vac	SPDT	15	5	–	1k	12 mm round	IP65	**MF4000P1026**
230 Vac	SPDT	30	10	–	1k	12 mm round	IP65	**MF4000P1059**
115 Vac	SPDT	30	10	–	1k	12 mm round	IP65	**MF4000P1067**
115 Vac	SPDT	60	15	–	1k	12 mm round	IP65	**MF4000P1091**
230 Vac	SPDT	60	15	–	1k	12 mm round	IP65	**MF4000P1109**
230 Vac	SPDT	60	15	–	5k	12 mm round	IP65	**MF4000P1125**

MT4000 for use with VT5000 throttle valves

Supply voltage	Input signal	Runtime s	Torque Nm	Model	Setpoint potentiometer	Shaft mounting	Protection class	Type
230 Vac	SPDT	12	1,5	–	-	8 mm round	IP40	**MT4000A2019**
230 Vac	SPDT	30	3	–	-	8 mm round	IP40	**MT4000A2027**
115 Vac	SPDT	30	3	–	-	8 mm round	IP40	**MT4000A2050**

MT4000

LKS160 for use with VT5000 throttle valves

Supply voltage	Input signal	Runtime s	Torque Nm	Model	Setpoint potentiometer	Shaft mounting	Protection class	Type
230 Vac	SPDT	34	3	A5-34 S8.P1.1	1k	8 mm round	IP40	**78-LKS160-81U**

LKS160

Servo Motors

ML7999B direct coupled actuator (DCA) for use with V5197 throttle valves

Supply voltage	Input signal	Runtime	Torque	Model	Setpoint potentiometer	Shaft mounting	Protection class	Type
		s	Nm					
85..264 Vac	4-20mA	30	5	A5-34 S8.P1.1	4..20mA	DCA	IP40	**ML7999B1002/U**

ML7999

Accessories for MF4000

Adapter kit to use MF4000 with VF5000-series butterfly valves	**KTFFMF4**
Adapter kit to use MF4000 with V5197	**KTFRG04**

Accessories for MT4000

Adapter kit to use MT4000 with VF5000-series butterfly valves	**KTFFMT4**
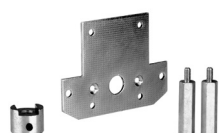
KTFFMT4

Accessories for LKS160

Adapter kit to use **LKS160** with V5197	**KTFRG02**
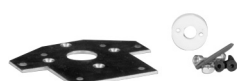
KTFRG04-KIT-MF4000-A

Accessories for ML7999

Mounting bracket for 1-1/2" and 2" V5197 valves	**32003396-001/U**
Mounting bracket for 2-1/2", 3" and 4" V5197 valves	**32003396-002/U**
Auxiliary switch kit (1x SPDT switch)	**201052A/U**
Auxiliary switch kit (2x SPDT switch)	**201052B/U**
Mounting plate for auxiliary switch kit	**50036542-001/U**
Shaft adapter kit for ML7999 (3/8" - 9.5 mm)	**201391/U**
Shaft adapter kit for ML7999 (5/16" - 16.4 mm	**32003167-001/U**
Weather proofing kit (NEMA 3 - IP54)	**32002935-001/U**

KTFFMT4

FEMA Pressure Switches and Transmitters   Page

2

2

Honeywell

Electronic Pressure Switches

Electronic Pressure switch for liquid, high viscosity/roiled liquid (SmartPress)

Electronic Pressure switch, with LCD display for the field of plant construction, fluidics, process technology, and pneumatics, as well as in the monitoring and control of pumps and compressors. Models available with the following output types:

- all models: switch output open collector; 14..36 Vdc, 250 mA
- PST -series: transmitter output; 0..10 Vdc or 4..20 mA
- PST..R -series: relay output with gold plated SPDT contact

PST010RG34F

Protection class	IP65
Housing material	Polybutylene terephtalate (PBT)
Sensing element material	1.4571 + 1.4435
Media temp.	-20 ... 100 ºC
Media temp. limit	Higher temperatures are possible, provided that the limit is safeguarded by suitable measures (e.g. water tube trap)
Ambient temperature	-20 ... 60 ºC
Switch function/capacity	PST-models: Open collector switch max. 250 mA dc at 14 ... 36 Vdc. PST..R-models with relay contact output, 1 x SPDT, material silver gold plated. Capacity resistive: 24 Vdc, 60 mA / 230 Vac, 6,5 mA. With bigger loads, the gold layer will disappear, the capacity with the silver contacts is: 230 Vac 3(1) A.
Additional description	**• Applicable parameter settings:** • switching Set / Reset points • filters • analog output range • electrical drag indicator **• Applicable configurations:** • Max-Min, Window monitor • Analog output signal • Pressure unit • Simulation mode

Switch + Transmitter, PST ...-models

Pressure range bar	Max. pressure bar	Kind of pressure	Type
-1 ... 1	6	vacuum, relative	**PSTV01RG34F**
0 ... 0,25	1	overpressure, relative	**PSTM250RG34F**
0 ... 0,4	2	overpressure, relative	**PSTM400RG34F**
0 ... 0,6	2	overpressure, relative	**PSTM600RG34F**
0 ... 1	6	overpressure, relative	**PST001RG34F**
0 ... 1,6	6	overpressure, relative	**PST002RG34F**
0 ... 4	12	overpressure, relative	**PST004RG34F**
0 ... 10	30	overpressure, relative	**PST010RG34F**
0 ... 25	75	overpressure, relative	**PST025RG34F**
0 ... 2	6	absolute	**PST002AG34F**
0 ... 10	30	absolute	**PST010AG34F**

Electronic Pressure Switches

Switch + Transmitter + Relay output, PST..R -models

Pressure range bar	Max. pressure bar	Kind of pressure	Type
-1 ... 1	6	vacuum, relative	**PSTV01RG34F-R**
0 ... 0,25	1	overpressure, relative	**PSTM250RG34F-R**
0 ... 0,4	2	overpressure, relative	**PSTM400RG34F-R**
0 ... 0,6	2	overpressure, relative	**PSTM600RG34F-R**
0 ... 1	6	overpressure, relative	**PST001RG34F-R**
0 ... 1,6	6	overpressure, relative	**PST002RG34F-R**
0 ... 4	12	overpressure, relative	**PST004RG34F-R**
0 ... 10	30	overpressure, relative	**PST010RG34F-R**
0 ... 25	75	overpressure, relative	**PST025RG34F-R**
0 ... 2	6	absolute	**PST002AG34F-R**
0 ... 10	30	absolute	**PST010AG34F-R**

Accessories / Connectors for plug 1 + 2 (OC and analog outputs) /
Plug 3 (relay outputs ST4) / Syphons

5-prong M12 plug connector, straight version	**ST12-5-G**
5-prong M12 plug connector, angled version	**ST12-5-A**
4-prong M12 plug connector, straight version	**ST12-4-G**
4-prong M12 plug connector, angled version	**ST12-4-A**
4-prong M12 plug connector, straight version with 2 m cable	**ST12-4-GK**
4-prong M12 plug connector, angled version with 2 m cable	**ST12-4-AK**
Plug protection cap, IP65	**STA12**
Syphons for high temperature, steel, U-shape. For more accessories, see Accessories for Pressure Switches / Transmitters)	**UB430B**

Honeywell **2-3**

Electronic Pressure Switches

Electronic Pressure switch for gas, low viscosity liquid (SmartPress)

Electronic Pressure switch, with LED display for the field of plant construction, fluidics, process technology, and pneumatics, as well as in the monitoring and control of pumps and compressors. Models available with the following output types:
- all models: switch output open collector; 14..36 Vdc, 250 mA
- PST -series: transmitter output; 0..10 Vdc or 4..20 mA
- PST..R -series: relay output with gold plated SPDT contact

PST

Protection class	IP65
Housing material	Polybutylene terephtalate (PBT)
Media temp.	-20 ... 100 °C
Media temp. limit	Higher temperatures are possible, provided that the limit is safeguarded by suitable measures (e.g. water tube trap)
Ambient temperature	-20 ... 60 °C
Switch function/capacity	PST..R-models with relay contact output, 1 x SPDT, material silver gold plated. Capacity resistive: 24 Vdc, 60 mA / 230 Vac, 6,5 mA. With bigger loads, the gold layer will disappear, the capacity with the silver contacts is: 230 Vac 3(1) A.
Sensing element material	1.4571 + 1.4542
Additional description	**Applicable parameter settings:** • switching Set / Reset points • filters • analog output range • electrical drag indicator **• Applicable configurations:** • Max-Min, Window monitor • Analog output-signal • Pressure unit • Simulation mode

Switch + Transmitter output, PST-models

Pressure range bar	Max. pressure bar	Output signal	Kind of pressure	Type
-1 ... 1	6	0..10Vdc / 4..20 mA + switch	vacuum, relative	**PSTV01RG12S**
0 ... 0,25	1	0..10Vdc / 4..20 mA + switch	overpressure, relative	**PSTM250RG12S**
0 ... 0,4	2	0..10Vdc / 4..20 mA + switch	overpressure, relative	**PSTM400RG12S**
0 ... 0,6	2	0..10Vdc / 4..20 mA + switch	overpressure, relative	**PSTM600RG12S**
0 ... 1,6	6	0..10Vdc / 4..20 mA + switch	overpressure, relative	**PST002RG12S**
0 ... 4	12	0..10Vdc / 4..20 mA + switch	overpressure, relative	**PST004RG12S**
0 ... 10	30	0..10Vdc / 4..20 mA + switch	overpressure, relative	**PST010RG12S**
0 ... 25	75	0..10Vdc / 4..20 mA + switch	overpressure, relative	**PST025RG12S**
0 ... 60	180	0..10Vdc / 4..20 mA + switch	overpressure, relative	**PST060RG12S**
0 ... 100	300	0..10Vdc / 4..20 mA + switch	overpressure, relative	**PST100RG12S**
0 ... 250	500	0..10Vdc / 4..20 mA + switch	overpressure, relative	**PST250RG12S**
0 ... 600	1000	0..10Vdc / 4..20 mA + switch	overpressure, relative	**PST600RG12S**
0 ... 2	6	0..10Vdc / 4..20 mA + switch	absolute	**PST002AG12S**
0 ... 10	30	0..10Vdc / 4..20 mA + switch	absolute	**PST010AG12S**

