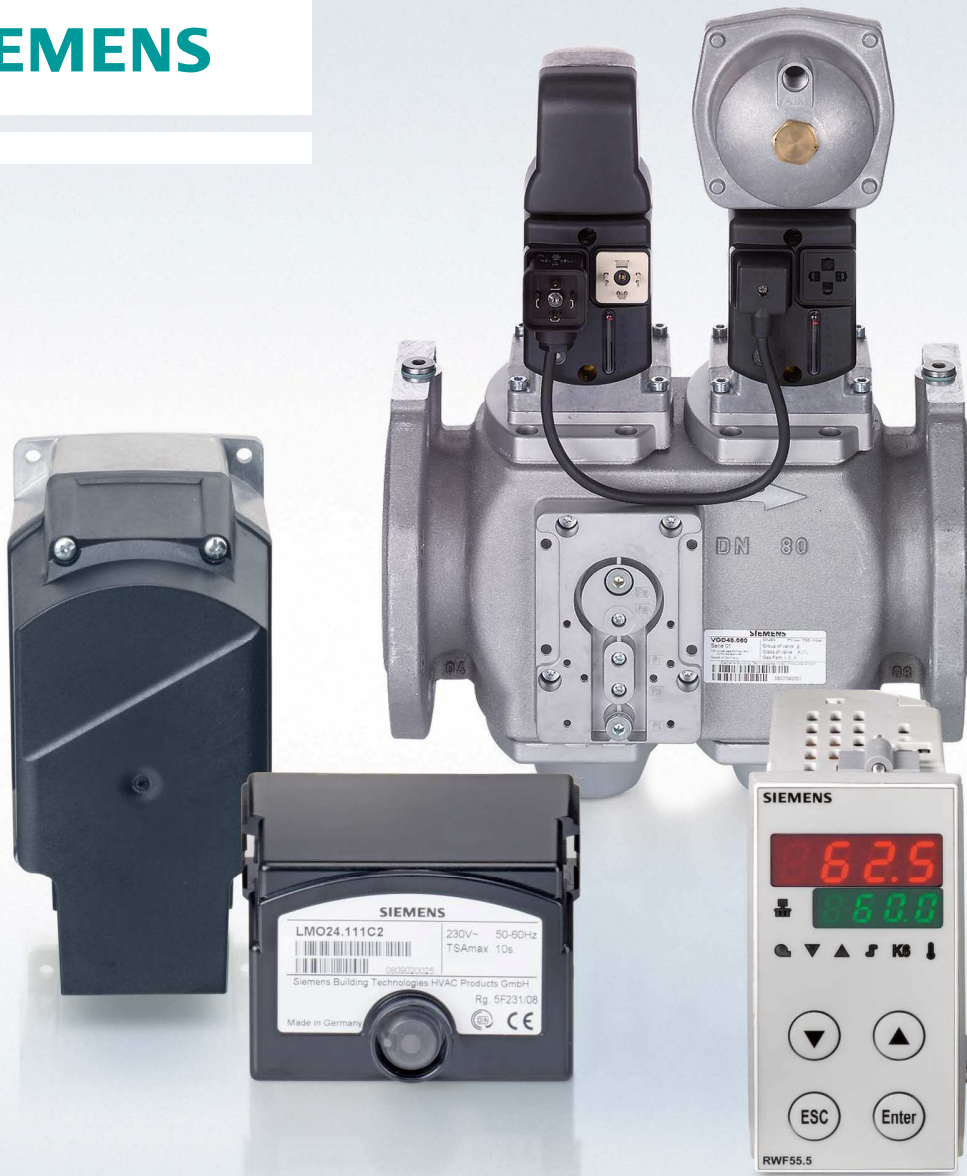


**SIEMENS**



# International Catalog 2016







Control Products & Systems OEM – Burner Components








This catalog contains short product descriptions only.  
For detailed information please refer to the latest data sheets  
and basic documentations.

# List by Application



## Oil Burner Controls (for Intermittent Operation)

			Type	Datasheet
<b>LOA...</b>				
Oil burner controls for the startup, supervision and control of 1- or 2-stage forced draft oil burners in intermittent operation.				
Oil throughput up to 30 kg/h.				
Line voltage/frequency: AC 220 V -15%...240 V +10%; 50...60 Hz +/-6%				
 LOA...	<b>Prepurge time</b>	<b>Safety time</b>	<b>Typical application</b>	
	13 s	10 s	<30 kg oil/h, 2-stage	LOA24.171B27 7118
	13 s	10 s	<30 kg oil/h, 2-stage; (a)	LOA24.173A27 7118
	13 s	10 s	<30 kg oil/h, 2-stage; (b)	LOA26.171B27 7118
	13 s	10 s	<30 kg oil/h, 2-stage; (b (c)	LOA36.171A27 7118
(a - with short post-ignition time			(b - remote reset with ARK21...	
(c - with indication of flame intensity				
<b>LMO...</b>				
Microcontroller-based oil burner controls for the startup, supervision and control of forced draft oil burners in intermittent operation. Standard versions with oil throughput up to 30 kg/h, special versions above 30 kg/h.				
With microprocessor and remote reset.				
Line voltage/frequency: AC 220 V -15%...240 V +10%; 50...60 Hz +/-6%				
 LMO...	<b>Prepurge time</b>	<b>Safety time</b>	<b>Typical application</b>	
	16 s	10 s	<30 kg oil/h, 1-stage	LMO14.111C2 7130
	16 s	10 s	<30 kg oil/h, 1-stage, with 3s post ignition time	LMO14.113C2 7130
	6 s	10 s	Steam generators	LMO24.011C2 7130
	16 s	10 s	<30 kg oil/h, 2-stage	LMO24.111C2 7130
	26 s	5 s	>30kg oil/h, direct fired air heaters	LMO44.255C2 7130
<b>Specific application: post purge</b>				
 LMO64...	<b>Prepurge time</b>	<b>Safety time</b>	<b>Post purge time</b>	
	5 s	10 s	20 s	LMO64.300C2 7138
	5 s	10 s	90 s	LMO64.301C2 7138
Plug-in base für LOA.../LMO...			AGK11	7201
Plug-in base for LMO64... (grey)			AGK11.6	7201
Cable gland holder (PG11 threads) for AGK11			AGK65	7201
Cable gland holder (M16 x 1.5 threads) for AGK11.6			AGK65.1	7201
Cable holder for AGK 11			AGK66	7201
Remote reset module for LOA26/36...			ARK21A27	7118
 QRB1-A... (w flange & clamp)	Photoresistive detector, normal sensitivity, cable 70 cm, with flange & clamp			QRB1A-A070B70A1 7714
	Photoresistive detector, high sensitivity, cable 70 cm,with flange & clamp			QRB1B-A070B70A1 7714
 QRB1-B... (w plug)	Photoresistive detector, normale sensitivity, cable 68 cm, with plug			QRB1A-A068B70B 7714
	Photoresistive detector, high sensitivity, cable 68 cm, with plug			QRB1B-A068B70B 7714
Clamp QRB1... (in packages of 100 pcs)			418610960	7714
Small flange for QRB1 (in packages of 100 pcs)			424114620	7714
Large flange for QRB1 (in packages of 100 pcs)			424116000	7714
Blue flame detectors for the supervision of blue or yellow flames of oil or gas burners				
 QRC1..	... with plug, cable 35 cm, normal sensitivity, front view			QRC1A1.101C27 7716
	... with plug, cable 50 cm, normal sensitivity, front view			QRC1A1.103C27 7716
	... with plug, cable 50 cm, medium sensitivity, front view			QRC1A2.103C27 7716
	... with plug, cable 35 cm, high sensitivity, front view			QRC1A3.101C27 7716
	... with plug, cable 50 cm, medium sensitivity, lateral view			QRC1C2.103C27 7716


## Oil Burner Controls (for Intermittent Operation)

		Type	Datasheet	
<b>LAL...</b>				
 <p>LAL...</p>	<b>For the control and supervision of oil atomizing burners.</b> - For burners of medium to high capacity (>30 kg oil/h) - For intermittent operation (at least 1 controlled shutdown every 24 hours) - Can be universally used with multistage or modulating burners - Suited for use with stationary air heaters			
	<b>Line voltage/frequency:</b>			
	AC 220 V -15%...240 V +10%; 50...60 Hz +/-6%			
	<b>Purge time</b>	<b>Safety time</b>	<b>Typical application</b>	
	23 s	5 s	Universal use, without air pressure superv.	LAL1.25 7153
	10 s	4 s	Flash steam generators	LAL2.14 7153
23 s	5 s	Universal use, with air pressure superv.	LAL2.25 7153	
68 s	5 s	Medium-/heavy-oil burners	LAL2.65 7153	
23 s	5 s	Special applications (incinerator plants)	LAL3.25 7153	
<b>Line voltage/frequency:</b>				
100V - 15%...110V +10%; 50...60Hz +/- 6%				
23s	5s	Universal use, without air pressure superv.	LAL1.25-110V 7153	
23s	5s	Universal use, with air pressure superv.	LAL2.25-110V 7153	
68s	5s	Medium-/heavy-oil burners	LAL2.65-110V 7153	
23s	5s	Special applications (incinerator plants)	LAL3.25-110V 7153	
Plug-in base for LAL... (PG 11)			AGM410490500 7230	
Plug-in base for LAL... (M 16)			AGM13.1 7230	
<b>Flame supervision for LAL...</b>				
 <p>QRB1-A...</p>	Photoresistive detector (black), normal sensitivity, cable 70 cm, with flange & clamp		QRB1A-A070B70A1 7714	
	Photoresistive detector (red), high sensitivity, cable 70 cm, with flange & clamp		QRB1B-A070B70A1 7714	
 <p>QRB1-B...</p>	Photoresistive detector (black), normal sensitivity, cable 68 cm, with plug		QRB1A-A068B70B 7714	
	Photoresistive detector (red), high sensitivity, cable 68 cm, with plug		QRB1B-A068B70B 7714	
Clamp QRB1... (in packages of 100 pcs)			418610960 7714	
Small flange for QRB1 (in packages of 100 pcs)			424114620 7714	
Large flange for QRB1 (in packages of 100 pcs)			424116000 7714	
 <p>QRB3..</p>	Photoresistive detector, metal housing, normal sens., without flange & clamp		QRB3 7714	
	Photoresistive detector, metal housing, normal sens., with flange & clamp		QRB3(1) 7714	
	Photoresistive detector, metal housing, high sensitivity, without flange & clamp		QRB3S 7714	
Clamp for QRB3... (in packages of 100 pcs)			418688060 7714	
Flange for QRB3... (in packages of 100 pcs)			428614900 7714	
 <p>RAR..</p>	<i>for LAL2.../LAL3... only</i>			
	Silicon photo cell, without fixing mat., maximum cable length 100m		RAR9 7713	
	Silicon photo cell, with flange & clamp, maximum cable length 100m		RAR9(1) 7713	
Clamp for RAR... (in packages of 100 pcs)			419988060 7713 & 7712	
Flange (round) for RAR (in packages of 100 pcs)			424188550 7713 & 7712	
Flange (straight) for RAR (in packages of 100 pcs)			424188980 7713 & 7712	


## Oil Burner Controls (for Intermittent Operation)

		Type	Datasheet
	<i>for blue-flame burners with LAL1.../LAL4...</i>		
	<b>QRC</b>		
	UV blue flame detector with plug, 35 cm cable, normal sensitivity, front view	QRC1A1.101C27	7716
	UV blue flame detector with plug, 50 cm cable, normal sensitivity, front view	QRC1A1.103C27	7716
	UV blue flame detector with plug, 50 cm cable, medium sensitivity, front view	QRC1A2.103C27	7716
	UV blue flame detector with plug, 35 cm cable, high sensitivity, front view	QRC1A3.101C27	7716
	UV blue flame detector with plug, 50 cm cable, medium sensitivity, lateral view	QRC1C2.103C27	7716
	<b>LAE1...</b>		
	<b>Oil burner controls for use with burners of any capacity in intermittent operation.</b>		
	<b>For safety reasons, at least 1 controlled shutdown must take place every 24 hours.</b>		
	<b>Line voltage/frequency:</b> AC 220 V -15%...240 V +10%; 50 Hz +/-6%		
	<b>Prepurge time</b>	<b>Safety time</b>	<b>Typical application</b>
	30 s	5 s	Forced draft burners, high capacity
	30 s	2 s	Forced draft burners, high capacity
	30 s	2 s	As above, but 60 Hz
	<b>Line voltage/frequency:</b> 100V -15%...110V +10%; 60Hz +/-6%		
	<b>Prepurge time</b>	<b>Safety time</b>	<b>Typical application</b>
	30s	2s	Forced draft burners, high capacity
	Plug-in base for LAE... (PG 11)		AGG41041713(AE) 7161












