



Range Overview

LMV2...
LMV3...

The LMV2... / LMV3... provides all supervisory functions required for forced draft burners of medium to high capacity operating on a single fuel and – using integrated communication interfaces – affords convenient diagnostics, parameter settings and incorporation on the automation system level.

Integrated in the LMV2... / LMV3... basic unit are:

- The burner control, including gas valve proving
- Electronic fuel / air ratio control with a maximum of 2 actuators
- Optional variable speed drive (VSD) control

Documentation

The present documentation gives an **overview** of the product range.

Target groups

- Sales engineers
- Internal staff
- Burner experts







Functions

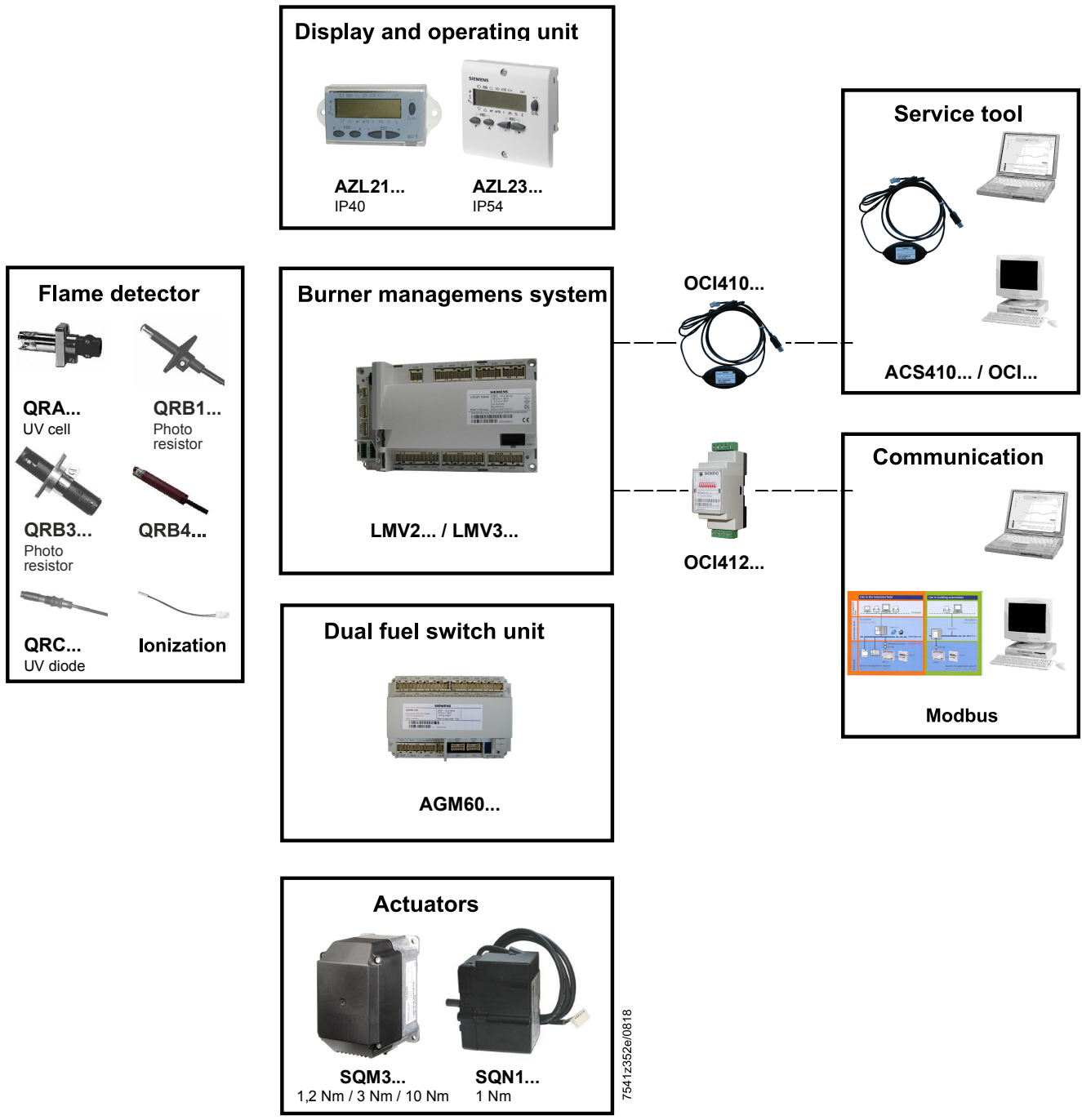
LMV26.300A2	LMV27.100A2	LMV36.520A1	LMV37.400A2	LMV37.420A1 (US)	
					Operating modes
●	●	●	●	●	- Intermittent operation
		●	●	●	- Continuous operation (only with ionization probe, without AGM60...)
					Basic applications, single-fuel operation
●	●	●	●	●	- Light oil direct ignition, 2-stage electronic ratio control - Light oil direct ignition, 3-stage electronic ratio control - Light oil direct ignition, electronic modulating ratio control - Gas direct ignition, electronic modulating ratio control - Gas pilot ignition, electronic modulating ratio control - Gas direct ignition, pneumatic modulating ratio control - Gas pilot ignition, pneumatic modulating ratio control - Light oil direct ignition modulating with 2 fuel valves
●		●			- Dual-fuel burner gas / light oil with gas pilot ignition - Dual-fuel burner gas / light oil with gas pilot ignition with 2 fuel valves
			●	●	- Heavy oil direct ignition with circulation control, electronic modulating ratio control. Optional with VSD with speed feedback signal - Heavy oil direct ignition with circulation control, electronic 2-stage ratio control. Optional with VSD with speed feedback signal - Heavy oil direct ignition without circulation control, electronic modulating ratio control. Optional with VSD with speed feedback signal - Heavy oil direct ignition without circulation control, electronic 2-stage ratio control. Optional with VSD with speed feedback signal - Heavy oil direct ignition without circulation control, electronic 3-stage ratio control. Optional with VSD with speed feedback signal
					Electronic ratio control
●	●	●	●	●	- Stepper motor for air damper - Stepper motor for fuel damper - Separate curve adjustment for air and fuel - Monitoring the actuator positions - Detection of open-circuits of actuators - Adjustment of minimum and maximum setting
●		●	●	●	- VSD control speed feedback - Optional automatic speed standardization with VSDs - Separate curve adjustment for VSD
					Flame detectors for intermittent operation
●	●	●	●	●	- Ionization probe - UV detector QRA2..., QRA4..., QRA10... - Photo resistive flame detector QRB1 / QRB3 - Yellow flame detector QRB4
●	●		●		- Blue-flame detector QRC...
					Flame detectors for continuous operation
		●	●	●	- Ionization probe
					Valve proving in connection with gas pressure switch
●	●	●	●	●	- Selectable: Before, after or before and after startup - Valve proving can be switched on / off