Electronic Pressure Switches

Switch + Transmitter + Relay output, PST..R -models

Pressure range bar	Max. pressure bar	Output signal	Kind of pressure	Type
-1 ... 1	6	0..10Vdc / 4..20 mA + switch + relay	vacuum, relative	**PSTV01RG12S-R**
0 ... 0,25	1	0..10Vdc / 4..20 mA + switch	overpressure, relative	**PSTM250RG12S-R**
0 ... 0,4	2	0..10Vdc / 4..20 mA + switch	overpressure, relative	**PSTM400RG12S-R**
0 ... 0,6	2	0..10Vdc / 4..20 mA + switch	overpressure, relative	**PSTM600RG12S-R**
0 ... 1,6	6	0..10Vdc / 4..20 mA + switch	overpressure, relative	**PST002RG12S-R**
0 ... 4	12	0..10Vdc / 4..20 mA + switch + relay	overpressure, relative	**PST004RG12S-R**
0 ... 10	30	0..10Vdc / 4..20 mA + switch + relay	overpressure, relative	**PST010RG12S-R**
0 ... 25	75	0..10Vdc / 4..20 mA + switch + relay	overpressure, relative	**PST025RG12S-R**
0 ... 60	180	0..10Vdc / 4..20 mA + switch + relay	overpressure, relative	**PST060RG12S-R**
0 ... 100	300	0..10Vdc / 4..20 mA + switch + relay	overpressure, relative	**PST100RG12S-R**
0 ... 250	500	0..10Vdc / 4..20 mA + switch + relay	overpressure, relative	**PST250RG12S-R**
0 ... 600	1000	0..10Vdc / 4..20 mA + switch + relay	overpressure, relative	**PST600RG12S-R**
0 ... 2	6	0..10Vdc / 4..20 mA + switch + relay	absolute	**PST002AG12S-R**
0 ... 10	30	0..10Vdc / 4..20 mA + switch + relay	absolute	**PST010AG12S-R**

Accessories / Connectors for plug 1 + 2 (OC and analog outputs) /
Plug 3 (relay outputs ST4) / Syphons

5-prong M12 plug connector, straight version	**ST12-5-G**
5-prong M12 plug connector, angled version	**ST12-5-A**
4-prong M12 plug connector, straight version	**ST12-4-G**
4-prong M12 plug connector, angled version	**ST12-4-A**
4-prong M12 plug connector, straight version with 2 m cable	**ST12-4-A-GK**
4-prong M12 plug connector, angled version with 2 m cable	**ST12-4-A-AK**
Plug protection cap, IP65	**STA12**
Syphons for high temperature, steel, U-shape. for more accessories, see Accessories for Pressure Switches / Transmitters	**UB430B**

Electronic Pressure Switches

Electronic Pressure switch for gas and liquid (Smart DCM)

Electronic Pressure Switches are microprocessor-controlled pressure measurement devices for relative pressures of -1 to +1 bar and 0 to 40 bar. They are suitable for an extremely wide range of applications, including the precision recording, monitoring, and control of system pressure.
Features:

- Open-collector
- Configurable as min./max/window monitor
- Adjustable drop-in/drop-out delay
- Hysteresis defined by set-point and reset-point
- Baclit LCD graphical display (Human-Machine-Interface models, only) can be swiveled for better readability; display can be rotated in 90° steps by software

Media temp.	-20 ... 80 ^{o}C
Sensing element material	1.4571
Protection class	IP65
Ambient temperature	-20 ... 70 ^{o}C

PSH

Pressure Switch HMI

Pressure range bar	Max. pressure bar	Type
-1 ... 1	6	**PSHRV1011**
0 ... 1	3	**PSHRB0011**
0 ... 4	12	**PSHRB0041**
0 ... 10	30	**PSHRB0101**
0 ... 16	48	**PSHRB0161**
0 ... 25	50	**PSHRB0251**
0 ... 40	80	**PSHRB0401**

Accessory

Field configuration tool	**CFT1**

Electronic Pressure Switches

Electronic Differential Pressure Switches for gas and liquid (Smart DCM DIFF)

Electronic Differential Pressure Switches are microprocessor-controlled pressure measurement devices for a differential pressure range of 0 ... 20 bar. They are suitable for an extremely wide range of applications, including the precision recording, monitoring and control of system pressure. They come complete with an angled M12X1 plug and are mounted directly to the pipe via two G1/4" internal thread connections.

Features:

- Open-collector
- Configurable as min./max./window monitor
- LCD graphical display (Human-Machine-Interface models, only) can be swiveled for better readability; display can be rotated in 90° steps by software for better readability; HMI can be freely swiveled 310°
- Self-monitoring electronics
- Adjustable drop-in/drop-out delay

Media temp.	-20 ... 80 ^{o}C
Protection class	IP65
Ambient temperature	-20 ... 70 ^{o}C

PSHD

Pressure Swith HMI

Pressure range bar	Max. pressure bar	Type
0 ... 0,1	0,9	**PSHDM1002**
0 ... 0,3	0,9	**PSHDM3002**
0 ... 1	3	**PSHDB0012**
0 ... 3	9	**PSHDB0032**
0 ... 6	21	**PSHDB0062**
0 ... 20	60	**PSHDB0202**

Standard Pressure Switches

Pressure switch for liquid, gas (DCM)

DCM16

For overpressure monitoring of non-aggressive liquids and gaseous media.

Kind of pressure	overpressure, relative
Pressure connection	internal thread G1/4, external thread G1/2
Electrical connection	Plug DIN EN 175301
Protection class	IP54
Housing material	rugged housing of seawater resistant aluminium die casting GD Al Si 12.
Media temp.	-25 ... 70 $^{\circ}$C
Media temp. limit	temperatures up to 85 $^{\circ}$C are allowable for short periods. Higher temperatures are possible, provided that the limit is safeguarded by suitable measures (e.g. water tube trap, see Accessories for Pressure Switches / Transmitters)
Ambient temperature	-25 ... 70 $^{\circ}$C
Ambient temp. limit	at temperatures below 0 $^{\circ}$C, ensure that no water condensation can arise in the sensor and in the switching device
Switch function/capacity	SPDT Microswitch 250 Vac; capacity 5 A inductive, 8 A resistive
Optional functions	add the type numbers below to the listed type numbers for extra functionality as described

- **-301**: terminal connection housing, IP65
- **-307**: two microswitches, switching in parallel or in succession, fixed switching interval, terminal connection case, IP65
- **-217**: two microswitches, 1 plug, switching in succession, adjustable switching interval
- **-213**: gold-plated contacts, switching capacity: max. 24 Vdc, 100 mA, min. 5 Vdc, 2 mA. And others not available with adjustable switching difference.
- **-351**: protection class IP65 and switching housing with surface protection (chemical version)
- **-513**: gold-plated contacts, switching differential permanent, IP65, switching capacity: max. 24 Vdc, 100 mA, min. 5 Vdc, 2 mA; suitable isolating switching amplifier, degree of protection Ex-i

Standard Pressure Switches

DNM

Fixed pressure hysteresis

Pressure adjustment range	Adjustable switching differential	Switching differential	Max. pressure	Sensing element material	Type
bar	bar	bar	bar		
0,04 ... 0,25	–	0,03	6	Copper + Brass	**DCM025**
0,1 ... 0,6	–	0,04	6	Copper + Brass	**DCM06**
0,2 ... 1,6	–	0,04	6	Copper + Brass	**DCM1**
0,2 ... 2,5	–	0,1	16	1.4104 + 1.4571	**DCM3**
0,5 ... 6	–	0,15	16	1.4104 + 1.4571	**DCM6**
0,5 ... 6	–	0,25	25	1.4104 + 1.4571	**DCM625**
1 ... 10	–	0,3	25	1.4104 + 1.4571	**DCM10**
3 ... 16	–	0,5	25	1.4104 + 1.4571	**DCM16**
4 ... 25	–	1	60	1.4104 + 1.4571	**DCM25**
8 ... 40	–	1,3	60	1.4104 + 1.4571	**DCM40**
16 ... 63	–	2	130	1.4104 + 1.4571	**DCM63**
0,04 ... 0,25	–	0,03	6	1.4104 + 1.4571	**DNM025**

Adjustable pressure hysteresis

Pressure adjustment range	Adjustable switching differential	Switching differential	Max. pressure	Sensing element material	Type
bar	bar	bar	bar		
0,04 ... 0,25	0,03 ... 0,4	–	6	Copper + Brass	**DCMV025**
0,1 ... 0,6	0,04 ... 0,5	–	6	Copper + Brass	**DCMV06**
0,2 ... 1,6	0,07 ... 0,55	–	6	Copper + Brass	**DCMV1**
0,2 ... 2,5	0,15 ... 1,5	–	16	1.4104 + 1.4571	**DCMV3**
0,5 ... 6	0,25 ... 2	–	16	1.4104 + 1.4571	**DCMV6**
1 ... 10	0,5 ... 2,8	–	25	1.4104 + 1.4571	**DCMV10**
3 ... 16	0,7 ... 3,5	–	25	1.4104 + 1.4571	**DCMV16**
4 ... 25	1,3 ... 6	–	60	1.4104 + 1.4571	**DCMV25**
8 ... 40	2,6 ... 6,6	–	60	1.4104 + 1.4571	**DCMV40**
16 ... 63	3 ... 10	–	130	1.4104 + 1.4571	**DCMV63**

Syphon for high temperature, steel, U-shape (for more accessories, see Accessories for Pressure Switches / Transmitters)	**U430B**

Standard Pressure Switches

Pressure switch for liquid, gas, small range (DCM)

For overpressure monitoring of non-aggressive liquids and gaseous media.

DCM4016

Kind of pressure	overpressure, relative
Pressure connection	internal thread G1/4, external thread G1/2
Electrical connection	Plug DIN EN 175301
Protection class	IP54
Housing material	rugged housing of seawater resistant aluminium die casting GD Al Si 12.
Media temp.	-15 ... 60 °C
Media temp. limit	temperatures up to 85 °C are allowable for short periods. Higher temperatures are possible, provided that the limit is safeguarded by suitable measures (e.g. water tube trap, see Accessories for Pressure Switches / Transmitters)
Ambient temperature	-15 ... 60 °C
Ambient temp. limit	at temperatures below 0 °C, ensure that no water condensation can arise in the sensor and in the switching device
Switch function/capacity	SPDT Microswitch 250 Vac; capacity 5 A inductive, 8 A resistive
Optional functions	add the type numbers below to the listed type numbers for extra functionality as described

- **-301**: terminal connection housing, IP65
- **-213**: gold-plated contacts, switching capacity: max. 24 Vdc, 100 mA, min. 5 Vdc, 2 mA. And others not available with adjustable switching difference.
- **-351**: protection class IP65 and switching housing with surface protection (chemical version)
- **-513**: gold-plated contacts, switching differential permanent, IP65, switching capacity: max. 24 Vdc, 100 mA, min. 5 Vdc, 2 mA; suitable isolating switching amplifier, degree of protection Ex-i

Fixed pressure hysteresis

Pressure adjustment range mbar	Switching differential mbar	Max. pressure bar	Sensing element material	Type
1 ... 16	2	1	Perbunan + 1.4301	**DCM4016**
4 ... 25	2	1	Perbunan + 1.4301	**DCM4025**
10 ... 100	12	10	Perbunan + Brass	**DCM1000**
15 ... 60	10	12	1.4104 + 1.4571	**DCM506**

	Type
Syphon for high temperature, steel, U-shape (for more accessories, see Accessories for Pressure Switches / Transmitters)	**U430B**

Standard Pressure Switches

Pressure switch for aggressive liquid, gas (DNS)

DNS

For monitoring and controlling pressures in devices of the chemical industry and in the process engineering as well as wherever the pressure of aggressive liquids and gases has to be monitored.