## Oil Burner Controls (for Continuous Operation)

	<b>LOK16...</b>		
	<b>For the control and supervision of oil atomizing burners.</b>		
	- For burners of medium to high capacity (>30 kg oil/h)		
	- For continuous operation		
	- Can be universally used with multistage or modulating burners		
	- Suited for use with stationary air heaters		
	<b>Line voltage/frequency:</b> AC 220 V -15%...240 V +10%; 50...60 Hz +/-6%		
	<b>Prepurge time</b>	<b>Safety time</b>	<b>Typical application</b>
	10 s	4 s	Flash-steam generators
	23 s	5 s	Universal application
	68 s	5 s	Medium- or heavy-oil burners
	<b>Line voltage/frequency:</b> 100V -15%...110V +10%; 50...60Hz +/-6%		
	<b>Prepurge time</b>	<b>Safety time</b>	<b>Typical application</b>
	23 s	5 s	Universal application
	Plug-in base for LOK... (PG 11)		AGM16 .....7230
	Plug-in base for LOK... (M 16)		AGM16.1 .....7230







### Flame Detectors for LAE1/... and LOK16...

	Silicon photo cell, without fixing mat., maximum cable length 100m	RAR9	7713
	Silicon photo cell, with flange & clamp, maximum cable length 100m	RAR9(1)	7713
	Clamp for RAR... (in packages of 100 pcs)	419988060	7713 & 7712
	Flange (round) for RAR (in packages of 100 pcs)	424188550	7713 & 7712
	Flange (straight) for RAR (in packages of 100 pcs)	424188980	7713 & 7712

## Gas Burner Controls (for Intermittent Operation)

	Type	Datasheet
<b>LGB...</b>		
	<b>Burner controls for the supervision of 1- or 2-stage gas or gas/oil burners of small to medium capacity (typically up to 350 kW), with or without fan, intermittent operation.</b>	
LGB...		
<b>Line voltage/frequency:</b> AC 220 V -15%...240 V +10%; 50...60 Hz +/-6%		
<b>Prepurge time</b>	<b>Safety time</b>	<b>Typical application</b>
(8 s) 7 s	3 s	Forced draft burners, 2-stage
(8 s) 15 s	3 s	Forced draft burners, 2-stage
(8 s) 30 s	3 s	Forced draft burners, 2-stage
(8 s) 30 s	5 s	Forced draft burners, 2-stage
(8 s) 50 s	5 s	Forced draft burners, 2-stage
(9 s) 7 s	3 s	Forced draft burners, 2-st./mod.
(9 s) 15 s	3 s	Forced draft burners, 2-st./mod.
(9 s) 30 s	3 s	Forced draft burners, 2-st./mod.
(9 s) 30 s	3 s	Forced draft burners, 2-st., mod., UV (with QRC...)
(18 s)-	5 s	Atmospheric gas burners with or without fan
	Plug-in base for LGA..., LGB..., LGD...	
	Cable gland holder (PG11 threads) for AGK11	
	Cable gland holder (M16 x 1.5 threads) for AGK11	
	Cable holder with knockout holes for AGK11	
<b>LME...</b>		
	<b>Burner controls for the supervision of 1- or 2-stage gas or gas/oil burners of small to medium capacity (typically up to 500 kW), with or without fan in intermittent operation.</b>	
LME...		
<b>Line voltage/frequency:</b> AC 220 V -15%...240 V +10%; 50...60 Hz +/-6%		
<b>Prepurge time</b>	<b>Safety time</b>	<b>Typical application</b>
(2,5s)20s	3s	force draft burner <120kW, 1-stage
(2,5s)7s	3s	force draft burner <120kW, 1-stage
(2,5s)7s	3s	force draft burner 2-stage, no damper control
(2,5s)20s	3s	force draft burner 2-stage, no damper control
(2,5s)30s	3s	force draft burner 2-stage, no damper control
(2,5s)30s	5s	force draft burner 2-stage, no damper control
(2,5s)50s	5s	force draft burner 2-stage, no damper control
(2,5s)7s	3s	force draft burner 2-stage / modulating
(2,5s)20s	3s	force draft burner 2-stage / modulating
(2,5s)20s	3s	force draft burner 2-stage / modulating
(2,5s)30s	3s	force draft burner 2-stage / modulating
(2,5s)30s	3s	force draft burner 2-stage / modulating, UV
(2,5s)30s	5s	force draft burner 2-stage / modulating, UV
(2,5s)1s	5s	atmospheric, 1-stage, (aux fan)
(2,5s)1s	5s	atmospheric, 1-stage, (aux fan)
(2,5s)1s	10s	atmospheric, 1-stage, (aux fan)
(2,5s)1s	10s	atmospheric, 1-stage, (aux fan)
(2,5s)9s	5s	atmospheric, 2-stage, (aux fan)
(2,5s)9s	5s	atmospheric, 2-stage, (aux fan)
	<b>Line voltage/frequency:</b> 120V +10% / -15% ; 50...60Hz +/-6%	
LME...		
(2,5s)7s	3s	force draft burner 2-stage, no damper control
(2,5s)30s	3s	force draft burner 2-stage, no damper control
(2,5s)30s	5s	force draft burner 2-stage, no damper control
	Plug-in base for LME...	
	Cable gland holder (PG11 threads) for AGK11	
	Cable gland holder (M16 x 1.5 threads) for AGK11	
	Cable holder with knockout holes for AGK11	

## Flame Detectors for LGB... / LME...

	Type	Datasheet
<b>UV flame detectors for LGB21... / LGB22... / LMG... / LME11... / LME21... / LME22... / LME41... / LME44...</b>		
	UV adapter for: <b>LGB...</b>	<b>AGQ1.1A27</b> 7435
	UV adapter for: <b>LME...</b>	<b>AGQ3.1A27</b> 7101
	UV adapter for: <b>LMG...</b>	<b>AGQ2.1A27</b> 7422
	UV flame detector for LGB ( <b>only with AGQ...</b> )	
	UV flame detector, normal sensitivity, without fixing material	<b>QRA2</b> 7712
	UV flame detector, normal sensitivity, round flange & clamp	<b>QRA2(1)</b> 7712
	UV flame detector, normal sensitivity, straight flange & clamp	<b>QRA2(2)</b> 7712
	UV flame detector, high sensitivity, without fixing material	<b>QRA2M</b> 7712
	UV flame detector, high sensitivity, round flange & clamp	<b>QRA2M(1)</b> 7712
	UV flame detector, high sensitivity, straight flange & clamp	<b>QRA2M(2)</b> 7712
	UV flame detector, norm. sens., w/o fixing mat., for temperature peaks up to 200 °C	<b>QRA2.9</b> 7712
	Clamp for QRA2... (in packages of 100 pcs)	<b>419988060</b> 7712 & 7713
	Flange (round) for QRA2... (in packages of 100 pcs)	<b>424188550</b> 7712 & 7713
Flange (straight) for QRA2... (in packages of 100 pcs)	<b>424188980</b> 7712 & 7713	
	UV flame detector, front view, with 3/4" -14 NPSM connection, normal sensitivity	<b>QRA4.U</b> 7711
	UV flame detector, front view, with 3/4" -14 NPSM connection, high sensitivity	<b>QRA4M.U</b> 7711
	1" / 3/4" mounting adapter with connection for air cooling	<b>AGG04</b> 7711
	Heat insulating piece between QRA4... and mounting coupling AGG04	<b>AGG15</b> 7711
	UV flame detector, normal sensitivity, in aluminium housing with 1" thread	<b>QRA10.C</b> 7712
	UV flame detector, same as QRA10.C but high sensitivity	<b>QRA10M.C</b> 7712
	IP65 Kit for QRA10... works with different cable sizes	<b>AGG08</b> 7712
	Heat protection glass (for QRA10.../AGG16...)	<b>AGG02</b> 7712
	Quartz-glass lens (for QRA10.../AGG16...)	<b>AGG03</b> 7712
	Threaded nipple 1" (for QRA10.../AGG16...)	<b>AGG05</b> 7712
	Glass holder with intermediate ring (for QRA10.../AGG16...)	<b>AGG06</b> 7712
	Ball head (for QRA10.../AGG16...)	<b>AGG07</b> 7712
	Quartz-glass lens ( <b>only</b> for QRA10.x <b>B</b> , QRA53/55 with AGG16. <b>B</b> )	<b>AGG01</b> 7712
	Replacement UV cell for QRA2/-10	<b>AGR450211310</b> 7712
Replacement UV cell for QRA2M/-10M	<b>AGR450240650</b> 7712	
<b>UV blue flame detectors for LGB32... / LME23...</b>		
	UV blue flame detector with plug, 35 cm cable, normal sensitivity, front view	<b>QRC1A1.101C27</b> 7716
	UV blue flame detector with plug, 50 cm cable, normal sensitivity, front view	<b>QRC1A1.103C27</b> 7716
	UV blue flame detector with plug, 50 cm cable, medium sensitivity, front view	<b>QRC1A2.103C27</b> 7716
	UV blue flame detector with plug, 35 cm cable, high sensitivity, front view	<b>QRC1A3.101C27</b> 7716
	UV blue flame detector with plug, 50 cm cable, medium sensitivity, lateral view	<b>QRC1C2.103C27</b> 7716
<b>Accessories for LGB... / LME...</b>		
	PTC dummy load	<b>AGK25</b> 7101 & 7435
	- for burners without fan using LGB... or LME...	
	RC element (in connection with ionization probes in networks with unearthed neutral conductor)	<b>ARC466890660</b> 7422 & 7435

## Comparison of LGB... & LME...

### Replacement of LGB... by LME...



LGB...	LME...
LGB21.130A27	LME21.130C2
LGB21.230A27	LME21.230C2
LGB21.330A27	LME21.330C2
LGB21.350A27	LME21.350C2
LGB21.550A27	LME21.550C2
LGB22.130A27	LME22.131C2
LGB22.230B27	LME22.232C2
LGB22.330A27	LME22.331C2
LGB32.330A27	LME23.331C2
LGB32.350A27	LME23.351C2
LGB41.255A27	LME44.056C2
LGB41.258A27	LME44.057C2

When replacing LGB... by LME... in connection with UV supervision, auxiliary unit AGQ1...A27 must be replaced by AGQ3...A27.







**Caution: Replacing an LGB... by an LME... in an existing installation requires approval by the burner manufacturer**

## Gas Burner Controls (for Intermittent Operation)




			Type	Datasheet	
 LFL1...	<b>LFL...</b>				
	For gas, oil or dual-fuel forced draft burners of medium to high capacity.				
	Flame supervision with UV detectors QRA... or ionization probe.				
	<b>Line voltage/frequency:</b>				
	AC 220 V -15%...240 V +10%; 50...60 Hz +/-6%				
	<b>Prepurge time</b>	<b>Safety time</b>	<b>Typical application</b>		
	10 s	2 s	Forced draft burners, 2-stage / modulating	LFL1.122	7451
	10 s	3 s	Forced draft burners, 2-stage / modulating	LFL1.133	7451
	14 s	4 s	Large atmospheric burners, 2-stage / ioniz.	LFL1.148	7454
	36 s	2 s	Forced draft burners, 2-stage / modulating	LFL1.322	7451
31.5 s	3 s	Forced draft burners, 2-stage / modulating	LFL1.333	7451	
37.5 s	2.5 s	Forced draft burners, 2-stage / modulating	LFL1.335	7451	
66 s	2 s	Forced draft burners, 2-stage / modulating	LFL1.622	7451	
67.5 s	2.5 s	Forced draft burners, 2-stage / modulating	LFL1.635	7451	
67.5 s	2.5 s	Large atmospheric burners, 2-stage	LFL1.638	7451	
<b>Line voltage/frequency:</b>					
100V -15%...110V +10%; 50...60Hz +/-6%					
10s	2s	Forced draft burners, 2-stage / modulating	LFL1.122-110V	7451	
10s	3s	Forced draft burners, 2-stage / modulating	LFL1.133-110V	7451	
36s	2s	Forced draft burners, 2-stage / modulating	LFL1.322-110V	7451	
31,5s	3s	Forced draft burners, 2-stage / modulating	LFL1.333-110V	7451	
37,5s	2,5s	Forced draft burners, 2-stage / modulating	LFL1.335-110V	7451	
66s	2s	Forced draft burners, 2-stage / modulating	LFL1.622-110V	7451	
67,5s	2,5s	Forced draft burners, 2-stage / modulating	LFL1.635-110V	7451	
Plug-in base for LFL... (PG 11)			AGM410490550	7230	
Plug-in base for LFL... (M 16)			AGM14.1	7230	
 LFE1...	<b>LFE1...</b>				
	For forced draft gas and dual-fuel burners of any capacity.				
	Flame supervision with UV detectors QRA... or ionization probe.				
	<b>Line voltage:</b>				
	AC 220 V -15%...240 V +10%				
	<b>Prepurge time</b>	<b>Safety time</b>	<b>Line frequency +/-6%</b>		
	60s	2s/2s	50 Hz	LFE1/8851	7461
	30s	2s/2s	50 Hz	LFE1/8853	7461
	30s	2s/2s	60 Hz	LFE1/8868	7461
	60s	5s/5s	50 Hz	LFE1/8892	7461
<b>Line voltage:</b>					
100V -15%...110V +10%					
30s	2s/2s	60 Hz	LFE1/8867	7461	
Plug-in base for LFE1... (PG 11)			AGG41041713(FE)	7461	
Plug-in base for LFE1... (M 16)			AGG13.1	7461	