Functions (cont'd)

LMV26.300A2	LMV27.100A2	LMV36.520A1	LMV37.400A2	LMV37.420A1 (US)	
					External integration of load controller
●	●	●	●	●	- Input heat request - Preset burner output via Modbus from building automation
●	●		●	●	- Input multistage, shifting multistage, or modulating (3-position signal)
●		●	●	●	- 4...20 mA signal input for preset burner output
					Binary inputs / signal loops
●	●	●	●	●	- Burner flange - Safety loop - Air pressure switch - Pressure switch gas valve proving - Pressure switch-min-gas / -min-oil - Pressure switch-max-gas / -max-oil or POC contact - Reset / manual lockout - Heat request (priority over all heat sources) - Stage 2, OPEN with 3-position controller - Stage 3, CLOSED with 3-position controller
●		●			- Fuel selection
					Binary outputs
●	●	●	●	●	- Fuel valve V1 - Fuel valve V2 - Fuel valve V3 - Extra valve (safety valve SV) - Ignition - Fan - Continuous fan operation - Alarm - Indication of operation
					Analog inputs
●		●	●	●	- Preset burner output 4...20 mA
					Analog outputs
●	●	●	●	●	- Current burner output DC 0...10 V
●		●	●	●	- VSD control DC 0...10 V (alternative to indication of output)
					Meters and counters / statistics functions
●	●	●	●	●	- Fuel meter (only as an alternative to the VSD control) - Repetition counter - Error history - Cancellation of error history
●	●	●	●	●	- Operating hour meter

Functions (cont'd)

LMV26.300A2	LMV27.100A2	LMV36.520A1	LMV37.400A2	LMV37.420A1 (US)	
					Special functions
●	●	●	●	●	<ul style="list-style-type: none"> - Functions and times can be parameterized via AZL2... or PC tool - Reset / manual lockout - Alarm in case of start prevention - Startup without prepurging (to EN 676) - Gas shortage program - Program stop function - Low-fire load shutdown - Continuous fan - Test function for the burner approval – lost of flame test (TÜV test)
		●	●	●	- Forced intermittent operation (<24 h) can be deactivated
			●	●	- Switching back to pilot
					Communication interfaces
●	●	●	●	●	<ul style="list-style-type: none"> - BCI for AZL2... display or OCI410... interface - Via OCI412.10 interface to RS485 Modbus
					Display
●	●	●	●	●	<ul style="list-style-type: none"> - 7-segment display and operating unit AZL21... - 7-segment display and operating unit AZL23... - Brightness of display can be parameterized
					Dual fuel switch unit
●		●			- Dual fuel switch unit AGM60...
					Standards and certificates
		●		●	
●	●	●	●	●	
	●		●	●	
	●	●	●	●	
●	●	●	●	●	
●	●	●	●	●	



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Presentation of products

Burner management system

LMV2... / LMV3...