Kind of pressure	overpressure, relative
Pressure connection	internal thread G1/4, external thread G1/2
Electrical connection	Plug DIN EN 175301
Protection class	IP54
Housing material	rugged housing of seawater resistant aluminium die casting GD Al Si 12.
Media temp.	-25 ... 70 °C
Media temp. limit	temperatures up to 85 °C are allowable for short periods. Higher temperatures are possible, provided that the limit is safeguarded by suitable measures (e.g. water tube trap, see Accessories for Pressure Switches / Transmitters)
Ambient temperature	-25 ... 70 °C
Ambient temp. limit	at temperatures below 0 °C, ensure that no water condensation can arise in the sensor and in the switching device
Switch function/capacity	SPDT Microswitch 250 Vac; capacity 5 A inductive, 8 A resistive
Optional functions	add the type numbers below to the listed type numbers for extra functionality as described

- **-301**: terminal connection housing, IP65
- **-307**: two microswitches, switching in parallel or in succession, fixed switching interval, terminal connection case, IP65
- **-217**: two microswitches, 1 plug, switching in succession, adjustable switching interval
- **-213**: gold-plated contacts, switching capacity: max. 24 Vdc, 100 mA, min. 5 Vdc, 2 mA. And others not available with adjustable switching difference.
- **-351**: protection class IP65 and switching housing with surface protection (chemical version)
- **-513**: gold-plated contacts, switching differential permanent, IP65, switching capacity: max. 24 Vdc, 100 mA, min. 5 Vdc, 2 mA; suitable isolating switching amplifier, degree of protection Ex-i

Sensing element material	1.4571

Fixed pressure hysteresis

Pressure adjustment range bar	Adjustable switching differential bar	Switching differential bar	Max. pressure bar	Type
0,04 ... 0,25	–	0,03	6	**DNS025-201**
0,1 ... 0,6	–	0,04	6	**DNS06-201**
0,2 ... 1,6	–	0,06	6	**DNS1-201**
0,2 ... 2,5	–	0,1	16	**DNS3-201**
0,5 ... 6	–	0,15	16	**DNS6-201**
1 ... 10	–	0,3	16	**DNS10-201**
3 ... 16	–	0,5	25	**DNS16-201**

Adjustable pressure hysteresis

Pressure adjustment range bar	Adjustable switching differential bar	Switching differential bar	Max. pressure bar	Type
0,04 ... 0,25	0,06 ... 0,3	–	6	**DNS025-203**
0,1 ... 0,6	0,08 ... 0,4	–	6	**DNS06-203**
0,2 ... 1,6	0,1 ... 0,6	–	6	**DNS1-203**
0,2 ... 2,5	0,15 ... 1,5	–	16	**DNS3-203**
0,5 ... 6	0,25 ... 2	–	16	**DNS6-203**
1 ... 10	0,45 ... 2,5	–	16	**DNS10-203**
3 ... 16	0,8 ... 3,5	–	25	**DNS16-203**

Syphon for high temperature, steel, U-shape (for more accessories, see Accessories for Pressure Switches / Transmitters)	**U430B**

Standard Pressure Switches

Differential pressure switch for liquid, gas (DDCM)

For flow monitoring and differential pressure control of steam, gas, hot/cold water and automatic checking of filter plant.

Kind of pressure	differential pressure, relative
Pressure connection	internal thread G1/4
Electrical connection	Plug DIN EN 175301
Protection class	IP54
Housing material	rugged housing of seawater resistant aluminium die casting GD Al Si 12
Media temp.	-25 ... 70 $^{\circ}$C
Media temp. limit	temperatures up to 85 $^{\circ}$C are allowable for short periods. Higher temperatures are possible, provided that the limit is safeguarded by suitable measures (e.g. water tube trap, see Accessories for Pressure Switches / Transmitters)
Ambient temperature	-25 ... 70 $^{\circ}$C
Ambient temp. limit	at temperatures below 0 $^{\circ}$C, ensure that no water condensation can arise in the sensor and in the switching device
Switch function/capacity	SPDT Microswitch; capacity 5 A inductive, 8 A resistive
Optional functions	add the type numbers below to the listed type numbers for extra functionality as described

- **-301**: terminal connection housing, IP65
- **-205**: maximum limiter with reclosing lock-out, interlocking with increasing pressure
- **-206**: Minimum limiter with reclosing lock-out, interlocking with falling pressure
- **-307**: two microswitches, switching in parallel or in succession, fixed switching interval, terminal connection case, IP65 (with the exception of DDCM252, 662, 1602, 6002)
- **-217**: two microswitches, 1 plug, switching in succession, adjustable switching interval (with the exception of DDCM252, 662, 1602, 6002)
- **-213**: gold-plated contacts, switching capacity: max. 24 Vdc, 100 mA, min. 5 Vdc, 2 mA. And others not available with adjustable switching difference.
- **-351**: protection class IP65 and switching housing with surface protection (chemical version)
- **-513**: gold-plated contacts, switching differential permanent, IP65, switching capacity: max. 24 Vdc, 100 mA, min. 5 Vdc, 2 mA; suitable isolating switching amplifier, degree of protection Ex-i

DDCM662

Pressure adjustment range	Switching differential	Max. pressure	Sensing element material	Type
bar	bar	bar		
0,004 ... 0,025	0,002	0,5	Perbunan + Aluminium	**DDCM252**
0,01 ... 0,06	0,015	1,5	Perbunan + Aluminium	**DDCM662**
0,02 ... 0,16	0,02	3	Perbunan + Aluminium	**DDCM1602**
0,1 ... 0,6	0,035	3	Perbunan + Aluminium	**DDCM6002**
-0,1 ... 0,4	0,15	15	1.4305 + 1.4571	**DDCM014**
0,2 ... 1,6	0,13	15	1.4305 + 1.4571	**DDCM1**
1 ... 4	0,2	25	1.4305 + 1.4571	**DDCM4**
0,5 ... 6	0,2	15	1.4305 + 1.4571	**DDCM6**
3 ... 16	0,6	25	1.4305 + 1.4571	**DDCM16**

	Type
Syphon for high temperature, steel, U-shape (for more accessories, see Accessories for Pressure Switches / Transmitters)	**U430B**

Standard Pressure Switches

Vacuum switch for liquid, gas (VCM)

VCM301

For monitoring vacuum of non-aggressive liquids and gaseous media.

Kind of pressure	vacuum, relative
Pressure connection	internal thread G1/4, external thread G1/2
Electrical connection	Plug DIN EN 175301
Protection class	IP54
Housing material	rugged housing of seawater resistant aluminium die casting GD Al Si 12.
Media temp.	-25 ... 70 $^\circ$C
Media temp. limit	temperatures up to 85 $^\circ$C are allowable for short periods. Higher temperatures are possible, provided that the limit is safeguarded by suitable measures (e.g. water tube trap, see Accessories for Pressure Switches / Transmitters)
Ambient temperature	-25 ... 70 $^\circ$C
Ambient temp. limit	at temperatures below 0 $^\circ$C, ensure that no water condensation can arise in the sensor and in the switching device
Switch function/capacity	SPDT Microswitch 250 Vac; capacity 5 A inductive, 8 A resistive
Optional functions	add the type numbers below to the listed type numbers for extra functionality as described

- **-301**: terminal connection housing, IP65
- **-307**: two microswitches, switching in parallel or in succession, fixed switching interval, terminal connection case (with the exception of VCM4156), IP65
- **-217**: two microswitches, 1 plug, switching in succession, adjustable switching interval (with the exception of VCM4156)
- **-213**: gold-plated contacts, switching capacity: max. 24 Vdc, 100 mA, min. 5 Vdc, 2 mA. And others not available with adjustable switching difference.
- **-351**: protection class IP65 and switching housing with surface protection (chemical version)
- **-513**: gold-plated contacts, switching differential permanent, IP65, switching capacity: max. 24 Vdc, 100 mA, min. 5 Vdc, 2 mA; suitable isolating switching amplifier, degree of protection Ex-i

Fixed pressure hysteresis

Pressure adjustment range	Adjustable switching differential	Switching differential	Max. pressure	Sensing element material	Type
bar	bar	mbar	bar		
-0,015 ... 0,006	–	2	1	Perbunan + 1.4301	**VCM4156**
-0,25 ... 0,1	–	25	1,5	Copper + Brass	**VCM301**
-0,25 ... 0,1	–	45	3	1.4104 + 1.4571	**VNM301**
-1 ... 0,1	–	45	3	Copper + Brass	**VCM101**
-0,9 ... 0,5	–	50	3	Copper + Brass	**VCM095**
-1 ... 0,1	–	50	6	1.4104 + 1.4571	**VNM111**

Adjustable pressure hysteresis

Pressure adjustment range	Adjustable switching differential	Switching differential	Max. pressure	Sensing element material	Type
bar	bar	mbar	bar		
-0,25 ... 0,1	0,03 ... 0,2	–	1,5	Copper + Brass	**VCMV301**
-0,25 ... 0,1	0,07 ... 0,5	–	3	1.4104 + 1.4571	**VNMV301**
-1 ... 0,1	0,08 ... 0,35	–	3	Copper + Brass	**VCMV101**
-0,9 ... 0,5	0,09 ... 0,4	–	3	Copper + Brass	**VCMV095**
-1 ... 0,1	0,09 ... 0,65	–	6	1.4104 + 1.4571	**VNMV111**

Syphon for high temperature, steel, U-shape (for more accessories, see Accessories for Pressure Switches / Transmitters)	**U430B**

2

Honeywell   **2-13**

Standard Pressure Switches

Vacuum switch for aggressive liquid, gas (VNS)

For monitoring and controlling pressures in devices of the chemical industry and in the process engineering as well as wherever the pressure of aggressive liquids and gases has to be monitored.

VNS

Kind of pressure	vacuum, relative
Pressure connection	internal thread G1/4, external thread G1/2
Electrical connection	Plug DIN EN 175301
Protection class	IP54
Housing material	rugged housing of seawater resistant aluminium die casting GD Al Si 12.
Media temp.	-25 ... 70 °C
Media temp. limit	temperatures up to 85 °C are allowable for short periods. Higher temperatures are possible, provided that the limit is safeguarded by suitable measures (e.g. water tube trap, see Accessories for Pressure Switches / Transmitters)
Ambient temperature	-25 ... 70 °C
Ambient temp. limit	at temperatures below 0 °C, ensure that no water condensation can arise in the sensor and in the switching device
Switch function/capacity	SPDT Microswitch 250 Vac; capacity 5 A inductive, 8 A resistive
Optional functions	add the type numbers below to the listed type numbers for extra functionality as described

- **-301**: terminal connection housing, IP65
- **-307**: two microswitches, switching in parallel or in succession, fixed switching interval, terminal connection case, IP65
- **-217**: two microswitches, 1 plug, switching in succession, adjustable switching interval
- **-213**: gold-plated contacts, switching capacity: max. 24 Vdc, 100 mA, min. 5 Vdc, 2 mA. And others not available with adjustable switching difference.
- **-351**: protection class IP65 and switching housing with surface protection (chemical version)
- **-513**: gold-plated contacts, switching differential permanent, IP65, switching capacity: max. 24 Vdc, 100 mA, min. 5 Vdc, 2 mA; suitable isolating switching amplifier, degree of protection Ex-i

Sensing element material	1.4571

Fixed pressure hysteresis

Pressure adjustment range bar	Adjustable switching differential mbar	Switching differential mbar	Max. pressure bar	**Type**
-0,25 ... 0,1	–	45	3	**VNS301-201**
-1 ... 0,1	–	50	6	**VNS111-201**

Adjustable pressure hysteresis

Pressure adjustment range bar	Adjustable switching differential mbar	Switching differential mbar	Max. pressure bar	**Type**
-0,25 ... 0,1	70 ... 300	–	3	**VNS301-203**
-1 ... 0,1	90 ... 550	–	6	**VNS111-203**

Syphon for high temperature, steel, U-shape (for more accessories, see Accessories for Pressure Switches / Transmitters)	**U430B**

Pressure Switches, component tested

Pressure monitor for fuel gases (DGM)

DGM310A

For overpressure monitoring of fuel gases.