## UV Flame Detectors for LFL... and LFE1/...

		Type	Datasheet	
<b>QRA...</b>				
 QRA2...	UV flame detector, normal sensitivity, without fixing material	<b>QRA2</b>	7712	
	UV flame detector, normal sensitivity, round flange & clamp	<b>QRA2(1)</b>	7712	
	UV flame detector, normal sensitivity, straight flange & clamp	<b>QRA2(2)</b>	7712	
	UV flame detector, high sensitivity, without fixing material	<b>QRA2M</b>	7712	
	UV flame detector, high sensitivity, round flange & clamp	<b>QRA2M(1)</b>	7712	
	UV flame detector, high sensitivity, straight flange & clamp	<b>QRA2M(2)</b>	7712	
	UV flame detector, norm. Sens., w/o fixing mat., for temperature peaks up to 200 °C	<b>QRA2.9</b>	7712	
	Clamp for QRA2... (in packages of 100 pcs)	<b>419988060</b>	7712 & 7713	
	Flange (round) for QRA2... (in packages of 100 pcs)	<b>424188550</b>	7712 & 7713	
	Flange (straight) for QRA2... (in packages of 100 pcs)	<b>424188980</b>	7712 & 7713	
 QRA4.U	UV flame detector, front view, with 3/4" -14 NPSM connection, normal sensitivity	<b>QRA4.U</b>	7711	
	UV flame detector, front view, with 3/4" -14 NPSM connection, high sensitivity	<b>QRA4M.U</b>	7711	
 AGG04	1" / 3/4" mounting adapter with connection for air cooling	<b>AGG04</b>	7711	
	Heat insulating piece between QRA4... and mounting coupling AGG04	<b>AGG15</b>	7711	
 QRA10...	UV flame detector, normal sensitivity, in aluminium housing with 1" thread	<b>QRA10.C</b>	7712	
	UV flame detector, same as QRA10.C but high sensitivity	<b>QRA10M.C</b>	7712	
	IP65 Kit for QRA10... works with different cable sizes	<b>AGG08</b>	7712	
	Heat protection glass (for QRA10.../AGG16...)	<b>AGG02</b>	7712	
	Quartz-glass lens (for QRA10...C/AGG16...C)	<b>AGG03</b>	7712	
	Threaded nipple 1" (for QRA10.../AGG16...)	<b>AGG05</b>	7712	
		Glass holder with intermediate ring (for QRA10.../AGG16...)	<b>AGG06</b>	7712
		Ball head (for QRA10.../AGG16...)	<b>AGG07</b>	7712
		Quartz-glass lens ( <b>only</b> for QRA10.x <b>B</b> , QRA53/55 with AGG16. <b>B</b> )	<b>AGG01</b>	7712
		Replacement UV cell for QRA2/-10	<b>AGR450211310</b>	7712
	Replacement UV cell for QRA2M/-10M	<b>AGR450240650</b>	7712	




## Gas Burner Controls (for Continuous Operation)

			Type	Datasheet	
 LGK16...	<b>LGK16...</b>				
	For gas, oil or dual-fuel forced draft burners of medium to high capacity. Flame supervision with UV detectors QRA... or ionization probe.				
	Line voltage/frequency: AC 220 V -15%...240 V +10%; 50...60 Hz +/-6%				
	<b>Prepurge time</b>	<b>Safety time</b>	<b>Typical application</b>		
	10s	2s	Forced draft burners, 2-stage / modulating	LGK16.122A27	7785
	9s	3s	Forced draft burners, 2-stage / modulating	LGK16.133A27	7785
	36s	2s	Forced draft burners, 2-stage / modulating	LGK16.322A27	7785
	31,5s	3s	Forced draft burners, 2-stage / modulating	LGK16.333A27	7785
	37,5s	2,5s	Forced draft burners, 2-stage / modulating	LGK16.335A27	7785
	66s	2s	Forced draft burners, 2-stage / modulating	LGK16.622A27	7785
67,5s	2,5s	Forced draft burners, 2-stage / modulating	LGK16.635A27	7785	
Line voltage/frequency: 100V -15%...110V +10%; 50...60Hz +/-6%					
<b>Prepurge time</b>	<b>Safety time</b>	<b>Typical application</b>			
67,5s	2,5s	Forced draft burners, 2-stage / modulating	LGK16.635A17	7785	
Plug-in base (PG 11)			AGM17	7230	
Plug-in base (M 16)			AGM17.1	7230	
 LGI16...	<b>LGI16...</b>				
	For gas, oil or dual-fuel forced draft burners of medium to high capacity. Flame supervision with UV detectors QRA..., common or separate ionization probe and ignition electrode (single- or double-electrode operation).				
	Line voltage/frequency: AC 220 V -15%...240 V +10%; 50...60 Hz +/-6%				
	<b>Prepurge time</b>	<b>Safety time</b>	<b>Typical application</b>		
0s	5s	Industrial burners	LGI16.053A27	7786	
Plug-in base (PG 11)			AGM15	7230	
Plug-in base (M 16)			AGM15.1	7230	
 KF8832	<b>Accessories of LGK16... and LGI16...</b>				
	UV detector current measuring instrument for QRA 53.../QRA55..			KF8832	7712
<b>Special note on KF8832:</b>					
The UV detector current measuring instrument KF8832 serves to optimize the sensor position for new installations or to check burner installations with LGK16... and QRA53.../55...					
The KF8832 is not approved for continuous operation, only for measurement purposes. It is not designed for DIN rail or panel mounting.					
The KF8832 cannot be used as test equipment for QRA53.../QRA55...					








# Flame Detectors for LGK16... /LGI16...

	Type	Datasheet																		
<b>QRA55...</b>																				
 QRA55..	<b>Line voltage/frequency:</b> 220V -15%...240V +10%; 50...60Hz +/-6% UV flame detector (for LGK16.../LGI16...), normal sensitivity, l = 125 mm UV flame detector (for LGK16.../LGI16...), high sensitivity, l = 125 mm UV flame detector (for LGK16.../LGI16...), normal sensitivity, l = 69 mm UV flame detector (for LGK16.../LGI16...), high sensitivity, l = 69 mm	QRA53.E27 7712 QRA53.G27 7712 QRA55.E27 7712 QRA55.G27 7712																		
	<b>Line voltage/frequency:</b> 100V -15%...110V +10%; 50...60Hz +/-6% UV flame detector (for LGK16.../LGI16...), normal sensitivity, l = 125 mm UV flame detector (for LGK16.../LGI16...), high sensitivity, l = 125 mm UV flame detector (for LGK16.../LGI16...), normal sensitivity, l = 69 mm UV flame detector (for LGK16.../LGI16...), high sensitivity, l = 69 mm	QRA53.E17 7712 QRA53.G17 7712 QRA55.E17 7712 QRA55.G17 7712																		
	<table border="1"> <thead> <tr> <th colspan="2">Cross Reference List</th> </tr> <tr> <th>old type</th> <th>new type</th> </tr> </thead> <tbody> <tr> <td>QRA53.C27</td> <td>QRA53.E27</td> </tr> <tr> <td>QRA53.D27</td> <td>QRA53.G27</td> </tr> <tr> <td>QRA55.C27</td> <td>QRA55.G27</td> </tr> <tr> <td>QRA55.D27</td> <td>QRA55.G27</td> </tr> <tr> <td>QRA53.C17</td> <td>QRA53.E17</td> </tr> <tr> <td>QRA53.D17</td> <td>QRA53.G17</td> </tr> <tr> <td>QRA55.C17</td> <td>QRA55.E17</td> </tr> </tbody> </table>		Cross Reference List		old type	new type	QRA53.C27	QRA53.E27	QRA53.D27	QRA53.G27	QRA55.C27	QRA55.G27	QRA55.D27	QRA55.G27	QRA53.C17	QRA53.E17	QRA53.D17	QRA53.G17	QRA55.C17	QRA55.E17
	Cross Reference List																			
	old type	new type																		
QRA53.C27	QRA53.E27																			
QRA53.D27	QRA53.G27																			
QRA55.C27	QRA55.G27																			
QRA55.D27	QRA55.G27																			
QRA53.C17	QRA53.E17																			
QRA53.D17	QRA53.G17																			
QRA55.C17	QRA55.E17																			
 UV cell	Connecting cable with plug for QRA53.../QRA55... Replacement UV cell for QRA53.../55...	AGM19 7712 AGR450240650 7712																		
 AGG16.C	Angled adapter for QRA53.../55... with mounting coupling	AGG16.C 7712																		






## Burner Controls for High Capacity, Intermittent or Continuous Operation

	Type	Datasheet			
<b>LEC1...</b>					
	<b>Control unit for double- or multiflame supervision of oil, gas or forced draft oil/ gas burners of any fuel throughput, suited for continuous or intermittent operation (for intermittent operation with flame safeguard LAE10/LFE10)</b>				
LEC1...	<b>(for continuous operation with flame safeguard LFE50 and UV flame detector QRA50M/51M)</b>				
	<b>Line voltage:</b> AC 220 V -15%...240 V +10%				
	<b>Prepurge time</b>	<b>Safety time</b>			
		<b>Line frequency +/-6%</b>			
	17 s	2 s/2 s	50 Hz	LEC1.1/8854	7761
	60 s	2 s/2 s	50 Hz	LEC1/8851	7761
	30 s	2 s/2 s	50 Hz	LEC1/8853	7761
	30 s	2 s/2 s	60 Hz	LEC1/8868	7761
	60 s	5 s/5 s	50 Hz	LEC1/8892	7761
	30 s	2 s/5 s	50 Hz	LEC1/8906	7761
	60 s	4.5 s/4.5 s	50 Hz	LEC1/9500	7761
	Plug-in base (PG 11)			AGG41041713(EC)	7761
	Plug-in base (M 16)			AGG12.1	7761
<b>LAE/LFE... - Flame safeguards for LEC1...</b>					
<b>Intermittent operation</b>					
Flame safeguards for burners with intermittent operation.					
The LAE10 is used for the supervision and indication of oil flames.					
The LFE10 is used for the supervision and indication of gas and oil flames.					
	<b>Line voltage/frequency:</b> AC 220 V -15%...240 V +10%; 50...60 Hz +/-6%				
LAE/LFE10	For oil burners	LAE10	7781		
	For gas or dual-fuel burners	LFE10	7781		
	<b>Line voltage/frequency:</b> 100V -15%...110V +10% ; 50...60Hz +/-6%				
	For oil burners	LAE10-110V	7781		
	For gas or dual-fuel burners	LFE10-110V	7781		
	Low plug-in base for LAE/LFE10	AGK410413450	7781		
	High plug-in base for LAE/LFE10	AGK410490250	7781		
<b>Continuous operation</b>					
The LFE50... together with the QRA50M/QRA51M form a self-checking UV flame supervision system (DETECTOGR®) designed for use with continuously operating oil or gas burners or burners operating without interruption for more than 24 hours.					
	<b>Line voltage/frequency:</b> AC 220 V -15%...240 V +10%; 50...60 Hz +/-6%				
LFE50	For gas or dual-fuel burners	LFE50	7783		
	100V -15%...110V +10%; 50...60Hz +/-6%				
	For gas or dual-fuel burners	LFE50-110V	7783		
	<i>(incl. plug-in base)</i>				