The basic unit is the actual burner control featuring all-polar input / output terminals. No operating elements. Operation via detached ancillary units for wire-bound communication



Dual fuel switch unit

AGM60.1A9

Article no.: **BPZ:AGM60.1A9**

Connected on the LMV26.300A2 basic unit.

Used for switching the valve control or feedback signals of both fuels.

AGM60.4A9

Article no.: **BPZ:AGM60.4A9**

Connected on the LMV36.520A1 basic unit.

Used for switching the valve control or feedback signals of both fuels.



Service tools

OCI410... interface between burner management system and PC

Article no.: **BPZ:OCI410**

Facilitates viewing, handling and recording setting parameters on site with the help of the ACS410 software package



OCI412.10 Modbus interface

Article no.: **BPZ:OCI412.10**

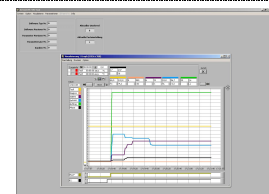
Device serving as an interface between the LMV2... / LMV3... and a Modbus system, such as a building automation and control system (BACS). The Modbus interface is based on the RS-485 standard



ACS410

Article no.: **BPZ:ACS410**

PC software for parameterization and visualization to the burner management system



Display and operating units

AZL21.00A9

Article no.: **BPZ:AZL21.00A9**

Detached display and operating unit, choice of mounting methods, 8-digit LCD, 5 buttons, BCI for LMV2... / LMV3... system, degree of protection IP40



AZL23.00A9

Article no.: **BPZ:AZL23.00A9**

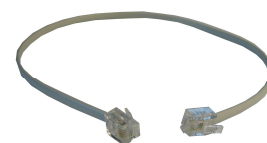
Detached display and operating unit, choice of mounting methods, 8-digit LCD, 5 buttons, BCI for LMV2... / LMV3... system, degree of protection IP54



AGV50.100

Article no.: **BPZ:AGV50.100**

Signal cable for AZL2..., with RJ11 connector, cable length 1 m, pack of 10



AGV50.300

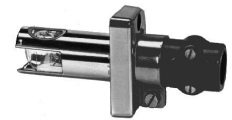
Article no.: **BPZ:AGV50.300**

Signal cable for AZL2..., with RJ11 connector, cable length 3 m, pack of 10

Flame detectors

QRA2...

Flame detector for use with Siemens burner controls, for the supervision of gas flames and yellow- / blue-burning oil flames as well as ignition spark checking. Plastic housing, metalized to prevent static charging caused by the air flow from the fan. For direct mounting on the burner. The detectors can be supplied with or without securing flange and clamp



QRA4...

Flame detector for use with Siemens burner controls, for the supervision of gas flames and yellow- or blue-burning oil flames as well as for ignition spark proving.



QRA10...

Flame detector for use with Siemens burner controls, for the supervision of gas flames and yellow- / blue-burning oil flames as well as ignition spark checking. Die-cast aluminum housing with a 1 in. mounting coupling and connection facility for cooling air. The housing of this detector has a bayonet fitting which allows it to be secured either directly to the 1 in. mounting coupling or to the AGG06. The 1 in. mounting coupling can be screwed to a viewing tube or to the AGG07. The Pg cable gland can be removed and replaced, if some other detector cable shall be used.



QRB1

Photo resistive flame detector for use with Siemens burner controls, for the supervision of oil flames in the visible light spectrum. Especially suited for use with burner controls for small capacity burners



QRB3

Photo resistive flame detector for use with Siemens burner controls, for the supervision of oil flames in the visible light spectrum. Especially suited for use with burner controls for small capacity burners



QRB4

Yellow flame detector for use with Siemens burner controls, for the supervision of oil flames in the visible light spectrum. The QRB4 is used in connection with oil burner controls in intermittent operation.



QRC...

Blue-flame detector for use with Siemens burner controls, for the supervision of blue- or yellow-burning oil or gas flames. Especially suited for use with burner controls for small capacity burners in intermittent operation

Frontal illumination



Lateral illumination



Actuators

SQM33.4...

Rated torque 1.2 Nm (0.8 Nm holding torque when dead),
running time 5 s, stepper motor, front mounting, D-type drive
shaft

SQM33.5...

Rated torque 3 Nm (2.6 Nm holding torque when dead),
running time 5 s, stepper motor, front mounting, D-type drive
shaft

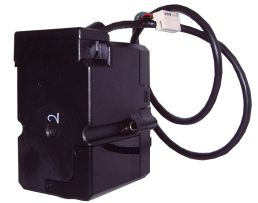
SQM33.7...