Kind of pressure	overpressure, relative
Pressure connection	internal thread G1/4, external thread G1/2
Electrical connection	Plug DIN EN 175301
Protection class	IP54
Housing material	rugged housing of seawater resistant aluminium die casting GD Al Si 12
Media temp.	-25 ... 60 $^\circ$C
Media temp. limit	temperatures up to 85 $^\circ$C are allowable for short periods. Higher temperatures are possible, provided that the limit is safeguarded by suitable measures (e.g. water tube trap, see Accessories for Pressure Switches / Transmitters)
Ambient temperature	-25 ... 60 $^\circ$C
Ambient temp. limit	at temperatures below 0 $^\circ$C, ensure that no water condensation can arise in the sensor and in the switching device
Switch function/capacity	SPDT Microswitch 250 Vac; capacity 5 A inductive, 8 A resistive
Optional functions	add the type numbers below to the listed type numbers for extra functionality as described

- **-213**: gold-plated contacts, switching capacity: max. 24 Vdc, 100 mA, min. 5 Vdc, 2 mA. And others not available with adjustable switching difference.
- **-301**: terminal connection housing, IP65
- **-513**: Gold-plated contacts, single-pole switch-over. Switching differential permanent. IP65. Switching capacity: max. 24 Vdc, 100 mA, min. 5 Vdc, 2 mA; suitable isolating switching amplifier, degree of protection Ex-i
- **-574**: Normally closed contact with resistance combination for minimum pressure monitoring. Gold-plated contacts. Housing with surface protection (chemical version), IP65
- **-575**: Normally closed contact with reclosing lock-out resistance combination for minimum pressure monitoring. Housing with surface protection (chemical version), IP65
- **-576**: Normally closed contact with resistance combination for maximum pressure monitoring. Gold-plated contacts. Housing with surface protection (chemical version), IP65
- **-577**: Normally closed contact with reclosing lock-out and resistance combination for maximum pressure monitoring. Housing with surface protection (chemical version), IP65

Certificates	• NG-4346 AP 1011 according DIN EN 1854
	• CE-0085 AQ 1088 according EU/2009/142/EG (30.11.2009) and DIN EN 1854 (01.07.2006)
	• SIL2 according IEC 61508

Fixed pressure hysteresis

Pressure adjustment range bar	Switching differential mbar	Max. pressure bar	Sensing element material	Type
0,015 ... 0,06	6	0,8	Copper + Brass	**DGM306A**
0,02 ... 0,1	7	0,8	Copper + Brass	**DGM310A**
0,04 ... 0,25	10	0,8	Copper + Brass	**DGM325A**
0,1 ... 0,6	25	2	Copper + Brass	**DGM06A**
0,2 ... 1,6	40	3	Copper + Brass	**DGM1A**
0,015 ... 0,06	8	5	1.4104 + 1.4571	**DGM506**
0,04 ... 0,16	12	5	1.4104 + 1.4571	**DGM516**
0,1 ... 0,25	20	5	1.4104 + 1.4571	**DGM525**

Syphon for high temperature, steel, U-shape (for more accessories, see Accessories for Pressure Switches / Transmitters)	**U430B**

Honeywell

Pressure Switches, component tested

Maximum pressure monitor of 'special construction' (DA)

Maximum pressure monitor with selfmonitoring sensor
for steam and hot water

DWAM

TÜV

SIL2 FUNCTIONAL SAFETY ✔

Kind of pressure	overpressure, relative
Pressure connection	internal thread G1/4, external thread G1/2
Electrical connection	Plug DIN EN 175301
Protection class	IP54
Housing material	rugged housing of seawater resistant aluminium die casting GD Al Si 12
Sensing element material	1.4104 + 1.4571
Media temp.	-20 ... 70 $^{\circ}$C
Media temp. limit	temperatures up to 85 $^{\circ}$C are allowable for short periods. Higher temperatures are possible, provided that the limit is safeguarded by suitable measures (e.g. water tube trap, see Accessories for Pressure Switches / Transmitters)
Ambient temperature	-20 ... 70 $^{\circ}$C
Ambient temp. limit	at temperatures below 0 $^{\circ}$C, ensure that no water condensation can arise in the sensor and in the switching device
Switch function/capacity	SPDT Microswitch 250 Vac; capacity 5 A inductive, 8 A resistive
Optional functions	add the type numbers below to the listed type numbers for extra functionality as described

- **-213**: gold-plated contacts, switching capacity: max. 24 Vdc, 100 mA, min. 5 Vdc, 2 mA. And others not available with adjustable switching difference.
- **-301**: terminal connection housing, IP65
- **-513**: Gold-plated contacts, single-pole switch-over. Switching differential permanent. IP65. Switching capacity: max. 24 Vdc, 100 mA, min. 5 Vdc, 2 mA, suitable isolating switching amplifier, degree of protection Ex-i
- **-576**: (only DWAM) Normally closed contact with resistance combination for maximum pressure monitoring. Gold-plated contacts. Housing with surface protection (chemical version), IP65
- **-577**: (only DWAM) Normally closed contact with reclosing lock-out and resistance combination for maximum pressure monitoring. Housing with surface protection (chemical version), IP65

Certificates	• TUEV-DW-04-132 for DWAM ...according VdTUEV Memorandum Pressure 100, Issue 07.2006, DIN EN 12952-11, Issue 09.2007 and DIN EN 12953-9, Issue 09.2007
	• 01 202 931-B-11-0001 according Directive 97/23 EC
	• SIL2 according IEC 61508

Pressure Switches, component tested

Fixed pressure hysteresis

Pressure adjustment range	Adjustable switching differential	Switching differential	Max. pressure	Type
bar	bar	bar	bar	
0,1 ... 0,6	–	0,04	5	**DWAM06**
0,2 ... 1,6	–	0,05	5	**DWAM1**
1,2 ... 6	–	0,2	10	**DWAM6**
1,2 ... 6	–	0,25	20	**DWAM625**
3 ... 16	–	0,4	20	**DWAM16**
6 ... 32	–	1,2	45	**DWAM32**

Adjustable pressure hysteresis

Pressure adjustment range	Adjustable switching differential	Switching differential	Max. pressure	Type
bar	bar	bar	bar	
0,2 ... 1,6	0,12 ... 0,6	–	5	**DWAMV1**
1,2 ... 6	0,4 ... 1,5	–	10	**DWAMV6**
3 ... 16	0,8 ... 2,5	–	20	**DWAMV16**
3 ... 32	2,5 ... 6	–	45	**DWAMV32**

	Type
Syphon for high temperature, steel, U-shape (for more accessories, see Accessories for Pressure Switches / Transmitters)	**U430B**

Pressure Switches, component tested

Pressure monitor for hot water, steam, gas, fuel (DWR)

DWR

TÜV

SIL2
IEC 61508-2
ISO 13849-1 FUNCTIONAL SAFETY ✓

For overpressure monitoring of steam, hot water, burnable gases, liquid fuels.

Kind of pressure	overpressure, relative
Pressure connection	internal thread G1/4, external thread G1/2
Electrical connection	Plug DIN EN 175301
Protection class	IP54
Housing material	rugged housing of seawater resistant aluminium die casting GD Al Si 12
Sensing element material	1.4104 + 1.4571
Media temp.	-25 ... 70 $^\circ$C
Media temp. limit	temperatures up to 85 $^\circ$C are allowable for short periods. Higher temperatures are possible, provided that the limit is safeguarded by suitable measures (e.g. water tube trap, see Accessories for Pressure Switches / Transmitters)
Ambient temperature	-25 ... 70 $^\circ$C
Ambient temp. limit	at temperatures below 0 $^\circ$C, ensure that no water condensation can arise in the sensor and in the switching device
Switch function/capacity	SPDT Microswitch 250 Vac; capacity 5 A inductive, 8 A resistive
Mechanical lock/reset	with special function possible
Optional functions	add the type numbers below to the listed type numbers for extra functionality as described

- **-213**: gold-plated contacts, switching capacity: max. 24 Vdc, 100 mA, min. 5 Vdc, 2 mA. And others not available with adjustable switching difference.
- **-301**: terminal connection housing, IP65
- **-513**: Gold-plated contacts, single-pole switch-over. Switching differential permanent. IP65. Switching capacity: max. 24 Vdc, 100 mA, min. 5 Vdc, 2 mA, suitable isolating switching amplifier, degree of protection Ex-i
- **-574**: Normally closed contact with resistance combination for minimum pressure monitoring. Gold-plated contacts. Housing with surface protection (chemical version), IP65
- **-575**: Normally closed contact with reclosing lock-out resistance combination for minimum pressure monitoring. Housing with surface protection (chemical version), IP65
- **-576**: Normally closed contact with resistance combination for maximum pressure monitoring. Gold-plated contacts. Housing with surface protection (chemical version), IP65
- **-577**: Normally closed contact with reclosing lock-out and resistance combination for maximum pressure monitoring. Housing with surface protection (chemical version), IP65

Certificates	

- ID 0000007042 according VdTUEV Memorandum Pressure 100, Issue 07.2006 and DIN EN 12952-11 and DIN EN 12953-9:2007
- TV.DWFS (SDBFS).12-281 according VdTUEV Memorandum Pressure 100, Issue 07.2006 and DIN EN 12952-11 and DIN EN 12953-9:2007
- ID 0000035004 according DIN EN 764-7:2002 and DIN EN 13611:2008
- CE-0085CL0343 according to DIN EN 1854, Issue 07.2006
- 01 202 931-B-11-0003 according Directive 97/23 EC
- SIL2 according IEC 61508

Pressure Switches, component tested

Fixed pressure hysteresis

Pressure adjustment range	Adjustable switching differential	Switching differential	Max. pressure	Allowable max. gas-pressure	Type
bar	bar	bar	bar	bar	
0,1 ... 0,6	–	0,04	6	6	**DWR06**
0,2 ... 1,6	–	0,06	6	6	**DWR1**
0,2 ... 2,5	–	0,1	16	10	**DWR3**
0,5 ... 6	–	0,2	16	10	**DWR6**
0,5 ... 6	–	0,25	25	20	**DWR625**
3 ... 16	–	0,5	25	20	**DWR16**
4 ... 25	–	1	63	50	**DWR25**
8 ... 40	–	1,3	63	50	**DWR40**

Adjustable pressure hysteresis

Pressure adjustment range	Adjustable switching differential	Switching differential	Max. pressure	Allowable max. gas-pressure	Type
bar	bar	bar	bar	bar	
0,1 ... 0,6	0,08 ... 0,5	–	6	6	**DWR06-203**
0,2 ... 1,6	0,15 ... 0,6	–	6	6	**DWR1-203**
0,2 ... 2,5	0,17 ... 1,2	–	16	10	**DWR3-203**
0,5 ... 6	0,3 ... 1,4	–	16	10	**DWR6-203**
0,5 ... 6	0,4 ... 2,5	–	25	20	**DWR625-203**
3 ... 16	0,75 ... 3,15	–	25	20	**DWR16-203**
4 ... 25	1,3 ... 6	–	63	50	**DWR25-203**
8 ... 40	2,3 ... 6,6	–	63	50	**DWR40-203**

	Type
Syphon for high temperature, steel, U-shape (for more accessories, see Accessories for Pressure Switches / Transmitters)	**U430B**

Pressure Switches, component tested

Maximum pressure limiter for hot water, steam, fuel, gas (DWR-B)

For maximum-pressure detection of steam, hot water, burnable gases, liquid fuels.