## Flame Detectors for Flame Safeguards LAE10, LFE10 & LFE50

		Type	Datasheet
<b>Flame detectors for LAE10 (intermittent operation)</b>			
	Silicon photo cell, without fixing mat., maximum cable length 100m	RAR9	7713
	Silicon photo cell, with flange & clamp, maximum cable length 100m	RAR9(1)	7713
RAR..	Clamp for RAR... (in packages of 100 pcs)	419988060	7712 & 7713
	Flange (round) for RAR (in packages of 100 pcs)	424188550	7712 & 7713
	Flange (straight) for RAR (in packages of 100 pcs)	424188980	7712 & 7713
<b>UV flame detectors for LAE10 (intermittent operation)</b>			
	UV flame detector, normal sensitivity, without fixing material	QRA2	7712
	UV flame detector, normal sensitivity, round flange & clamp	QRA2(1)	7712
	UV flame detector, normal sensitivity, straight flange & clamp	QRA2(2)	7712
	UV flame detector, high sensitivity, without fixing material	QRA2M	7712
	UV flame detector, high sensitivity, round flange & clamp	QRA2M(1)	7712
	UV flame detector, high sensitivity, straight flange & clamp	QRA2M(2)	7712
	UV flame detector, norm. sens., w/o fixing mat., for temperature peaks up to 200 °C	QRA2.9	7712
	Clamp for QRA2... (in packages of 100 pcs)	419988060	7712 & 7713
	Flange (round) for QRA2... (in packages of 100 pcs)	424188550	7712 & 7713
	Flange (straight) for QRA2... (in packages of 100 pcs)	424188980	7712 & 7713
	UV flame detector, front view, with 3/4" -14 NPSM connection, normal sensitivity	QRA4.U	7711
	UV flame detector, front view, with 3/4" -14 NPSM connection, high sensitivity	QRA4M.U	7711
	1" / 3/4" mounting adapter with connection for air cooling	AGG04	7711
AGG04	Heat insulating piece between QRA4... and mounting coupling AGG04	AGG15	7711
	UV flame detector, normal sensitivity, in aluminium housing with 1" thread	QRA10.C	7712
	UV flame detector, same as QRA10.C but high sensitivity	QRA10M.C	7712
	Heat protection glass (for QRA10.../AGG16...)	AGG02	7712
	Quartz-glass lens (for QRA10...C/AGG16...C)	AGG03	7712
	Threaded nipple 1" (for QRA10.../AGG16...)	AGG05	7712
	Glass holder with intermediate ring (for QRA10.../AGG16...)	AGG06	7712
	Ball head (for QRA10.../AGG16...)	AGG07	7712
	Quartz-glass lens (only for QRA10.x <b>B</b> , QRA53/55 with AGG16 <b>B</b> )	AGG01	7712
	Replacement UV cell for QRA2/-10	AGR450211310	7712
	Replacement UV cell for QRA2M/-10M	AGR450240650	7712
<b>UV flame detectors for LFE50 (continuous operation)</b>			
	UV flame detector (for LFE50), front view	QRA50M	7783
	UV flame detector (for LFE50), lateral view	QRA51M	7783
	Replacement UV cell for QRA50M	AGR450242680	7783
	Replacement UV cell for QRA2M / -10M / -51M / -53 / -55	AGR450240650	7712

## Adapters and Accessories

		Type	Datasheet
<b>Adapters for burner controls</b>			
 KF88**	Adapter for replacement of LAI/LAB by LOA24...	KF8819	7118
	Adapter for replacement of LFI7 by LGB21..., LME21...	KF8852	7435
	Adapter for replacement of LFI7 by LGB22..., LME22...	KF8853-K	7435
	Adapter for replacement of LFM1... by LGB21/LGB22	KF8880	7435
	<b>Caution: Replacing a burner control by a different type in an existing installation requires approval by the burner manufacturer</b>		
<b>Service adapters for burner controls</b>			
 KF8833	For LOA..., with current measurement	KF8833	7118
	For LOA..., with resistance measurement	KF8840	7118
	For LGB..., with current measurement	KF8872	7435
 KF8840	For LOA..., with jack for detector current	KF8885	7986
<b>Service and diagnostics tool for burner controls LME.../LMO...</b>			
 OCI 400	PC software for burner diagnostics with LME.../LMO... (Interface OCI400 required!)	ACS410	7614
	Interface for PC software ACS410	OCI400	7614

## SQN3...

Electromotoric actuators for use with air dampers and control valves for oil or gas burners of small to medium capacity.

**Line voltage/frequency:**

AC 220 V -15%...240 V +10%; 50...60 Hz +/-6%

Running time at 50 Hz; running times at 60 Hz are about 17% shorter

Reversible, 2 end switches, 2 or 3 auxiliary switches



SQN3..

Running time 90°	Torque	specified for		
<i>Counterclockwise rotation</i>				
<i>When facing the drive shaft and when control voltage is fed to end switch I</i>				
4,5s	1,0 Nm	LFL.../LGK.../LAL.../LOK.../LME7...	SQN30.102A2700	7808
4,5s	1,0 Nm	LFL.../LGK.../LAL.../LOK.../LME7...	SQN30.111A2700	7808
4,5s	1,0 Nm	LGB21... LME21...	SQN30.121A2700	7808
4,5s	1,0 Nm	LGB22.../LGB32.../LME22.../LME23...	SQN30.151A2700	7808
30s	3,0 Nm	LFL.../LGK.../LAL.../LOK.../LME7...	SQN30.401A2700	7808
30s	3,0 Nm	LFL.../LGK.../LAL.../LOK.../LME7...	SQN30.401A2730	7808
30s	3,0 Nm	LFL.../LGK.../LAL.../LOK.../LME7...	SQN30.402A2700	7808
30s	3,0 Nm	LFL.../LGK.../LAL.../LOK.../LME7...	SQN30.402A2730	7808
<i>Clockwise rotation</i>				
<i>When facing the drive shaft and when control voltage is fed to end switch I</i>				
4,5s	1,0 Nm	LFL.../LGK.../LAL.../LOK.../LME7...	SQN31.101A2700	7808
4,5s	1,0 Nm	LFL.../LGK.../LAL.../LOK.../LME7...	SQN31.111A2700	7808
4,5s	1,0 Nm	LGB21.../LME21.../LOA24.../LMO24.../LMO44...	SQN31.121A2700	7808
4,5s	1,0 Nm	LGB22.../LGB32.../LME22.../LME23...	SQN31.151A2700	7808
12s	1,8 Nm	LGB21.../LME21.../LOA24.../LMO24.../LMO44...	SQN31.221A2700	7808
12s	1,8 Nm	LGB22.../LGB32.../LME22.../LME23...	SQN31.251A2700	7808
30s	3,0 Nm	LFL.../LGK.../LAL.../LOK.../LME7...	SQN31.401A2700	7808
30s	3,0 Nm	LFL.../LGK.../LAL.../LOK.../LME7...	SQN31.411A2700	7808

**Line voltage/frequency:**

100V -15%...110V +10%; 50...60Hz +/-6%

Running time at 50 Hz; running times at 60 Hz are about 17% shorter

Reversible, 2 end switches, 2 or 3 auxiliary switches

Running time 90°	Torque	specified for		
<i>Counterclockwise rotation</i>				
<i>When facing the drive shaft and when control voltage is fed to end switch I</i>				
4,5s	1,0 Nm	LFL.../LGK.../LAL.../LOK.../LME7...	SQN30.111A1700	7808
4,5s	1,0 Nm	LGB21.../LME21.../LOA24.../LMO24.../LMO44...	SQN30.121A1700	7808
4,5s	1,0 Nm	LGB22.../LGB32.../LME22.../LME23...	SQN30.151A1700	7808
30s	3,0 Nm	LFL.../LGK.../LAL.../LOK.../LME7...	SQN30.402A1700	7808
<i>Clockwise rotation</i>				
<i>When facing the drive shaft and when control voltage is fed to end switch I</i>				
4,5s	1,0 Nm	LFL.../LGK.../LAL.../LOK.../LME7...	SQN31.101A1700	7808
4,5s	1,0 Nm	LGB22.../LGB32.../LME22.../LME23...	SQN31.151A1700	7808
12s	1,8 Nm	LGB22.../LGB32.../LME22.../LME23...	SQN31.251A1700	7808
30s	3,0 Nm	LFL.../LGK.../LAL.../LOK.../LME7...	SQN31.401A1700	7808

## SQN7...

**Line voltage/frequency:**

AC 220 V -15%...240 V +10%; 50...60 Hz +/-6%

Running time at 50 Hz; running times at 60 Hz are about 17% shorter

Reversible, 2 end switches, 2 or 3 auxiliary switches



SQN70..

Running time 90°	Torque	specified for		
<i>Counterclockwise rotation</i>				
<i>When facing the drive shaft and when control voltage is fed to end switch I</i>				
4s	1,5 Nm	LGB21.../LME21.../LOA24.../LMO24.../LMO44...	SQN70.244A20	7804
12s	2,5 Nm	LGB22.../LGB32.../LME22.../LME23...	SQN70.424A20	7804
12s	2,5 Nm	LFL.../LGK.../LAL.../LOK.../LME7...	SQN70.464A23	7804
30s	2,5 Nm	LFL.../LGK.../LAL.../LOK.../LME7...	SQN70.664A20	7804
30s	2,5 Nm	LFL.../LGK.../LAL.../LOK.../LME7...	SQN70.664A23	7804

# Gas/Air Damper Actuators

Type

Datasheet

## SQN7...



**Line voltage/frequency:**

AC 220 V -15%...240 V +10%; 50...60 Hz +/-6%

Running time at 50 Hz; running times at 60 Hz are about 17% shorter

Reversible, 2 end switches, 2 or 3 auxiliary switches, protection IP54

SQN71..

**Running time 90°**

Clockwise rotation

**Nominal Torque**

**specified for**

When facing the drive shaft and when control voltage is fed to end switch I

Running time 90°	Nominal Torque	specified for		
4s	1.5 Nm	LGB21.../LME21.../LOA24.../LMO24.../LMO44...	<b>SQN71.244A20</b>	7804
4s	1.5 Nm	LFL.../LGK.../LAL.../LOK.../LME7...	<b>SQN71.264A20</b>	7804
30s	2.5 Nm	LFL.../LGK.../LAL.../LOK.../LME7...	<b>SQN71.664A20</b>	7804
30s	2.5 Nm	LFL.../LGK.../LAL.../LOK.../LME7...	<b>SQN71.669A23</b>	7804

SQN72, IP54

Counterclockwise rotation

When facing the drive shaft and when control voltage is fed to end switch I

new

Running time 90°	Nominal Torque	specified for		
4s	1.5 Nm	LME22...	<b>SQN72.2A4A20</b>	7802
12s	2.5 Nm	LME22...	<b>SQN72.4A4A20</b>	7802
12s	2.5 Nm	LFL.../LGK.../LAL.../LOK.../LME7...	<b>SQN72.4C4A21</b>	7802
4s	1.5 Nm	LFL.../LGK.../LAL.../LOK.../LME7...	<b>SQN72.2C4A20</b>	7802
30s	2.5 Nm	LFL.../LGK.../LAL.../LOK.../LME7...	<b>SQN72.6C4A21</b>	7802

Cover AGA34 for SQN70.../SQN71... backfitting with potentiometer ASZxx.3x

**AGA34**

**7804 & 7921**

SQN75..

30s

1,3 Nm

for different control devices

**SQN75.6K4A21**

**7804**

## SQM1.../SQM2...



**Line voltage/frequency:**

220V -15%...240V +10%; 50...60Hz +/-6%

Running time at 50 Hz; running times at 60 Hz are about 17% shorter

Reversible, 2 end switches, 4 or 5 auxiliary switches

SQM10/20..

**Running time 90°**

Counterclockwise rotation

**Torque**

**specified for**

When facing the drive shaft and when control voltage is fed to end switch I

Running time 90°	Torque	specified for		
14s	10 Nm	modul., LFL.../LGK.../LAL.../LOK.../LME7...	<b>SQM10.15502</b>	7812
29s	10 Nm	modul., LFL.../LGK.../LAL.../LOK.../LME7...	<b>SQM10.16502</b>	7812
70s	10 Nm	modul., LFL.../LGK.../LAL.../LOK.../LME7...	<b>SQM10.17502</b>	7812
29s	20 Nm	modul., LFL.../LGK.../LAL.../LOK.../LME7... (*)	<b>SQM20.16502</b>	7812
45s	20 Nm	modul., LFL.../LGK.../LAL.../LOK.../LME7... (*)	<b>SQM20.18502</b>	7812

Clockwise rotation

When facing the drive shaft and when control voltage is fed to end switch I

Running time 90°	Torque	specified for		
29s	20 Nm	modul., LFL.../LGK.../LAL.../LOK.../LME7... (*)	<b>SQM21.16502</b>	7812
45s	20 Nm	modul., LFL.../LGK.../LAL.../LOK.../LME7... (*)	<b>SQM21.18502</b>	7812

(\* 12 mm instead of 10 mm shaft)

**Line voltage/frequency:**

100V -15%...110V +10%; 50...60Hz +/-6%

Running time at 50 Hz; running times at 60 Hz are about 17% shorter

Reversible, 2 end switches, 4 or 5 auxiliary switches

**Running time 90°**

Clockwise rotation

**Torque**

**specified for**

Running time 90°	Torque	specified for		
45s	20 Nm	modul., LFL.../LGK.../LAL.../LOK.../LME7... (*)	<b>SQM21.18501</b>	7812


(\* 12 mm instead of 10 mm shaft)



## Gas/Air Damper Actuators

	Type	Datasheet	
<b>SQM40.../SQM41...</b>			
 <p>SQM4...</p>	<b>230V, Ø 10mm, woodruff key DIN 6888</b> Actuator counterclockwise, 90°, 5 Nm, 15s, electronic version 4, 3 switches, shaft 10mm with woodruff key, European version, 230VAC, double potentiometer	<b>SQM40.141A21</b> <b>7817</b>	
	Actuator clockwise, 90°, 5 Nm, 15s, electronic version 4, 3 switches, shaft 10mm with woodruff key, European version, 230VAC, double potentiometer	<b>SQM41.141A21</b> <b>7817</b>	
	Actuator counterclockwise, 135°, 5 Nm, 15s, switch version 6, 6 switches, shaft 10mm with woodruff key, European version, 230VAC, no potentiometer	<b>SQM40.161A20</b> <b>7817</b>	
	Actuator counterclockwise 135°, 5 Nm, 15s, switch version 7, 5 switches, changeover relay, shaft 10mm with woodruff key, European, version 230VAC, no potentiometer.	<b>SQM40.171A20</b> <b>7817</b>	
	Actuator counterclockwise, 90°, 10 Nm, 30s, electronic version 4, 3 switches, shaft 10mm with woodruff key, European version, 230VAC, double potentiometer	<b>SQM40.241A21</b> <b>7817</b>	
	Actuator clockwise, 90°, 10 Nm, 30s, electronic version 4, 3 switches, shaft 10mm with woodruff key, European version, 230VAC, double potentiometer	<b>SQM41.241A21</b> <b>7817</b>	
	Actuator counterclockwise, 135°, 10 Nm, 30s, switch version 6, 6 switches, shaft 10mm with woodruff key, European version, 230VAC, no potentiometer	<b>SQM40.261A20</b> <b>7817</b>	
	Actuator counterclockwise, 90°, 10 Nm, 30s, switch version 6, 6 switches, shaft 10mm with woodruff key, European version, 230VAC, double potentiometer	<b>SQM40.261A21</b> <b>7817</b>	
	Actuator clockwise, 90°, 10 Nm, 30s, switch version 6, 6 switches, shaft 10mm with woodruff key, European version, 230VAC, double potentiometer	<b>SQM41.261A21</b> <b>7817</b>	
	Actuator counterclockwise 135°, 10 Nm, 30s, switch version 7, 5 switches, changeover relay, shaft 10mm with woodruff key, European, version 230VAC, no potentiometer.	<b>SQM40.271A20</b> <b>7817</b>	
	<b>new</b> Actuator counterclockwise 135°, 10 Nm, 30s, switch version 8, 6 switches, shaft 10mm with woodruff key, European, version 230VAC, no potentiometer.	<b>SQM40.281A20</b> <b>7817</b>	
	<b>230V, D 9.5 mm square</b>		
	Actuator counterclockwise, 90°, 10 Nm, 30s, electronic version 4, 3 switches, shaft 9.5mm square, European version, 230VAC, double potentiometer	<b>SQM40.244A21</b> <b>7817</b>	
	Actuator clockwise, 90°, 10 Nm, 30s, electronic version 4, 3 switches, shaft 9.5mm square, European version, 230VAC, double potentiometer	<b>SQM41.244A21</b> <b>7817</b>	
Actuator counterclockwise, 90°, 10 Nm, 30s, switch version 6, 6 switches, shaft 9.5mm square, European version, 230VAC, double potentiometer	<b>SQM40.264A21</b> <b>7817</b>		
Actuator clockwise, 90°, 10 Nm, 30s, switch version 6, 6 switches, shaft 9.5mm square, European version, 230VAC, double potentiometer	<b>SQM41.264A21</b> <b>7817</b>		
<b>new</b> Actuator clockwise 90°, 10 Nm, 30s, electronic version 5, 4 switches, shaft 9.5mm square, US version, 120VAC, double potentiometer.	<b>SQM41.254R11</b> <b>7817</b>		
<b>230V, Ø 10mm "D" shaft</b>			
<b>new</b> Actuator counterclockwise 90°, 2.5 Nm, 5s, electronic version 2, 4 switches, shaft 10mm "D" type, European version, 230VAC, double potentiometer	<b>SQM40.025A21</b> <b>7817</b>		
<b>new</b> Actuator counterclockwise 135°, 2.5 Nm, 5s, switch version 6, 6 switches, shaft 10mm "D" type, European version, 230VAC, double potentiometer	<b>SQM40.065A23</b> <b>7817</b>		
<b>new</b> Actuator counterclockwise 90°, 5 Nm, 15s, electronic version 1, 3 switches, shaft 10mm "D" type, US version, 120VAC, double potentiometer	<b>SQM40.115R11</b> <b>7817</b>		
<b>new</b> Actuator counterclockwise 135°, 5 Nm, 15s, electronic version 1, 3 switches, shaft 10mm "D" type, US version, 120VAC, double potentiometer	<b>SQM40.115R13</b> <b>7817</b>		
Actuator counterclockwise, 90°, 5 Nm, 15s, electronic version 4, 3 switches, shaft 10mm "D" type, European version, 230VAC, double potentiometer	<b>SQM40.145A21</b> <b>7817</b>		
Actuator clockwise, 90°, 5 Nm, 15s, electronic version 4, 3 switches, shaft 10mm "D" type, European version, 230VAC, double potentiometer	<b>SQM41.145A21</b> <b>7817</b>		
<b>new</b> Actuator counterclockwise 90°, 5 Nm, 15s, electronic version 5, 4 switches, shaft 10mm "D" type, US version, 120VAC, double potentiometer	<b>SQM40.155R11</b> <b>7817</b>		
<b>new</b> Actuator counterclockwise 135°, 5 Nm, 15s, electronic version 5, 4 switches, shaft 10mm "D" type, US version, 120VAC, double potentiometer	<b>SQM40.155R13</b> <b>7817</b>		
Actuator counterclockwise, 135°, 5 Nm, 15s, switch version 6, 6 switches, shaft 10mm "D" type, European version, 230VAC, no potentiometer	<b>SQM40.165A20</b> <b>7817</b>		
Actuator counterclockwise, 90°, 5 Nm, 15s, switch version 6, 6 switches, shaft 10mm "D" type, European version, 230VAC, double potentiometer	<b>SQM40.165A21</b> <b>7817</b>		
Actuator counterclockwise 90°, 5 Nm, 15s, switch version 7, 5 switches, changeover relay, shaft 10mm "D" type, European, version 230VAC, double potentiometer	<b>SQM40.175A21</b> <b>7817</b>		
<b>new</b> Actuator counterclockwise 90°, 5 Nm, 15s, switch version 8, 6 switches, shaft 10mm "D" type, US version, 120VAC, double potentiometer	<b>SQM40.185R11</b> <b>7817</b>		
<b>new</b> Actuator clockwise 90°, 5 Nm, 15s, switch version 8, 6 switches, shaft 10mm "D" type, US version, 120VAC, double potentiometer	<b>SQM41.185R11</b> <b>7817</b>		
<b>new</b> Actuator counterclockwise 90°, 10 Nm, 30s, electronic version 1, 3 switches, shaft 10mm "D" type, US version, 120VAC, double potentiometer	<b>SQM40.215R11</b> <b>7817</b>		
<b>new</b> Actuator counterclockwise 135°, 10 Nm, 30s, electronic version 1, 3 switches, shaft 10mm "D" type, US version, 120VAC, double potentiometer	<b>SQM40.215R13</b> <b>7817</b>		
<b>new</b> Actuator counterclockwise 135°, 10 Nm, 30s, switch version 3, 4 switches, shaft 10mm "D" type, European version, 230VAC, no potentiometer	<b>SQM40.235A20</b> <b>7817</b>		

## Gas/Air Damper Actuators

		Type	Datasheet	
 SQM4...	<b>SQM40.../SQM41...</b>			
	<b>230V, Ø 10mm "D" shaft</b>			
		Actuator counterclockwise, 90°, 10 Nm, 30s, electronic version 4, 3 switches, shaft 10mm "D" type, European version, 230VAC, double potentiometer	<b>SQM40.245A21</b>	<b>7817</b>
		Actuator clockwise, 90°, 10 Nm, 30s, electronic version 4, 3 switches, shaft 10mm "D" type, European version, 230VAC, double potentiometer	<b>SQM41.245A21</b>	<b>7817</b>
	<b>new</b>	Actuator counterclockwise 90°, 10 Nm, 30s, electronic version 5, 4 switches, shaft 10mm "D" type, European version, 230VAC, double potentiometer	<b>SQM40.255A21</b>	<b>7817</b>
	<b>new</b>	Actuator counterclockwise 90°, 10 Nm, 30s, electronic version 5, 4 switches, shaft 10mm "D" type, US version, 120VAC, double potentiometer	<b>SQM40.255R11</b>	<b>7817</b>
	<b>new</b>	Actuator counterclockwise 135°, 10 Nm, 30s, electronic version 5, 4 switches, shaft 10mm "D" type, US version, 120VAC, double potentiometer	<b>SQM40.255R13</b>	<b>7817</b>
		Actuator counterclockwise, 135°, 10 Nm, 30s, switch version 6, 6 switches, shaft 10mm "D" type, European version, 230VAC, no potentiometer	<b>SQM40.265A20</b>	<b>7817</b>
		Actuator counterclockwise, 90°, 10 Nm, 30s, switch version 6, 6 switches, shaft 10mm "D" type, European version, 230VAC, double potentiometer	<b>SQM40.265A21</b>	<b>7817</b>
		Actuator counterclockwise 135°, 10 Nm, 30s, switch version 7, 5 switches, changeover relay, shaft 10mm "D" type, European version 230VAC, no potentiometer	<b>SQM40.275A20</b>	<b>7817</b>
	<b>new</b>	Actuator counterclockwise 135°, 10 Nm, 30s, switch version 7, 5 switches, shaft 10mm "D" type, US version, 120VAC, no potentiometer	<b>SQM40.275R10</b>	<b>7817</b>
	<b>new</b>	Actuator clockwise 135°, 10 Nm, 30s, switch version 7, 5 switches, shaft 10mm "D" type, US version, 120VAC, no potentiometer	<b>SQM41.275R10</b>	<b>7817</b>
	<b>new</b>	Actuator counterclockwise 90°, 10 Nm, 30s, switch version 8, 6 switches, shaft 10mm "D" type, US version, 120VAC, double potentiometer	<b>SQM40.285R11</b>	<b>7817</b>
	<b>new</b>	Actuator clockwise 90°, 10 Nm, 30s, switch version 8, 6 switches, shaft 10mm "D" type, US version, 120VAC, double potentiometer	<b>SQM41.285R11</b>	<b>7817</b>
	<b>230V, Ø 14mm with parallel key</b>			
		Actuator counterclockwise, 90°, 10 Nm, 30s, electronic version 4, 3 switches, shaft 14mm with parallel key, European version, 230VAC, double potentiometer	<b>SQM40.247A21</b>	<b>7817</b>
		Actuator counterclockwise, 135°, 10 Nm, 30s, switch version 6, 6 switches, shaft 14mm with parallel key, European version, 230VAC, no potentiometer	<b>SQM40.267A20</b>	<b>7817</b>
	<b>new</b>	Actuator counterclockwise 135°, 18 Nm, 65s, electronic version 1, 3 switches, shaft 14mm with parallel key, European version, 230VAC, double potentiometer	<b>SQM40.317A23</b>	<b>7817</b>
	<b>new</b>	Actuator counterclockwise 90°, 18 Nm, 65s, electronic version 1, 3 switches, shaft 14mm with parallel key, US version, 120VAC, double potentiometer	<b>SQM40.317R11</b>	<b>7817</b>
	<b>new</b>	Actuator counterclockwise 135°, 18 Nm, 65s, electronic version 1, 3 switches, shaft 14mm with parallel key, US version, 120VAC, double potentiometer	<b>SQM40.317R13</b>	<b>7817</b>
<b>new</b>	Actuator clockwise 135°, 18 Nm, 65s, electronic version 5, 4 switches, shaft 14mm with parallel key, European version, 230VAC, double potentiometer	<b>SQM41.357A23</b>	<b>7817</b>	
<b>new</b>	Actuator counterclockwise 90°, 18 Nm, 65s, electronic version 5, 4 switches, shaft 14mm with parallel key, US version, 120VAC, double potentiometer	<b>SQM40.357R11</b>	<b>7817</b>	
<b>new</b>	Actuator clockwise 90°, 18 Nm, 65s, electronic version 5, 4 switches, shaft 14mm with parallel key, US version, 120VAC, double potentiometer	<b>SQM41.357R11</b>	<b>7817</b>	
<b>new</b>	Actuator counterclockwise 135°, 18 Nm, 65s, electronic version 5, 4 switches, shaft 14mm with parallel key, US version, 120VAC, double potentiometer	<b>SQM40.357R13</b>	<b>7817</b>	
<b>new</b>	Actuator clockwise 90°, 18 Nm, 65s, switch version 6, 6 switches, shaft 14mm with parallel key, European version, 230VAC, double potentiometer	<b>SQM41.367A21</b>	<b>7817</b>	
<b>new</b>	Actuator counterclockwise 135°, 18 Nm, 65s, switch version 8, 6 switches, shaft 14mm with parallel key, European version, 230VAC, no potentiometer	<b>SQM40.387A20</b>	<b>7817</b>	
<b>new</b>	Actuator counterclockwise 135°, 18 Nm, 65s, switch version 8, 6 switches, shaft 14mm with parallel key, European version, 230VAC, double potentiometer	<b>SQM40.387A23</b>	<b>7817</b>	
<b>new</b>	Actuator counterclockwise 90°, 18 Nm, 65s, switch version 8, 6 switches, shaft 14mm with parallel key, US version, 120VAC, double potentiometer	<b>SQM40.387R11</b>	<b>7817</b>	
<b>new</b>	Actuator clockwise 90°, 18 Nm, 65s, switch version 8, 6 switches, shaft 14mm with parallel key, US version, 120VAC, double potentiometer	<b>SQM41.387R11</b>	<b>7817</b>	

# Gas/Air Damper Actuators



SQM5..