DWR-205

TÜV

Kind of pressure	overpressure, relative
Pressure connection	internal thread G1/4, external thread G1/2
Electrical connection	Plug DIN EN 175301
Protection class	IP54
Housing material	rugged housing of seawater resistant aluminium die casting GD Al Si 12
Sensing element material	1.4104 + 1.4571
Media temp.	-25 ... 70 °C
Media temp. limit	temperatures up to 85 °C are allowable for short periods. Higher temperatures are possible, provided that the limit is safeguarded by suitable measures (e.g. water tube trap, see Accessories for Pressure Switches / Transmitters)
Ambient temperature	-25 ... 70 °C
Ambient temp. limit	at temperatures below 0 °C, ensure that no water condensation can arise in the sensor and in the switching device
Switch function/capacity	SPDT Microswitch 250 Vac; capacity 5 A inductive, 8 A resistive
Certificates	• ID 0000007042 according VdTUEV Memorandum Pressure 100, Issue 07.2006, DIN EN 12952-11:2007 and DIN EN 12953-9:2007 • TV-DWFS (SDBFS).12-281 according VdTUEV Memorandum Pressure 100, Issue 07.2006, DIN EN 12952-11:2007 and DIN EN 12953-9:2007 • ID 0000035004 according DIN EN 764-7:2002 and DIN EN 13611:2008 • ID 0000020756 according VdTUEV Memorandum Pressure 100, issue 04.83 • CE-0085CL0343 according DIN EN 1854, Issue 7.2006 • 01 202 931-B-11-0003 according to Directive 97/23 EG • SIL2 according IEC 61508
Pressure interlock/Reset	maximum press./button

Pressure adjustment range	Max. pressure	Allowable max. gas-pressure	Type
bar	bar	bar	
0,1 ... 0,6	6	6	**DWR06-205**
0,2 ... 1,6	6	6	**DWR1-205**
0,2 ... 2,5	16	10	**DWR3-205**
0,5 ... 6	16	10	**DWR6-205**
0,5 ... 6	25	20	**DWR625-205**
3 ... 16	25	20	**DWR16-205**
4 ... 25	63	50	**DWR25-205**
8 ... 40	63	50	**DWR40-205**

Syphon for high temperature, steel, U-shape, for more accessories, see Accessories for Pressure Switches / Transmitters)	**U430B**

Pressure Switches, component tested

Minimum pressure limiter for hot water, steam, fuel, gas (DWR-B)

For minimum-pressure detection of steam, hot water, burnable gases, liquid fuels.

Kind of pressure	overpressure, relative
Pressure connection	internal thread G1/4, external thread G1/2
Electrical connection	Plug DIN EN 175301
Protection class	IP54
Housing material	rugged housing of seawater resistant aluminium die casting GD Al Si 12
Sensing element material	1.4104 + 1.4571
Media temp.	-25 ... 70 $^{\circ}$C
Media temp. limit	temperatures up to 85 $^{\circ}$C are allowable for short periods. Higher temperatures are possible, provided that the limit is safeguarded by suitable measures (e.g. water tube trap, see Accessories for Pressure Switches / Transmitters)
Ambient temperature	-25 ... 70 $^{\circ}$C
Ambient temp. limit	at temperatures below 0 $^{\circ}$C, ensure that no water condensation can arise in the sensor and in the switching device
Switch function/capacity	SPDT Microswitch 250 Vac; capacity 5 A inductive, 8 A resistive
Certificates	• ID 0000007042 according VdTUEV Memorandum Pressure 100, Issue 07.2006, DIN EN 12952-11:2007 and DIN EN 12953-9:2007
	• TV.DWFS (SDBFS).12-281 according VdTUEV Memorandum Pressure 100, Issue 07.2006, DIN EN 12952-11:2007 and DIN EN 12953-9:2007
	• ID 0000035004 according DIN EN 764-7:2002 and DIN EN 13611:2008
	• ID 0000020757 according VdTUEV Memorandum Pressure 100, Issue 4.83
	• CE-0085CL0343 according DIN EN 1854, Issue 7.2006
	• 01 202 931-B-11-0003 according to Directive 97/23 EG
	• SIL2 according IEC 61508
Pressure interlock/Reset	minimum press./button

DWR-206

TÜV

SIL2 FUNCTIONAL SAFETY ✓

Pressure adjustment range bar	Max. pressure bar	Allowable max. gas-pressure bar	Type
0,1 ... 0,6	6	6	**DWR06-206**
0,2 ... 1,6	6	6	**DWR1-206**
0,2 ... 2,5	16	10	**DWR3-206**
0,5 ... 6	16	10	**DWR6-206**
0,5 ... 6	25	20	**DWR625-206**
3 ... 16	25	20	**DWR16-206**
4 ... 25	63	50	**DWR25-206**
8 ... 40	63	50	**DWR40-206**

Syphon for high temperature, steel, U-shape, for more accessories, see Accessories for Pressure Switches / Transmitters)	**U430B**

Pressure Switches, component tested
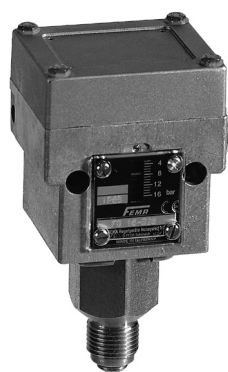
Maximum pressure limiter (FD)

Maximum pressure limiter for liquid gas systems with safety function, degree of protection Ex-i (only together with isolating switching amplifier).

Kind of pressure	overpressure, relative
Pressure connection	external thread G1/2
Electrical connection	terminal connection M16x1,5
Protection class	IP65
Housing material	rugged housing of seawater resistant aluminium die casting GD Al Si 12
Media temp.	-25 ... 60 $^{\circ}$C
Media temp. limit	temperatures up to 60 $^{\circ}$C are allowable for short periods. Higher temperatures are possible, provided that the limit is safeguarded by suitable measures (e.g. water tube trap, see Accessories for Pressure Switches / Transmitters)
Ambient temperature	-25 ... 60 $^{\circ}$C
Ambient temp. limit	at temperatures below 0 $^{\circ}$C, ensure that no water condensation can arise in the sensor and in the switching device
Switch function/capacity	SPDT Microswitch with resistor combination for circuit- break and short-circuit
Certificates	• ID 0000033127 according VdTUEV Memorandum Pressure 100/1, Issue 07.2006 and DIN EN 12952-11, Issue 09.2007 and DIN EN 12953-9, Issue 09.2007 • 01 202 931-B-11-0002 according Directive 97/23/EC • SIL2 according IEC 61508
Pressure adjustment range	3 ... 16 bar
Max. pressure	40 bar
Sensing element material	1.4104 + 1.4571
Additional description	**Products only may be used in conjunction with isolating switching amplifier.**

FD16326

TÜV

SIL2 FUNCTIONAL SAFETY

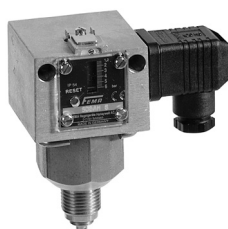| Switching differential bar	Pressure interlock/Reset	Type
0,5	maximum press./electrical	**FD16-326**
2,5	maximum press./button	**FD16-327**

Syphon for high temperature, steel, U-shape (for more accessories, see Accessories for Pressure Switches / Transmitters)	**U430B**

Pressure Switches, component tested

Maximum pressure limiter of 'special construction' (SDB)

Maximum pressure limiter with selfmonitoring sensor and internal relock
For steam and hot water.

SDBAM06

TÜV

SIL2 FUNCTIONAL SAFETY ✓

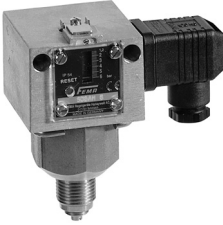|	
Kind of pressure	overpressure, relative
Pressure connection	internal thread G1/4, external thread G1/2
Electrical connection	Plug DIN EN 175301
Protection class	IP54
Housing material	rugged housing of seawater resistant aluminium die casting GD Al Si 12.
Sensing element material	1.4104 + 1.4571
Media temp.	-20 ... 70 °C
Media temp. limit	temperatures up to 85 °C are allowable for short periods. Higher temperatures are possible, provided that the limit is safeguarded by suitable measures (e.g. water tube trap, see Accessories for Pressure Switches / Transmitters)
Ambient temperature	-20 ... 70 °C
Ambient temp. limit	at temperatures below 0 °C, ensure that no water condensation can arise in the sensor and in the switching device
Switch function/capacity	SPDT Microswitch 250 Vac; capacity 5 A inductive, 8 A resistive
Certificates	• TUEV-SDB-11-134 according VdTUEV Memorandum Pressure 100, Issue 07.2006, DIN EN 12952-11, Issue 09.2007 and DIN EN 12953-9, Issue 09.2007 • 01 202 931-B-11-0001 according to Directive 97/23/EC • SIL2 according IEC 61508
Pressure interlock/Reset	maximum press./button

Pressure adjustment range	Switching differential	Max. pressure	Type
bar	bar	bar	
0,2 ... 1,6	0,12	5	**SDBAM1**
0,4 ... 2,5	0,15	5	**SDBAM2.5**
1,2 ... 6	0,4	10	**SDBAM6**
1,2 ... 6	0,6	20	**SDBAM625**
3 ... 16	0,8	20	**SDBAM16**
6 ... 32	3	45	**SDBAM32**

Syphon for high temperature, steel, U-shape (for more accessories, see Accessories for Pressure Switches / Transmitters)	**U430B**

Pressure Switches with ATEX Approval

Pressure switch (Ex) for liquid, gas (Ex-DCM)

EXDCM

Pressure switch for Ex-applications. Degree of Ex-protection: CE 0035 Ex II 2G Ex db eb IIC T6 and CE 0035 Ex II 2D Ex tb IIIC IP65 T85°C
For overpressure monitoring of non-aggressive liquids and gaseous media.