## **SQM5..**

Reversible electromotoric actuators delivering torques up to 40 Nm.  
Running times from 10 to 90 seconds.

With 1 or 2 drive shaft ends; drive shafts are available as separate items and can be exchanged.

Can be equipped with electronic modules for control and position indication.  
Internal and external position indication.

Drive shaft and cam shaft can be separately disengaged.

On request UL-listed types for use in the U.S. and Canada.

### Line voltage/frequency:

AC 220 V -15%...240 V +10%; 50...60 Hz +/-6%

Running time at 50 Hz; running times at 60 Hz are about 17% shorter

### Reversible, 2 end switches, 2 auxiliary switches

Running time/90°	Torque	Drive shaft	Type	Datasheet
34 s/90°	15 Nm	Ø 10 mm	SQM50.441A2	7815

### Reversible, 2 end switches, 6 auxiliary switches

Running time/90°	Torque	Drive shaft	Type	Datasheet
15 s/90°	10 Nm	no shaft	SQM50.380A2	7815
15 s/90°	10 Nm	Ø 10 mm	SQM50.381A2	7815
15 s/90°	10 Nm	Ø 14 mm	SQM50.387A2	7815
34 s/90°	15 Nm	Ø 10 mm	SQM50.481A2	7815
34 s/90°	15 Nm	Ø 12 mm	SQM50.482A2	7815
60 s/90°	10 Nm	Ø 10 mm	SQM50.681A2	7815
30s /90°	20 Nm	Ø 12 mm	SQM53.482A2	7815
30s /90°	25 Nm	D 12 mm	SQM53.489A2	7815
45s /90°	20 Nm	Ø 12 mm	SQM53.582A2	7815
30 s/90°	25 Nm	no shaft	SQM54.480A2	7815
30 s/90°	20 Nm	Ø 12 mm	SQM54.482A2	7815
45s /90°	25 Nm	no shaft	SQM54.580A2	7815
60 s/90°	40 Nm	no shaft	SQM56.680A2	7815
60 s/90°	40 Nm	Ø 14 mm	SQM56.687A2	7815

### Reversible, 2 end switches, 6 auxiliary switches, potentiometer 1 kOhm (2 x 1 kOhm = "Dp")

Running time/90°	Torque	Drive shaft	Type	Datasheet
60 s/90°	40 Nm	Ø 14 mm	SQM56.687A203	7815

same as above, but high accuracy for use with fuel/air ratio controls

30 s/90°	20 Nm	Ø 10 mm	SQM54.481A203	7815
30 s/90° (Dp)	10 Nm	Ø 10 mm	SQM54.481A208	7815
30 s/90°	20 Nm	Ø 12 mm	SQM54.482A203	7815
30 s/90° (Dp)	20 Nm	Ø 12 mm	SQM54.482A207	7815

### Reversible, 2 end switches, 4 auxiliary switches


Analogue module 0/4..20 mA and potentiometer 1 kOhm

Running time/90°	Torque	Drive shaft	Type	Datasheet
10 s/90°	10 Nm	no shaft	SQM50.260A2G4	7815







with 6 auxiliary switches

15 s/90°	10 Nm	Ø 10 mm	SQM50.381A2G3	7815
15 s/90°	10 Nm	Ø 14 mm	SQM50.387A2G3	7815
34 s/90°	15 Nm	no shaft	SQM50.480A2G3	7815
34 s/90°	15 Nm	Ø 10 mm	SQM50.481A2G3	7815
60 s/90°	40 Nm	D 9.5 mm	SQM56.684A2G4	7815


# Gas/Air Damper Actuators

	Type	Datasheet	
<b>SQM5..., cont'd</b>			
 <p>SQM5..</p>	<p><b>Line voltage/frequency:</b>            AC 220 V -15%...240 V +10%; 50...60 Hz +/-6%            Reversible, 2 end switches, no auxiliary switch            Multifunctional module DC 0...10 V, 0/4...20 mA, 135W and potentiometer 2 x 1 kOhm</p>		
	<p><b>Running time/90° Torque Drive shaft</b></p>		
	34 s/90° 15 Nm D 9.5 mm	SQM50.424A2Z7	7815
	<p>Reversible, 2 end switches, 6 auxiliary switches            Multifunctional module DC 0...10 V, 0/4...20 mA, 135W and potentiometer 1 kOhm</p>		
	<p><b>Running time/90° Torque Drive shaft</b></p>		
	34 s/90° 10 Nm Ø 10 mm	SQM50.480A2Z3	7815
	34 s/90° 10 Nm Ø 10 mm	SQM50.481A2Z3	7815
	34 s/90° 10 Nm D 9 mm	SQM50.483A2Z3	7815
	30 s/90° 20 Nm Ø 12 mm	SQM53.482A2Z3	7815
	30 s/90° 20 Nm Ø 12 mm	SQM54.482A2Z3	7815
60 s/90° 40 Nm Ø 14 mm	SQM56.687A2Z3	7815	
<p><b>Line voltage/frequency:</b>            AC 110 V -15%/+10%; 50...60 Hz +/-6%            Running time at 50 Hz; running times at 60 Hz are about 17% shorter</p>			
<p>Reversible, 2 end switches, 6 auxiliary switches</p>			
<p><b>Running time/90° Torque Drive shaft</b></p>			
15 s/90° 15 Nm no shaft	SQM50.380A1	7815	
34 s/90° 15 Nm no shaft	SQM50.480A1	7815	
30 s/90° 25 Nm no shaft	SQM53.480A1	7815	
30 s/90° 20 Nm Ø 12 mm	SQM54.482A1	7815	
<p>Reversible, 2 end switches, 6 auxiliary switches</p>			
<p><b>Running time/90° Torque Drive shaft</b></p>			
<p>Multifunctional module DC 0...10 V, 0/4...20 mA, 135W and potentiometer 1 kOhm</p>			
34 s/90° 15 Nm no shaft	SQM50.480A1Z3	7815	
30 s/90° 20 Nm Ø 12 mm	SQM53.482A1Z3	7815	
<p><b>Line voltage/frequency:</b>            AC 24 V -15%/+10%; 50...60 Hz +/-6%            Running time at 50 Hz; running times at 60 Hz are about 17% shorter</p>			
<p>Reversible, 2 end switches, 2 auxiliary switches</p>			
<p><b>Running time/90° Torque Drive shaft</b></p>			
45s /90° 15 Nm D 9 mm	SQM50.543A8	7815	
<p>Reversible, 2 end switches, 6 auxiliary switches</p>			
<p><b>Running time/90° Torque Drive shaft</b></p>			
34 s/90° 15 Nm D 9 mm	SQM50.483A8	7815	
60 s/90° 40 Nm Ø 14 mm	SQM56.687A8	7815	
<p>Reversible, 2 end switches, 6 auxiliary switches            Multifunctional module DC 0...10 V, 0/4...20 mA, 135W and potentiometer 1 kOhm</p>			
34 s/90° 15 Nm D 9 mm	SQM50.483A8Z3	7815	
<p><b>Additional types on request</b></p>			



## Gas/Air Damper Actuators

	Type	Price (€)
<b>Accessories for actuators SQM1x... / 2x... / 4x.../5x... and SQN3x... / SQN7x...</b>		
	ASZ... conversion kit AGA32 for SQN3... For converting a basic type of actuator to a version for fitting a potentiometer	AGA32 7921
	Potentiometer 1000 Ohm, 90°, for SQM1.../2.../5... & SQN3.../4.../9... Potentiometer 1000 Ohm, 135°, for SQM1.../2.../5... & SQN3.../4.../9...	ASZ12.703 7921 ASZ12.733 7921
	Conductive plastic potentiom. 1000 Ohm, 90°, for SQM1.../2.../5... & SQN7... Conductive plastic potentiom. 1000 Ohm, 135°, for SQM1.../2.../5... & SQN7...	ASZ12.30 7921 ASZ12.33 7921
ASZ12.3...	Conductive plastic potentiom. 1000 Ohm, 90°, for SQM1.../2.../5... & SQN3.../4.../9... Conductive plastic potentiom. 1000 Ohm, 135°, for SQM1.../2.../5... & SQN3.../4.../9...	ASZ12.803 7921 ASZ12.833 7921
	Potentiometer 135 Ohm, 90°, for SQM1.../2.../5... & SQN3.../4.../9... Potentiometer 135 Ohm, 135°, for SQM1.../2.../5... & SQN3.../4.../9...	ASZ16.703 7921 ASZ16.733 7921
ASZ22.3...	Potentiometer 2 x 1000 Ohm, 90°, for SQM1.../2.../5... & SQN3.../4.../9... Potentiometer 2 x 1000 Ohm, 135°, for SQM1.../2.../5... & SQN3.../4.../9... Conductive plastic potentiometer 2 x 1000 Ohm, 90°, for SQM1.../2.../5... & SQN7...	ASZ22.703 7921 ASZ22.733 7921 ASZ22.30 7921
	<b>new</b> Conductive plastic potentiometer 2 x 1000 Ohm, 90°, for SQM40... & SQM41... Conductive plastic potentiometer 2 x 1000 Ohm, 135°, for SQM1.../2.../5... & SQN7... <b>new</b> Conductive plastic potentiometer 2 x 1000 Ohm, 135°, for SQM41... <b>new</b> Conductive plastic potentiometer 2 x 1000 Ohm, 135°, for SQM40... Conductive plastic potent. 2 x 1000 Ohm, 90°, for SQM1.../2.../5... & SQN3.../4.../9... Conductive plastic potent. 2 x 1000 Ohm, 135°, for SQM1.../2.../5... & SQN3.../4.../9...	ASZ22.32 7921 ASZ22.33 7921 ASZ22.34 7921 ASZ22.35 7921 ASZ22.803 7921 ASZ22.833 7921
ASZ22.8...		
<b>Additional types on request</b>		
<b>Electronic modules for SQM5x..</b>		
	Manual control Control input 4...20 mA for 230V actuators Control input 4...20 mA for 110V actuators Control input 4...20 mA for 24V actuators Control input 0 ...135 Ohm for 230V actuators Control input 0 ...135 Ohm for 110V actuators Control input 0 ...135 Ohm for 24V actuators Control input 0...10V DC for 230V actuators Control input 0...10V DC for 110V actuators Control input 0...10V DC for 24V actuators Multifunctional module DC 0...10 V, 0/4...20 mA, 135W for 230V actuators Multifunctional module DC 0...10 V, 0/4...20 mA, 135W for 110V actuators Multifunctional module DC 0...10 V, 0/4...20 mA, 135W for 24V actuators	AGA56.1A97 7922 AGA56.41A27 7922 AGA56.41A17 7922 AGA56.41A87 7922 AGA56.42A27 7922 AGA56.42A17 7922 AGA56.42A87 7922 AGA56.43A27 7922 AGA56.43A17 7922 AGA56.43A87 7922 AGA56.9A27 7922 AGA56.9A17 7922 AGA56.9A87 7922
AGA56...		
<b>Mounting brackets</b>		
	SQM 5... adapter for SQM10.../SQM20... SQM 5... adapter for ME8 SQM 5... adapter for Honeywell Mod. III actuator	AGA57.1 7815 AGA57.2 7815 AGA57.3 7815
<b>Drive shafts</b>		
Ø 10 mm	≤10 Nm	AGA58.1 7815
Ø 12 mm	≤20 Nm	AGA58.2 7815
D 9 mm ds	≤25 Nm ds = double sided	AGA58.3 7815
D 9.5 mm ds	≤30 Nm	AGA58.4 7815
D 10mm	≤10 Nm	AGA58.5 7815
Ø 14 mm	≤40 Nm	AGA58.7 7815
D 12 mm	≤30 Nm	AGA58.9 7815
	<b>NEMA 4 kit</b> - For sealing the drive shafts, thus improving the degree of protection - Drive shaft seals on both sides for actuators SQM5... - Packed as a kit together with O-rings and fixing screws	AGA55.5 7815


## Butterfly Valves

	Type	Datasheet	
<b>VKF...</b>			
Disk with metal-to-metal seating, angle of rotation 85°, maintenance-free. Suited for use with gases of families L...III and air. Disk and spindle are made of stainless steel. Valve disk closes against end stop.			
 VKF41...	Butterfly valve DN 40	VKF41.40C 7632	
	Butterfly valve DN 50	VKF41.50C 7632	
	Butterfly valve DN 65	VKF41.65C 7632	
	Butterfly valve DN 80	VKF41.80C 7632	
	Butterfly valve DN 100	VKF41.100C 7632	
	Butterfly valve DN 125	VKF41.125C 7632	
	Butterfly valve DN 150	VKF41.150C 7632	
	Butterfly valve DN 200	VKF41.200C 7632	
	Mounting kit for SQM5x.xx1Ax... and VKF41... in connection with drive shaft AGA58.1 (10 Nm) only	ASK33.9	7815









## Proportional Flow Control Valves

	Housing	avail. flanges	Air-volumetric flow m³/h at Δp 1 kPa when fully open	Type	Datasheet
 VKP40...	DN 40	1/2 "	11	VKP40.15	7646
	DN 40	3/4 "	20	VKP40.20	7646
	DN 40	1 "	28	VKP40.25	7646
	DN 40	1 1/4 "	50	VKP40.32	7646
	DN 40	1 1/2 "	69	VKP40.40	7646
	DN 40	2 "	88	VKP40.50	7646
	DN 40	2 "	200	VKP40.50H	7646
	DN 40	2 "	270	VKP40.50S	7646
	<b>Accessories VKP...</b>				
	AGF10... flanges same as for VGD20... see below				
ASK33.1		Mounting plate between SQM4..., SQM33...and VKP40		ASK33.1	7646
ASK33.3		Mounting plate between SQM5... (only with AGA58.5) and VKP40		ASK33.3	7815















## Gas Valve Proving System

	Line voltage/frequency:	Type	Datasheet
 LDU11...	<b>LDU11...</b> The LDU11... control unit is designed for gas valve proving in gas-fired combustion plants equipped with 2 safety shutoff valves. During each startup cycle, the control unit programs the valve proving test and, in the event of leakage, prevents burner startup. For automatic gas valve proving (leakage test) based on the pressure proving principle especially for plants >350 kW.		
	220V -15%...240V +10%; 50...60Hz +/-6%	LDU11.323A27	7696
	*)	LDU11.523A27	7696
	100V -15%...110V +10%; 50...60Hz +/-6%	LDU11.323A17	7696
	*)	LDU11.523A17	7696
	*) Valve opening times do not conform to EN 1643		
Plug-in base (PG 11)	AGM11	7230	
Plug-in base (M 16)	AGM11.1	7230	

## Gas & Air Valve Actuators

	Type	Datasheet
<b>SKP...</b>		
<b>Electrohydraulic actuators, slow opening, fast closing, some with regulator function</b>		
<b>Connector plugs AGA... have to be ordered separately</b>		
<b>Line voltage/frequency:</b> AC 230 V -15%/+10%; 50...60 Hz +/-6%		
	Single stage on-off, no limit switch	<b>SKP15.000E2</b> 7643
	Single stage on-off, with limit switch	<b>SKP15.001E2</b> 7643
	with pressure governor 0...2.2 kPa, no limit switch	<b>SKP25.003E2</b> 7643
	with pressure governor 0...2.2 kPa, with limit switch	<b>SKP25.001E2</b> 7643
	with pressure regulator 2 stage 0...6 kPa, no limit switch	<b>SKP25.203E2</b> 7643
	with pressure regulator 2 stage 0...2 kPa, no limit switch	<b>SKP25.203E2L</b> 7643
	with pressure regulator 2 stage 0...6 kPa, with limit switch	<b>SKP25.201E2</b> 7643
	with zero governor controlled by air pressure, no limit switch	<b>SKP25.303E2</b> 7643
	with pressure regulator 0.. 150 kPa, no limit switch	<b>SKP25.403E2</b> 7643
	with pressure regulator, no limit switch, electr. setpoint adjustment with SQS37	<b>SKP25.703E2</b> 7643
	with pressure regulator, with limit switch, electr. setpoint adjustment with SQS37	<b>SKP25.701E2</b> 7643
<b>SKP25.7.../SQS37</b>		
	with differential pressure governor, no limit switch	<b>SKP55.003E2</b> 7643
	with differential pressure governor, with limit switch	<b>SKP55.001E2</b> 7643
<b>SKP55...</b>		
	with gas/air ratio controller, no limit switch	<b>SKP75.003E2</b> 7643
	with gas/air ratio controller, with limit switch	<b>SKP75.001E2</b> 7643
<b>SKP75...</b>		






## Gas & Air Valve Actuators

	Type	Datasheet
<b>SKP...</b>		
<b>Electrohydraulic actuators, slow opening, fast closing, some with regulator function</b>		
Connector plugs AGA... have to be ordered separately		
<b>Line voltage/frequency:</b>		
AC 120V -15%/+10%; 50...60Hz +/-6%		
Single stage on-off, no limit switch	SKP15.000E1	7643
Single stage on-off, with limit switch	SKP15.001E1	7643
with pressure governor 0... 2.2 kPa, with limit switch	SKP25.001E1	7643
with pressure governor 0... 2.2 kPa, no limit switch	SKP25.003E1	7643
with differential pressure governor, with limit switch	SKP55.001E1	7643
with gas/air ratio controller, with limit switch	SKP75.001E1	76430
with gas/air ratio controller, no limit switch	SKP75.003E1	7643
<b>SKP...U (US versions)</b>		
<b>Electrohydraulic actuators, slow opening, fast closing, some with regulator function</b>		
<b>Line voltage/frequency:</b>		
110V -15%...120V +10%; 50...60Hz +/-6%		
 single stage with POC (proof of closure switch)	SKP15.011U1	7643
 single stage with auxiliary switch and POC	SKP15.012U1	7643
 single stage	SKP15.013U1	7643
 pressure regulator with POC	SKP25.011U1	7643
 pressure regulator with aux switch and POC	SKP25.012U1	7643
 pressure regulator	SKP25.013U1	7643
 differential pressure regulator with POC	SKP55.011U1	7643
 differential pressure regulator with aux switch and POC	SKP55.012U1	7643
 differential pressure regulator	SKP55.013U1	7643
 gas-/air ratio controller with POC	SKP75.011U1	7643
 gas-/air ratio controller with aux switch and POC	SKP75.012U1	7643
 gas-/air ratio controller	SKP75.013U1	7643
<b>SKL... (for air valves)</b>		
<b>Electrohydraulic actuators, slow opening, fast closing, some with regulator function</b>		
<b>Line voltage/frequency:</b>		
AC 230 V -15%/+10%; 50...60 Hz +/-6%		
 with pressure governor 0... 2.2 kPa, with limit switch	SKL25.001E2	7643
with pressure governor 0... 2.2 kPa, no limit switch	SKL25.003E2	7643
 with pressure governor 0... 2.2 kPa, no limit switch	SKL25.003E1	7643
Connector plugs AGA... have to be ordered separately.		

SKL25...



## Gas & Air Valve Actuators

	Type	Datasheet
<b>Accessories for gas/air valve actuators</b>		
<i>Accessories to be ordered separately.</i>		
 AGA60	Setpoint spring 1.5 ... 12 kPa (yellow) for SKP25/SKL25	AGA22 7643
	Setpoint spring 10 ... 25 kPa (red) for SKP25/SKL25	AGA23 7643
	Damping throttle for SKP25/SKL25	AGA25.2 7643
	Setpoint spring for SKP25.3... & SKP55... (blank, 0.15 kPa)	AGA28 7643
	Setpoint spring for SKP25... (blank, 0... 2.2 kPa)	AGA29 7643
<b>new</b>	Setpoint adjustment for SKP25... with spring 15...120 mbar	AGA30.0 7643
<b>new</b>	Setpoint adjustment for SKP25... with spring 100...250 mbar	AGA30.1 7643
<b>new</b>	Setpoint adjustment for SKP25... with spring 100...360 mbar	AGA30.2 7643
	Adapter for actuators SAX... for VG..., VL... and VR.. Valves	AGA60 7631 & 7633 & 7636
	Manual operation for all VG..., VL... & VR... valves	AGA61 7637
	Connecting cable with plug for two SKPx5...	AGA62.000A000 7643
 AGA64 / AGA65	Contact box for valve actuator (power supply) for SKPx5	AGA64 7643
	Contact box for end switch for SKPx5	AGA65 7643
	NEMA 4/IP65 kit SKPx5.../VG...	AGA66 7643
 AGA67	Conduit box for powering the SKP25.2...	AGA67 7643
	Adapter plug for AGA62.000A000	AGA68 7643
	Damping throttle for SKP55/SKP75	AGA75 7643
	Pressure reducing-T-piece for SKP75...	AGA78 7651
 SQS37...	Motorized setpoint adjuster for SKP25.7...	SQS37 7643
 AGA63.5A27	PTC heating for SKP15/25/55/75..., for temperatures below -15 °C	AGA63.5A27 7923

## Comparison SKPx0.../SKPx5... & SKLx0.../SKLx5...

SKPx0... old		SKPx5... new		Required type of connector
	Stroke indic.		Stroke indication	
SKP10.110B17	Yes	SKP15.000E1	No	+ AGA64
SKP10.111B17	Yes	SKP15.001E1	Yes	+ AGA64 + AGA65
SKP10.110B27	Yes	SKP15.000E2	No	+ AGA64
SKP10.111B27	Yes	SKP15.001E2	Yes	+ AGA64 + AGA65
SKP20.110B17	Yes	SKP25.003E1	Yes	+ AGA64
SKP20.111B17	Yes	SKP25.001E1	Yes	+ AGA64 + AGA65
SKP20.110B27	Yes	SKP25.003E2	Yes	+ AGA64
SKP20.111B27	Yes	SKP25.001E2	Yes	+ AGA64 + AGA65
SKP27.110B27	Yes	SKP25.703E2	Yes	+ AGA64
SKP27.111B27	Yes	SKP25.701E2	Yes	+ AGA64 + AGA65
SKP50.110B17	Yes	SKP55.003E1	Yes	+ AGA64
SKP50.111B17	Yes	SKP55.001E1	Yes	+ AGA64 + AGA65
SKP50.110B27	Yes	SKP55.003E2	Yes	+ AGA64
SKP50.111B27	Yes	SKP55.001E2	Yes	+ AGA64 + AGA65
SKP70.110B17	Yes	SKP75.003E1	Yes	+ AGA64
SKP70.111B17	Yes	SKP75.001E1	Yes	+ AGA64 + AGA65
SKP70.110B27	Yes	SKP75.003E2	Yes	+ AGA64
SKP70.111B27	Yes	SKP75.001E2	Yes	+ AGA64 + AGA65

SKLx0... Old		SKLx5... New		Required type of connector
SKL90.110C27	Yes	SKL25.003E2	Yes	+ AGA64
SKL90.111C27	Yes	SKL25.001E2	Yes	+ AGA64 + AGA65

If the governor's position indication must be on the front, the impulse pipe connection and electrical connections must also be moved to the front.  
Position indication is always on the same side as the connections.

The difference in height of the impulse pipe connection is 8 mm.

A defective motorized setpoint adjuster SQS27... is to be replaced by SQS37...

Type

Datasheet

## Female thread gas valves

### 4 test points, contoured disk, without stroke limiter

Nominal size	max pressure	Valve body material	Type	Datasheet
R 1/2"	120 kPa	Die-cast aluminium	VGG10.154P	7636
R 3/4"	120 kPa	Die-cast aluminium	VGG10.204P	7636
R 1"	120 kPa	Die-cast aluminium	VGG10.254P	7636
R 1 1/2"	60 kPa	Die-cast aluminium	VGG10.404P	7636
R 2"	60 kPa	Die-cast aluminium	VGG10.504P	7636
R 3"	30 kPa	Cast iron	VGG10.804P	7636



VGG...

### 4 test points, contoured disk, with stroke limiter

Nominal size	max pressure	Valve body material	Type	Datasheet
R 1/2"	120 kPa	Die-cast aluminium	VGG10.1541P	7636
R 3/4"	120 kPa	Die-cast aluminium	VGG10.2041P	7636
R 1"	120 kPa	Die-cast aluminium	VGG10.2541P	7636
R 1 1/2"	60 kPa	Die-cast aluminium	VGG10.4041P	7636
R 2"	60 kPa	Die-cast aluminium	VGG10.5041P	7636
R 3"	30 kPa	Cast iron	VGG10.8041P	7636

### 4 test points, contoured disk, without stroke limiter, US versions NPT

Nominal size	max pressure	Valve body material	Type	Datasheet
1/2"	120 kPa	Die-cast aluminium	VGG10.154U	155-51
3/4"	120 kPa	Die-cast aluminium	VGG10.204U	155-51
1"	120 kPa	Die-cast aluminium	VGG10.254U	155-51
1 1/2"	60 kPa	Die-cast aluminium	VGG10.404U	155-51
2"	60 kPa	Die-cast aluminium	VGG10.504U	155-51
2 1/2"	30 kPa	Cast iron	VGG10.654U	155-51
3"	30 kPa	Cast iron	VGG10.804U	155-51

US-Doc. No. 155-512P25

## Flanged gas valves





### 4 test points, some with contoured disk, without stroke limitation

Nominal size	max pressure	Valve body material	Type	Datasheet
DN 40	60 kPa	Cast iron, with contoured disk	VGF10.404P	7636
DN 50	60 kPa	Cast iron, with contoured disk	VGF10.504P	7636
DN 65	30 kPa	Cast iron, with contoured disk	VGF10.654P	7636
DN 80	30 kPa	Cast iron, with contoured disk	VGF10.804P	7636







VGF...