Kind of pressure	overpressure, relative
Pressure connection	internal thread G1/4, external thread G1/2
Electrical connection	terminal connection M16x1,5
Protection class	IP65
Housing material	rugged housing of seawater resistant aluminium die casting GD Al Si 12.
Media temp.	-15 ... 60 °C
Media temp. limit	temperatures up to 80 °C are allowable for short periods. Higher temperatures are possible, provided that the limit is safeguarded by suitable measures (e.g. water tube trap, see Accessories for Pressure Switches / Transmitters)
Ambient temperature	-15 ... 60 °C
Ambient temp. limit	at temperatures below 0 °C, ensure that no water condensation can arise in the sensor and in the switching device
Switch function/capacity	SPDT Microswitch; capacity 2 A inductive, 3 A resistive
Certificates	• ATEX-approval No. PTB 02 ATEX 1121

Fixed pressure hysteresis

Pressure adjustment range bar	Switching differential bar	Max. pressure bar	Sensing element material	**Type**
0,001 ... 0,016	0,002	1	Perbunan + 1.4301	**EX-DCM4016**
0,004 ... 0,025	0,002	1	Perbunan + 1.4301	**EX-DCM4025**
1 ... 10	0,3	16	1.4104 + 1.4571	**EX-DNM10**
16 ... 63	1	130	1.4104 + 1.4571	**EX-DNM63**

Syphon for high temperature, steel, U-shape (for more accessories, see Accessories for Pressure Switches / Transmitters)	**U430B**

EXDNM

Pressure Switches with ATEX Approval

Pressure switch (Ex) for aggressive liquid, gas (Ex-DNS)

For monitoring and controlling pressures in Ex-applications in devices of the chemical industry and in the process engineering as well as wherever the pressure of aggressive liquids and gases has to be monitored. Degree of Ex-protection: CE 0035 Ex II 2G Ex db eb IIC T6 and CE 0035 Ex II 2D ex tb IIIC IP65 T85^{o}C.

EX-DNS16

Kind of pressure	overpressure, relative
Pressure connection	internal thread G1/4, external thread G1/2
Electrical connection	terminal connection M16x1,5
Protection class	IP65
Housing material	rugged housing of seawater resistant aluminium die casting GD Al Si 12
Media temp.	-15 ... 60 ^{o}C
Media temp. limit	temperatures up to 80 ^{o}C are allowable for short periods. Higher temperatures are possible, provided that the limit is safeguarded by suitable measures (e.g. water tube trap, see Accessories for Pressure Switches / Transmitters)
Ambient temperature	-15 ... 60 ^{o}C
Ambient temp. limit	at temperatures below 0 ^{o}C, ensure that no water condensation can arise in the sensor and in the switching device
Switch function/capacity	SPDT Microswitch 250 Vac; capacity 2 A inductive, 3 A resistive
Certificates	ATEX-approval No. PTB 02 ATEX 1121
Sensing element material	1.4571

Fixed pressure hysteresis

Pressure adjustment range bar	Switching differential bar	Max. pressure bar	Type
0,04 ... 0,25	0,03	6	**EX-DNS025**
0,1 ... 0,6	0,04	6	**EX-DNS06**
0,2 ... 1,6	0,06	6	**EX-DNS1**
0,2 ... 2,5	0,1	16	**EX-DNS3**
0,5 ... 6	0,15	16	**EX-DNS6**
1 ... 10	0,3	16	**EX-DNS10**
3 ... 16	0,5	25	**EX-DNS16**

Syphon for high temperature, steel, U-shape (for more accessories, see Accessories for Pressure Switches / Transmitters)	**U430B**

Pressure Switches with ATEX Approval
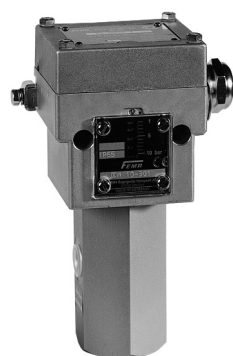
Differential pressure switch (Ex) for liquid, gas (Ex-DDCM)

Differential pressure switch for Ex-applications. Degree of Ex-protection: CE 0035 Ex II 2G Ex db eb IIC T6 and CE 0035 Ex II 2D Ex tb IIIC IP65 T85°C
For flow monitoring and differential pressure control of steam, gas, hot/cold water and automatic checking of filter plant.

EXDDCM1

Kind of pressure	differential pressure, relative
Pressure connection	internal thread G1/4
Electrical connection	terminal connection M16x1,5
Protection class	IP65
Housing material	rugged housing of seawater resistant aluminium die casting GD Al Si 12
Media temp.	-15 ... 60 °C
Media temp. limit	temperatures up to 80 °C are allowable for short periods. Higher temperatures are possible, provided that the limit is safeguarded by suitable measures (e.g. water tube trap, see Accessories for Pressure Switches / Transmitters)
Ambient temperature	-15 ... 60 °C
Ambient temp. limit	at temperatures below 0 °C, ensure that no water condensation can arise in the sensor and in the switching device
Switch function/capacity	SPDT Microswitch; capacity 2 A inductive, 3 A resistive
Certificates	• ATEX-approval No. PTB 02 ATEX 1121

Pressure adjustment range	Switching differential	Max. pressure	Sensing element material	Type
bar	bar	bar		
0,004 ... 0,025	0,002	0,5	Perbunan + Aluminium	**EX-DDCM252**
0,01 ... 0,06	0,015	1,5	Perbunan + Aluminium	**EX-DDCM662**
0,02 ... 0,16	0,02	3	Perbunan + Aluminium	**EX-DDCM1602**
0,1 ... 0,6	0,035	3	Perbunan + Aluminium	**EX-DDCM6002**
-0,1 ... 0,4	0,15	15	1.4305 + 1.4571	**EX-DDCM014**
0,2 ... 1,6	0,13	15	1.4305 + 1.4571	**EX-DDCM1**
1 ... 4	0,2	25	1.4305 + 1.4571	**EX-DDCM4**
0,5 ... 6	0,2	15	1.4305 + 1.4571	**EX-DDCM6**
3 ... 16	0,6	25	1.4305 + 1.4571	**EX-DDCM16**

Syphon for high temperature, steel, U-shape (for more accessories, see Accessories for Pressure Switches / Transmitters)	**U430B**

Pressure Switches with ATEX Approval

Vacuum switches (Ex) liquid, gas (Ex-VCM)

EXVCM

Vacuum switches for Ex-applications. Degree of Ex-protection: CE 0035 Ex II 2G Ex db eb IIC T6 and CE 0035 Ex II 2D Ex tb IIIC IP65 T85°C.
For monitoring vacuum of non-aggressive liquids and gaseous media.

|	
Kind of pressure	vacuum, relative
Pressure connection	internal thread G1/4, external thread G1/2
Electrical connection	terminal connection M16x1,5
Protection class	IP65
Housing material	rugged housing of seawater resistant aluminium die casting GD Al Si 12.
Media temp.	-15 ... 60 $^{\circ}$C
Media temp. limit	temperatures up to 80 $^{\circ}$C are allowable for short periods. Higher temperatures are possible, provided that the limit is safeguarded by suitable measures (e.g. water tube trap, see Accessories for Pressure Switches / Transmitters)
Ambient temperature	-15 ... 60 $^{\circ}$C
Ambient temp. limit	at temperatures below 0 $^{\circ}$C, ensure that no water condensation can arise in the sensor and in the switching device
Switch function/capacity	SPDT Microswitch 250 Vac; capacity 2 A inductive, 3 A resistive
Certificates	ATEX-approval No. PTB 02 ATEX 1121

Pressure adjustment range mbar	Switching differential mbar	Max. pressure bar	Sensing element material	Type
-15 ... 6	2	1	Perbunan + 1.4301	**EX-VCM4156**
-250 ... 100	25	1,5	Copper + Brass	**EX-VCM301**
-250 ... 100	45	3	1.4104 + 1.4571	**EX-VNM301**
-1000 ... 100	45	3	Copper + Brass	**EX-VCM101**
-900 ... 500	50	3	Copper + Brass	**EX-VCM095**
-1000 ... 100	50	6	1.4104 + 1.4571	**EX-VNM111**

Syphon for high temperature, steel, U-shape (for more accessories, see Accessories for Pressure Switches / Transmitters)	**U430B**

Pressure Switches with ATEX Approval

Vacuum switch (Ex) for aggressive liquid, gas (Ex-VNS)

For monitoring and controlling pressures in Ex-applications in devices of the chemical industry and in the process engineering as well as wherever the pressure of aggressive liquids and gases has to be monitored. Degree of Ex-protection: CE 0035 Ex II 2G Ex db eb IIC T6 and CE 0035 Ex II 2D Ex tb IIIC IP65 T85^{o}C.

EXVNS

Kind of pressure	vacuum, relative
Pressure connection	internal thread G1/4, external thread G1/2
Electrical connection	terminal connection M16x1,5
Protection class	IP65
Housing material	rugged housing of seawater resistant aluminium die casting GD Al Si 12.
Media temp.	-15 ... 60 ^{o}C
Media temp. limit	temperatures up to 80 ^{o}C are allowable for short periods. Higher temperatures are possible, provided that the limit is safeguarded by suitable measures (e.g. water tube trap, see Accessories for Pressure Switches / Transmitters)
Ambient temperature	-15 ... 60 ^{o}C
Ambient temp. limit	at temperatures below 0 ^{o}C, ensure that no water condensation can arise in the sensor and in the switching device
Switch function/capacity	SPDT Microswitch 250 Vac; capacity 2 A inductive, 3 A resistive
Certificates	ATEX-approval No. PTB 02 ATEX 1121
Sensing element material	1.4571

Fixed pressure hysteresis

Pressure adjustment range mbar	Switching differential mbar	Max. pressure bar	Type
-250 ... 100	45	3	**EX-VNS301**
-1000 ... 100	50	6	**EX-VNS111**

Syphon for high temperature, steel, U-shape (for more accessories, see Accessories for Pressure Switches / Transmitters)	**U430B**

Pressure Switches, component-tested with ATEX Approval

Pressure monitor (Ex) for burnable gas (Ex-DGM)

For overpressure monitoring in Ex-applications of fuel gases. Degree of Ex-protection: CE 0035 Ex II 2G Ex db eb IIC T6 and CE 0035 Ex II 2D Ex tb IIIC IP65 T85°C.

EXDGM525

Kind of pressure	overpressure, relative
Pressure connection	internal thread G1/4, external thread G1/2
Electrical connection	terminal connection M16x1,5
Protection class	IP65
Housing material	rugged housing of seawater resistant aluminium die casting GD Al Si 12
Sensing element material	1.4104 + 1.4571
Media temp.	-15 ... 60 °C
Media temp. limit	temperatures up to 80 °C are allowable for short periods. Higher temperatures are possible, provided that the limit is safeguarded by suitable measures (e.g. water tube trap, see Accessories for Pressure Switches / Transmitters)
Ambient temperature	-15 ... 60 °C
Ambient temp. limit	at temperatures below 0 °C, ensure that no water condensation can arise in the sensor and in the switching device
Switch function/capacity	SPDT Microswitch 250 Vac; capacity 2 A inductive, 3 A resistive
Certificates	• NG-4346 AP 1011 according DIN EN 1854 • CE-0085 AQ 1088 according EU/2009/142/EG (30.11.2009) and DIN EN 1854 (01.07.2006) • PTB 02 ATEX 1121 according Directive 94/9 EC • SIL2 according IEC 61508
Max. pressure	5 bar

Pressure adjustment range mbar	Switching differential mbar	Type
15 ... 60	10	**EX-DGM506**
40 ... 160	12	**EX-DGM516**
100 ... 250	20	**EX-DGM525**

Syphon for high temperature, steel, U-shape (for more accessories, see Accessories for Pressure Switches / Transmitters)	**U430B**

Pressure Switches, component-tested with ATEX Approval

Pressure monitor (Ex) for hot water, steam, gas, fuel (Ex-DWR)

For overpressure monitoring in ex-applications of steam, hot water, burnable gases, liquid fuels.
Degree of Ex-protection: CE 0035 Ex II 2 G Ex db eb IIC T6 and CE 0035 Ex II 2D Ex tb IIIC IP65 T 85°C

Kind of pressure	overpressure, relative
Pressure connection	internal thread G1/4, external thread G1/2
Electrical connection	terminal connection M16x1,5
Protection class	IP65
Housing material	rugged housing of seawater resistant aluminium die casting GD Al Si 12
Sensing element material	1.4104 + 1.4571
Media temp.	-15 ... 60 °C
Media temp. limit	temperatures up to 80 °C are allowable for short periods. Higher temperatures are possible, provided that the limit is safeguarded by suitable measures (e.g. water tube trap, see Accessories for Pressure Switches / Transmitters)
Ambient temperature	-15 ... 60 °C
Ambient temp. limit	at temperatures below 0 °C, ensure that no water condensation can arise in the sensor and in the switching device
Switch function/capacity	SPDT Microswitch 250 Vac; capacity 2 A inductive, 3 A resistive
Certificates	• ID 0000007042 according VdTUEV Memorandum Pressure 100, Issue 7.2006 and DIN EN 12952-11 and DIN EN 12953-9:2007
	• TV.DWFS (SDBFS).12-281 according VdTUEV Memorandum Pressure 100, Issue 7.2006 and DIN EN 12952-11 and DIN EN 12953-9:2007
	• ID 0000035004 according DIN EN 764-7:2002 and DIN EN 13611:2008
	• CE-0085CL0343 according to DIN EN 1854, Issue 07.2006
	• 01 202 931-B-11-0003 according Directive 97/23 EC
	• ATEX-approval No. PTB 02 ATEX 1121
	• SIL2 according IEC 61508

EXDWR6

TÜV

Fixed pressure hysteresis

Pressure adjustment range bar	Switching differential bar	Max. pressure bar	Allowable max. gas-pressure bar	Type
0,1 ... 0,6	0,04	6	6	**EX-DWR06**
0,2 ... 1,6	0,06	6	6	**EX-DWR1**
0,2 ... 2,5	0,1	16	10	**EX-DWR3**
0,5 ... 6	0,2	16	10	**EX-DWR6**
0,5 ... 6	0,25	25	20	**EX-DWR625**
3 ... 16	0,5	25	20	**EX-DWR16**
4 ... 25	1	63	50	**EX-DWR25**
8 ... 40	1,3	63	50	**EX-DWR40**

Syphon for high temperature, steel, U-shape (for more accessories, see Accessories for Pressure Switches / Transmitters)	**U430B**

Electronic Pressure Transmitters

Electronic Pressure transmitter for gas and liquid (Smart SN)

Electronic Pressure Transmitters are microprocessor-controlled pressure measurement devices for relative pressures of -1 to +1 bar and 0 to 40 bar. They are suitable for an extremely wide range of applications, including the precision recordin and monitoring of system pressure.
Features:
- Configurable as 0/2...10V or 0/4...20 mA (3-wire)
- Adjustable attenuation filter
- LCD graphical display (Human-Machine-Interface models, only) can be swiveled for better readability; display can be rotated in 90° steps by software

Media temp.	-20 ... 80 °C
Sensing element material	1.4571
Certificates	All 2-wire versions are SIL2 approved according IEC 61508

PTSR

Pressure Transmitter without HMI (2-wire, 4-20 mA)

Pressure range bar	Max. pressure bar	Protection class	Ambient temperature °C	Type
-1 ... 1	6	IP67	-20 ... 80	**PTSRV1011A2**
0 ... 1	3	IP67	-20 ... 80	**PTSRB0011A2**
0 ... 4	12	IP67	-20 ... 80	**PTSRB0041A2**
0 ... 10	30	IP67	-20 ... 80	**PTSRB0101A2**
0 ... 16	48	IP67	-20 ... 80	**PTSRB0161A2**
0 ... 25	50	IP67	-20 ... 80	**PTSRB0251A2**
0 ... 40	80	IP67	-20 ... 80	**PTSRB0401A2**

Pressure Transmitter without HMI (3-wire, 0-10V)

Pressure range bar	Max. pressure bar	Protection class	Ambient temperature °C	Type
-1 ... 1	6	IP67	-20 ... 80	**PTSRV1011V3**
0 ... 1	3	IP67	-20 ... 80	**PTSRB0011V3**
0 ... 4	12	IP67	-20 ... 80	**PTSRB0041V3**
0 ... 10	30	IP67	-20 ... 80	**PTSRB0101V3**
0 ... 16	48	IP67	-20 ... 80	**PTSRB0161V3**
0 ... 25	50	IP67	-20 ... 80	**PTSRB0251V3**
0 ... 40	80	IP67	-20 ... 80	**PTSRB0401V3**

Pressure Transmitter without HMI (3-wire, 4...20mA)

Pressure range bar	Max. pressure bar	Protection class	Ambient temperature °C	Type
-1 ... 1	6	IP67	-20 ... 80	**PTSRV1011A3**
0 ... 1	3	IP67	-20 ... 80	**PTSRB0011A3**
0 ... 4	12	IP67	-20 ... 80	**PTSRB0041A3**
0 ... 10	30	IP67	-20 ... 80	**PTSRB0101A3**
0 ... 16	48	IP67	-20 ... 80	**PTSRB0161A3**
0 ... 25	50	IP67	-20 ... 80	**PTSRB0251A3**
0 ... 40	80	IP67	-20 ... 80	**PTSRB0401A3**

Electronic Pressure Transmitters

Pressure Transmitter with HMI (2-wire, 4-20 mA)

Pressure range bar	Max. pressure bar	Protection class	Ambient temperature ^{0}C	Type
-1 ... 1	6	IP65	-20 ... 70	**PTHRV1011A2**
0 ... 1	3	IP65	-20 ... 70	**PTHRB0011A2**
0 ... 4	12	IP65	-20 ... 70	**PTHRB0041A2**
0 ... 10	30	IP65	-20 ... 70	**PTHRB0101A2**
0 ... 16	48	IP65	-20 ... 70	**PTHRB0161A2**
0 ... 25	50	IP65	-20 ... 70	**PTHRB0251A2**
0 ... 40	80	IP65	-20 ... 70	**PTHRB0401A2**

Pressure Transmitter with HMI (3-wire, 0-10 V)

Pressure range bar	Max. pressure bar	Protection class	Ambient temperature ^{0}C	Type
-1 ... 1	6	IP65	-20 ... 70	**PTHRV1011V3**
0 ... 1	3	IP65	-20 ... 70	**PTHRB0011V3**
0 ... 4	12	IP65	-20 ... 70	**PTHRB0041V3**
0 ... 10	30	IP65	-20 ... 70	**PTHRB0101V3**
0 ... 16	48	IP65	-20 ... 70	**PTHRB0161V3**
0 ... 25	50	IP65	-20 ... 70	**PTHRB0251V3**
0 ... 40	80	IP65	-20 ... 70	**PTHRB0401V3**

Accessory

Field configuration tool	**CFT1**

2

Electronic Pressure Transmitters

Electronic Differential Pressure transmitter for gas and liquid (Smart SN DIFF)

Electronic Differential Pressure Transmitters are microprocessor-controlled pressure measurement devices for a differential pressure range of 0 ... 20 bar. They are suitable for an extremely wide range of applications, including the precision recording and monitoring of system pressure. They come complete with an angled M12X1 plug and are mounted directly to the pipe via two G1/4" internal thread connections.

Features:

- Configurable as 0/2...10V or 0/4...20 mA (3-wire)
- Adjustable attenuation filter
- LCD graphical display (Human-Machine-Interface models, only) can be swiveled for better readability; display can be rotated in 90° steps by software for better readability; HMI can be freely swiveled 310°
- Self-monitoring electronics
- Power supply 24 VAC/DC (3-wire models)
- Power supply 18-35 V DC (2-wire models)

Media temp.   -20 ... 80 °C

PTHD

Pressure Transmitter with HMI (2-wire)

Pressure range bar	Max. pressure bar	Protection class	Ambient temperature °C	Type
0 ... 0,1	0,9	IP65	-20 ... 70	**PTHDM1002A2**
0 ... 0,3	0,9	IP65	-20 ... 70	**PTHDM3002A2**
0 ... 1	3	IP65	-20 ... 70	**PTHDB0012A2**
0 ... 3	9	IP65	-20 ... 70	**PTHDB0032A2**
0 ... 6	21	IP65	-20 ... 70	**PTHDB0062A2**
0 ... 20	60	IP65	-20 ... 70	**PTHDB0202A2**

Pressure Transmitter without HMI (3-wire)

Pressure range bar	Max. pressure bar	Protection class	Ambient temperature °C	Type
0 ... 0,1	0,9	IP67	-20 ... 80	**PTSDM1002V3**
0 ... 0,3	0,9	IP67	-20 ... 80	**PTSDM3002V3**
0 ... 1	3	IP67	-20 ... 80	**PTSDB0012V3**
0 ... 3	9	IP67	-20 ... 80	**PTSDB0032V3**
0 ... 6	21	IP67	-20 ... 80	**PTSDB0062V3**
0 ... 20	60	IP67	-20 ... 80	**PTSDB0202V3**

Pressure Transmitter with HMI (3-wire)

Pressure range bar	Max. pressure bar	Protection class	Ambient temperature °C	Type
0 ... 0,1	0,9	IP65	-20 ... 70	**PTHDM1002V3**
0 ... 0,3	0,9	IP65	-20 ... 70	**PTHDM3002V3**
0 ... 1	3	IP65	-20 ... 70	**PTHDB0012V3**
0 ... 3	9	IP65	-20 ... 70	**PTHDB0032V3**
0 ... 6	21	IP65	-20 ... 70	**PTHDB0062V3**
0 ... 20	60	IP65	-20 ... 70	**PTHDB0202V3**

Mechanical Inductive Transmitters
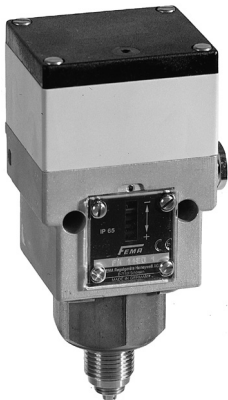
Vacuum transmitter with terminal connection for liquid, gas (FVNED1)

Vacuum transmitter, 3-wire system.
For vacuum control of liquids or gaseous media, e.g. for district heating or cooling.