## Gas & Air Valves




			Type	Datasheet
<b>Flanged gas valves</b>				
4 test points, with contoured disk and stroke limitation				
 VGF...	<b>Nominal size</b>	<b>max pressure</b>	<b>Valve body material</b>	
	DN 50	60 kPa	Cast iron	VGF10.5041P 7636
	DN 65	30 kPa	Cast iron	VGF10.6541P 7636
	DN 80	30 kPa	Cast iron	VGF10.8041P 7636
4 test points, high flow				
 VGH/VRH...	<b>Nominal size</b>	<b>max pressure</b>	<b>Valve body material</b>	
	DN 80	30 kPa	Cast iron	VGH10.18050 7636
	DN 100	30 kPa	Cast iron	VGH10.19050 7636
	DN 125	30 kPa	Cast iron	VGH10.19150 7636
<b>Double gas valves, without connecting flange</b>				
With 3 threaded holes for connections (2 x 1/4", 1 x 3/4")				
 VGD20...	<b>Nominal size</b>	<b>max pressure</b>	<b>Valve body material</b>	
	DN 40	60 kPa	Die-cast aluminium	VGD20.403 7631
	DN 50	60 kPa	Die-cast aluminium	VGD20.503 7631
With 11 threaded holes for connections (6 x 1/4", 4 x 1/8", 1 x 3/4")				
	DN 40	60 kPa	Die-cast aluminium	VGD20.4011 7631
	DN 50	60 kPa	Die-cast aluminium	VGD20.5011 7631
<i>*With no contoured disk on the valve seat (V2) for quicker gas release</i>				
<b>Flanges for VGD20... and VKP40... (to be ordered separately, 2 pieces per valve)</b>				
<i>female thread</i>				
 AGF10...	<b>Nominal size Rp</b>	<b>Valve body material</b>		
	1/2 "	Die-cast aluminium	AGF10.15	7646
	3/4 "	Die-cast aluminium	AGF10.20	7646
	1 "	Die-cast aluminium	AGF10.25	7646
	1 1/4 "	Die-cast aluminium	AGF10.32	7646
	1 1/2 "	Die-cast aluminium	AGF10.40	7646
	2 "	Die-cast aluminium	AGF10.50	7646
<b>Double gas valves, without connecting flange, US versions</b>				
With 3 threaded holes for connections (2 x 1/4", 1 x 3/4")				
<b>Nominal size</b>	<b>max pressure</b>	<b>Valve body material</b>		
DN 40	60 kPa	Die-cast aluminium	VGD20.403U	7631
DN 50	60 kPa	Die-cast aluminium	VGD20.503U	7631
<b>Flanges for VGD20...U and VKP40... (to be ordered separately, 2 pieces per valve)</b>				
<i>female thread</i>				
<b>Nominal size NPT</b>	<b>Valve body material</b>			
1/2 "	Die-cast aluminium	AGF10.15U	7646	
3/4 "	Die-cast aluminium	AGF10.20U	7646	
1 "	Die-cast aluminium	AGF10.25U	7646	
1 1/4 "	Die-cast aluminium	AGF10.32U	7646	
1 1/2 "	Die-cast aluminium	AGF10.40U	7646	
2 "	Die-cast aluminium	AGF10.50U	7646	

## Gas & Air Valves

			Type	Datasheet
<b>Double gas valves with connecting flange</b>				
 VGD40...	<b>Nominal size</b>	<b>max pressure</b>	<b>Valve body material</b>	
	DN 40 (1 1/2")	100 kPa	Die-cast aluminium	<b>VG40.040</b> 7631
	DN 50 (2")	100 kPa	Die-cast aluminium	<b>VG40.050</b> 7631
	DN 65 (2 1/2")	70 kPa	Die-cast aluminium	<b>VG40.065</b> 7631
	DN 80 (3")	70 kPa	Die-cast aluminium	<b>VG40.080</b> 7631
	DN 100	70 kPa	Die-cast aluminium	<b>VG40.100</b> 7631
	DN 125	70 kPa	Die-cast aluminium	<b>VG40.125</b> 7631
	DN 150	70 kPa	Die-cast aluminium	<b>VG40.150</b> 7631
	Mounting plate for pressure switches for VGD40...and VRD40... - Spare part with plugs and sealing material		<b>AGA40.41</b>	7631
	Mounting plate for pilot connections for VGD40... and VRD40... - Spare part with plugs and sealing material		<b>AGA40.40</b>	7631
<b>Same as above, but mounting plate for pressure switches on both sides</b>				
	<b>Nominal size</b>	<b>max pressure</b>	<b>Valve body material</b>	
	DN 40	100 kPa	Die-cast aluminium	<b>VG41.040</b> 7631
	DN 50	100 kPa	Die-cast aluminium	<b>VG41.050</b> 7631
	DN 65	70 kPa	Die-cast aluminium	<b>VG41.065</b> 7631
	DN 80	70 kPa	Die-cast aluminium	<b>VG41.080</b> 7631
	DN 100	70 kPa	Die-cast aluminium	<b>VG41.100</b> 7631
	DN 125	70 kPa	Die-cast aluminium	<b>VG41.125</b> 7631
<b>Same as above, but mounting plate for pressure switches on opposite side</b>				
	<b>Nominal size</b>	<b>max pressure</b>	<b>Valve body material</b>	
	DN50	100 kPa	Die-cast aluminium	<b>VG40.050L</b> 7631
	DN65	70 kPa	Die-cast aluminium	<b>VG40.065L</b> 7631
	DN80	70 kPa	Die-cast aluminium	<b>VG40.080L</b> 7631
	DN100	70 kPa	Die-cast aluminium	<b>VG40.100L</b> 7631
	DN125	70 kPa	Die-cast aluminium	<b>VG40.125L</b> 7631
	DN150	70 kPa	Die-cast aluminium	<b>VG40.150L</b> 7631
<b>Threaded and flanged double gas valves, US versions</b>				
 VGD40...U	<b>Nominal size</b>	<b>max pressure</b>	<b>Valve body material</b>	
	<i>threaded valves</i>			
	DN65 (2-1/2" NPT)	70 kPa	Die-cast aluminium	<b>VG40.065U</b> 7631
	DN80 (3" NPT)	70 kPa	Die-cast aluminium	<b>VG40.080U</b> 7631
	<i>flanged valves</i>			
 VGD40...U	DN100	70 kPa	Die-cast aluminium	<b>VG40.100U</b> 7631
	DN150	70 kPa	Die-cast aluminium	<b>VG40.150U</b> 7631
<b>Double valves for biogases and recycling gases, with connecting flange</b>				
 VRD40...	<b>Nominal size</b>	<b>max pressure</b>	<b>Valve body material</b>	
	DN 40 (1 1/2")	100 kPa	Die-cast aluminium	<b>VR40.040</b> 7649
	DN 50 (2")	100 kPa	Die-cast aluminium	<b>VR40.050</b> 7649
	DN 65 (2 1/2")	70 kPa	Die-cast aluminium	<b>VR40.065</b> 7649
	DN 80 (3")	70 kPa	Die-cast aluminium	<b>VR40.080</b> 7649
	DN 100	70 kPa	Die-cast aluminium	<b>VR40.100</b> 7649
	DN 125	70 kPa	Die-cast aluminium	<b>VR40.125</b> 7649
	DN 150	70 kPa	Die-cast aluminium	<b>VR40.150</b> 7649

Mounting plates for pressure switches (spare part), see above (AGA40.40/41).

## Gas & Air Valves

			Type	Datasheet
<b>Flanged bio gas valves</b>				
4 test points, contoured disk, without stroke limitation, max. 60 °C				
 VRF...	<b>Nominal size</b>	<b>max pressure</b>	<b>Valve body material</b>	
	DN 40	60 kPa	Cast iron	<b>VRF10.404</b> 7633
	DN 50	60 kPa	Cast iron	<b>VRF10.504</b> 7633
	DN 65	30 kPa	Cast iron	<b>VRF10.654</b> 7633
	DN 80	30 kPa	Cast iron	<b>VRF10.804</b> 7633
4 test points, high flow, max. 60 °C				
 VRH...	<b>Nominal size</b>	<b>max pressure</b>	<b>Valve body material</b>	
	DN 80	30 kPa	Cast iron	<b>VRH10.805</b> 7633
	DN 100	30 kPa	Cast iron	<b>VRH10.905</b> 7633
	DN 125	30 kPa	Cast iron	<b>VRH10.915</b> 7633
<b>Flanged valves for hot air</b>				
Cast iron, 4 test points				
 VLF.. (450°C)	<b>Nominal size</b>	<b>max pressure</b>	<b>For air up to:</b>	
	DN 40	60 kPa	450 °C	<b>VLF45.404</b> 7637
	DN 50	60 kPa	450 °C	<b>VLF45.504</b> 7637
	DN 65	30 kPa	450 °C	<b>VLF45.654</b> 7637
	DN 80	30 kPa	450 °C	<b>VLF45.804</b> 7637

# Pressure Switches

Type

Datasheet

## QPL...

For the supervision of air or gas pressures in gas trains of gas-fired equipment (gas burners).

QPL... can be used as min. or max. pressure switches.

For pressure ranges up to 50 kPa.

Suited for gases of gas families 1, 2 and 3 and other neutral gaseous media.



QPLx5...

Pressure switch, via O-ring connection, 0.2...1 kPa  
 Pressure switch, via O-ring connection, 0.5... 5 kPa  
 Pressure switch, via O-ring connection, 0.5... 15 kPa  
 Pressure switch, via O-ring connection, 10... 50 kPa

QPL15.010  
 QPL15.050  
 QPL15.150  
 QPL15.500

7221  
 7221  
 7221  
 7221

Pressure switch, via 1/4" connection, 0.07... 0.3 kPa  
 Pressure switch, via 1/4" connection, 0.2 ... 1 kPa  
 Pressure switch, via 1/4" connection, 0.5... 5 kPa  
 Pressure switch, via 1/4" connection, 0.5... 15 kPa  
 Pressure switch, via 1/4" connection, 10... 50 kPa

QPL25.003  
 QPL25.010  
 QPL25.050  
 QPL25.150  
 QPL25.500

7221  
 7221  
 7221  
 7221  
 7221



AGA65

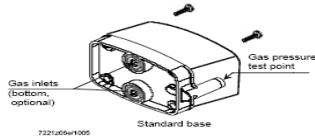
Connectors for QPL... to be ordered separately.

Connector for QPL...  
 Conforming to DIN EN 175301-803-A

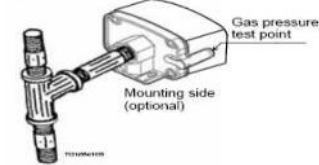
AGA65

7221

## QPL15...



## QPL25...



QPL15... can be mounted directly on VGD20... and VGD40... valves.





## Example:

Only VGD20.4011  
 respectively  
 e.g. VGD20.5011



VGD40...



		Type	Datasheet
<p><b>Compact universal controller RWF5...</b></p> <p><b>For optimizing temperature or pressure by controlling modulating or multistage burner.</b></p> <p>The RWF5x is used mainly for controlling the temperature or pressure in oil- or gas-fired heating plants. The controller is used either as a 3-position controller without angular positioning feedback or a continuous controller with analog output depending on the setting. An external switch can be used to change to a 2-position controller for controlling 2-stage burners. The integrated thermostat function switches the burner on and off. The thermostat at the RWF55 can be used as a thermal reset limit thermostat conforming to DIN EN 14597.</p>			
<p><b>Line voltage/frequency:</b> AC 100...240 V +/-10%; 48...63 Hz +/-10%</p>			
	48 x 48 mm -Version with analogue input and 3 position output	<b>RWF50.20A9</b>	<b>7866</b>
	48 x 48 mm -Version with analogue input and analogue output	<b>RWF50.30A9</b>	<b>7866</b>
	48 x 96mm version with 3 analogue inputs (similar to RWF40...) and features 3 position output as well as an analogue output. In addition the controller has a ModBus communication interface to connect to supervisory systems and controls.	<b>RWF55.50A9</b>	<b>7867</b>
	same as RWF55.50A9 plus an additional Profibus communication interface	<b>RWF55.60A9</b>	<b>7867</b>
	PC software for RWF5...	<b>ACS411</b>	<b>7866</b>
	<b>Adapter frame</b> Adapter frame for replacing RWF32...	<b>ARG40</b>	<b>7865</b>
	Adapter frame for replacing RWF32... for DIN rail-mounting	<b>ARG41</b>	<b>7865</b>

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