Kind of pressure	vacuum, relative
Pressure connection	internal thread G1/4, external thread G1/2
Electrical connection	terminal connection 2 x M16x1,5
Protection class	IP65
Sensing method	mechanical-inductive
Sensing element material	1.4104 + 1.4571
Media temp.	0 ... 70 °C
Media temp. limit	temperatures up to 85 °C are allowable for short periods. Higher temperatures are possible, provided that the limit is safeguarded by suitable measures (e.g. water tube trap, see Accessories for Pressure Switches / Transmitters)
Medium	liquid/gaseous
Ambient temperature	0 ... 45 °C
Power supply	19..29Vac, 24..36Vdc
Output signal	0/2..10Vdc + 0/4..20mA
Additional description	Accuracy class: 1,0

FN1ED1

Pressure range bar	Max. pressure bar	Type
-1 ... 0	6	**FVN111+ED1**
-1 ... 1	6	**FVN112+ED1**
-1 ... 5	25	**FVN105+ED1**
-0,25 ... 0,25	3	**FVN125+ED1**

Syphons for high temperature, steel, u-shape (for more accessories see Accessories for Pressure Switches / Transmitters)	**U430B**

Mechanical Inductive Transmitters

Vacuum transmitter with plug connection for liquid, gas (FVNED3)

FN-ED3

Vacuum transmitter, 3-wire system.
For vacuum control of liquids or gaseous media, e.g. for district heating or cooling.

Kind of pressure	vacuum, relative
Pressure connection	internal thread G1/4, external thread G1/2
Electrical connection	Plug DIN EN 175301
Protection class	IP65
Sensing method	mechanical-inductive
Sensing element material	1.4104 + 1.4571
Media temp.	0 ... 70 ^{o}C
Media temp. limit	temperatures up to 85 ^{o}C are allowable for short periods. Higher temperatures are possible, provided that the limit is safeguarded by suitable measures (e.g. water tube trap, see Accessories for Pressure Switches / Transmitters)
Medium	liquid/gaseous
Ambient temperature	0 ... 45 ^{o}C
Power supply	19..29Vac, 24..36Vdc
Output signal	0..10Vdc + 0..20mA
Additional description	Accuracy class: 1,0

Pressure range bar	Max. pressure bar	Type
-1 ... 0	6	**FVN111+ED3**
-1 ... 1	6	**FVN112+ED3**
-1 ... 5	25	**FVN105+ED3**
-0,25 ... 0,25	3	**FVN125+ED3**

Syphons for high temperature, steel, u-shape (for more accessories see Accessories for Pressure Switches / Transmitters)	**U430B**

Accessories

Accessories for Pressure Switches / Transmitters

Digital Display

DN size (mm)	Lowest pressure point (bar)	Media temp. (°C)	Type
–	–	–	**AZ331**

Flanged Pressure Mediators

DN size (mm)	Lowest pressure point (bar)	Media temp. (°C)	Type
50	0,3	-40 ... 120	**ZFV184-50**
80	0,15	-40 ... 120	**ZFV184-80**

Flanged Pressure Mediators, teflon surfaced

DN size (mm)	Lowest pressure point (bar)	Media temp. (°C)	Type
50	0,3	-40 ... 120	**ZFV184-50PTFE**
80	0,15	-40 ... 120	**ZFV184-80PTFE**

Flanged Pressure Mediators with 1 m pipeline

DN size (mm)	Lowest pressure point (bar)	Media temp. (°C)	Type
50	0,3	-30 ... 300	**ZFV185-50**
80	0,15	-30 ... 300	**ZFV185-80**

Flanged Pressure Mediators with 1 m pipeline, teflon surfaced

DN size (mm)	Lowest pressure point (bar)	Media temp. (°C)	Type
50	0,3	-30 ... 300	**ZFV185-50PTFE**
80	0,15	-30 ... 300	**ZFV185-80PTFE**

Pressure Mediator

DN size (mm)	Lowest pressure point (bar)	Media temp. (°C)	Type
50	0,4	-30 ... 120	**ZFV162-50**

Pressure Mediator, teflon surfaced

DN size (mm)	Lowest pressure point (bar)	Media temp. (°C)	Type
50	0,4	-30 ... 120	**ZFV162-50PTFE**

Screw-in Pressure Mediator

DN size (mm)	Lowest pressure point (bar)	Media temp. (°C)	Type
G1	0,5	-30 ... 120	**ZFV749**
G1	0,5	-30 ... 120	**ZFV749 - V191**

Syphons

Syphon for high temperature, steel, U-shape	**U430B**
Syphon for high temperature, steinless steel, U-shape	**U480B**
Syphon for high temperature, steel, circular	**K430D**
Syphon for high temperature, stainless steel, circular	**K480D**

Accessories

Adapter	**NPT1**
Pressure surge reducer	**DMW**
Sealing	**P2**

Accessories for Differential Switches / Transmitters

Shut-off valve combination, 3-venting valve	**VKD3**
Shut-off valve combination, 5-venting valve	**VKD5**
Male adapter union, O-ring NBR	**MAU8/MS**
Male adapter union, O-ring FPM	**MAU8/NST**

Unit conversion table (metric)

Length

		inch (m)	foot (ft)	mile	meter (m)
1 inch	=	1	0,0833	-	0,0254
1 foot	=	12	1	-	0,3048
1 mile	=	-	-	1	1609,3
1 meter	=	39,37	3,2808	$621,4 \times 10^{-6}$	1

Volume

		cubic foot (cu.ft.)	Eng. gallon (UK gal)	Am. gallon (US gal)	dm³
1 cubic foot	=	1	-	-	28,32
1 Eng. gal	=	-	1	-	4,546
1 Am. gal	=	-	-	1	3,785
1 dm³	=	0,03531	0,21998	0,26420	1

Weight

		ounce (oz)	pound (lb)	gram (g)	kilogram (kg)
1 ounce	=	1	0,0625	28,35	0,02835
1 pound	=	16	1	453,6	0,4536
1 gram	=	0,0353	$2,2046 \times 10^{-3}$	1	0,001
1 kilogram	=	35,3	2,2046	1000	1

Pressure

		bar [1])	standard atmosphere atm [2])	kgf/cm² [3])	lbf/in² [4])/ PSi [10])	kPa
1 bar [1])	=	1	0,987	1,020	14,50	100
1 atm [2])	=	1,013	1	1,033	14,70	101,3
1 kgf/cm² [3])	=	0,981	0,968	1	14,22	98,1
1 lbf/in² [4])/ PSi [10])	=	0,0689	0,680	0,0703	1	6,89
1 kilopascal (kPa)	=	0,01	0,00987	0,0102	0,145	1

Pressure (continued)

		millibar	mm water column (mm H₂O)	mm mercury (mm Hg)	inch water column (in H₂O)	kPa	Pa
1 mbar	=	1	10,20	0,750	0,4015	0,1	100
1 mm H₂O	=	0,0981	1	0,0736	0,03937	0,00981	9,81
1 mm Hg	=	1,333	13,60	1	0,535	0,1333	133,3
1 in H₂O	=	2,491	25,40	1,868	1	0,2491	249,1
1 kilopascal (kPa)	=	10	102	7,5	4,015	1	1000
1 Pa	=	0,01	0,1	0,0075	0,004	0,001	1

Flow

		ft³/h	dm³/s	m³/min	m³/h	cfm
1 ft³/h	=	1	0,00787	0,000472	0,02832	0,0167
1 dm³/s	=	127,1	1	0,06	3,6	2,12
1 m³/min	=	2119	16,67	1	60	35,71
1 m³/h	=	35,31	0,2778	0,01667	1	0,589
1 cfm	=	60	0,47	0,028	1,699	1

Force

		lbf	kgf	N
1 pound-force (lbf)	=	1	0,454	4,448
1 kilogram force (kgf)	=	2,205	1	9,81
1 newton (N)	=	0,225	0,102	1

Torque

		Nm	mkgf	lbf.in
1 Nm	=	1	0,102	8,858
1 mkgf	=	9,81	1	86,72
1 lbf.in	=	0,113	0,012	1

Power

		Mega calorie per hour (Mcal/h)	horse-power (hp)	British thermal unit p/h (Btu/h)	kilowatt (kW = kJ/s)
1 Mcal/h	=	1	1,583	3968	1,163
1 hp	=	0,632	1	2510	0,735
1 Btu/h	=	252×10^{-6}	$398,5 \times 10^{-6}$	1	293×10^{-6}
1 kW	=	0,860	1,360	3412	1

Energy

		Mega-calorie (Mcal) [5])	therm [6])	kilowatt-uur (kWh)	Mega-joule (MJ)
1 Mcal [5])	=	1	0,03968	1,163	4,186
1 therm [6])	=	25,2	1	29,31	105,5
1 kWh	=	0,860	0,03412	1	3,6
1 MJ	=	0,2389	0,00948	0,2778	1

Calorific value (and Wobbe index)

		Mega calorie per standard m³ (Mcal/m³s) [7])	kilo calorie per standard m³ (kcal/Nm³) [8])	British thermal unit per cu.ft. (Btu/ft³) [9])	Mega joule per standard m³ (MJ/m³s) [7])
1 Mcal/m³s [7])	=	1	1055	110,5	4,186
1 kcal/Nm³ [8])	=	948×10^{-6}	1	0,1047	3968×10^{-6}
1 Btu/ft³ [9])	=	0,00905	9,55	1	0,03788
1 MJ/m³s [7])	=	0,2389	252,0	26,4	1

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[1])   1 bar = 10^5 N/m², 1 millibar = 10^2 N/m²

[2])   same as 760 mm Hg (mercury) at sea level

[3])   formerly: kg/cm², same as 1 at, or 1 ato over pressure

[4])   formerly: 1 lb/sq.in or as psi

[5])   1 themic to be considered the same as 1 Mcal

[6])   1 therm = 100.000 Btu (British thermal unit)

[7])   m³s = 1 m³ (15 °C, 1013 mbar, dry)

[8])   1 Nm = 1 m³ (0 °C, 760 mm Hg, dry)

[9])   1 ft³ = 1 ft³ (60 °F, 30 in Hg, wet)

[10])   PSi = pound/inch²