Rated torque 10 Nm (6 Nm holding torque when dead),
running time 17 s, stepper motor, front mounting, D-type
drive shaft



SQN1...

Rated torque 1 Nm (0.2 Nm holding torque when dead),
running time 5 s, stepper motor, front mounting, D-type drive
shaft



Presentation of products (cont'd)

Connector sets

AGG3.131

Article no.: **BPZ:AGG3.131**

Complete connector set RAST2.5 / RAST3.5 / RAST5 for gas / oil applications, single pack

Example: X5-02



AGG3.132

Article no.: **BPZ:AGG3.132**

Complete connector set RAST2.5 / RAST3.5 / RAST5 for gas- / oil applications, pack of 10

AGG3.131	AGG3.132	Connector reference	Description
			RAST5
1	10	X3-02	Air pressure switch (LP)
1	10	X3-03	Burner flange
1	10	X3-04	Power supply - Safety loop (L, N, PE - SL)
1	10	X3-05	Alarm (AL), Fan motor (M)
1	10	X4-02	Ignition (Z)
1	10	X5-01	Gas pressure switch-min / Oil pressure switch-min (Pmin)
1	10	X5-02	Gas pressure switch-max / Oil pressure switch-max (Pmax)
1	10	X5-03	External load controller (LR)
1	10	X6-03	Safety valve (SV)
1	10	X7-01	Fuel valve (V2)
1	10	X7-02	Fuel valve (V3)
1	10	X8-02	Fuel valve (V1)
1	10	X8-04	Reset, Operating mode display (B4)
1	10	X9-04	Gas pressure switch (GP), Pressure switch valve proving (P LT)
1	10	X10-05	Flame detector ION, QRB, QRC
1	10	X10-06	Flame detector QRA2 / QRA4
1	10	X75	Fuel meter
			RAST3,5
1	10	X74	1 x 5-pin connector / Variable speed drive (FU)
1	10	X64	1 x 5-pin connector / Reserve
			RAST2,5
1	10	X92	Modbus (COM)

AGG3.151

Article no.: **BPZ:AGG3.151**

Connector set for AGM60.1A9 (Europe), RAST5, single pack



AGG3.151	Connector reference	Description
		RAST5
1	X5-02	Fuel 1: Pressure switch-max (Pmax) / POC
1	X6-02	Fuel 1: Safety valve (SV) / Magnetic clutch
1	X7-02	Fuel valve 3 (V3)
1	X8-02	Fuel 1: Fuel valve 1 (V1)
1	X8-03	Fuel 1: Fuel valve 2 (V2)
1	X22-02	Fuel 0: Pressure switch-max (Pmax) / POC
1	X24-04	Fuel 0: Fuel valve 1 (V1) / Fuel valve 2 (V2)
1	X24-05	Fuel 0: Pilot valve (PV)
1	X24-06	Fuel 0: Safety valve (SV)
1	X31-01	Power supply, Fuel selector switch
1	X31-02	Fuel selector switch
1	X32-01	Connecting plug for LMV26
1	X32-02	External load controller (LR)

AGG3.162

Article no.: **BPZ:AGG3.162**

Connector set for AGM60.4A9 (US), RAST5, set of 10
AGM60.4A9



AGG3.162	Connector reference	Description
		RAST5
10	X5-01	Fuel 1: Pressure switch-min (Pmin)
10	X5-02	Fuel 1: Pressure switch-max (Pmax) or POC
10	X6-02	Fuel 1: Safety valve (SV) / Magnetic clutch
10	X8-02	Fuel 1: Fuel valve 1 (V1)
10	X8-03	Fuel 1: Fuel valve 2 (V2)
10	X9-04	Fuel 0: Pressure switch valve proving
10	X22-02	Fuel 0: Pressure switch-max (Pmax) or POC
10	X24-04	Fuel 0: Fuel valve 1 (V1) / Fuel valve 2 (V2)
10	X24-06	Fuel 0: Safety valve (SV)
10	X31-01	Power supply, Fuel selector switch
10	X31-02	Fuel selector switch
10	X32-01	Connecting plug for LMV36
10	X32-02	External load controller (LR)

Example X5-03

AGG9...
 Single connectors
 Packing unit 200 in total



Article no.	Type	Type of connector	Terminal
BPZ:AGG9.203	AGG9.203	RAST5	X3-02
BPZ:AGG9.204	AGG9.204	RAST5	X3-03
BPZ:AGG9.206	AGG9.206	RAST5	X8-04
BPZ:AGG9.209	AGG9.209	RAST5	X10-06
BPZ:AGG9.217	AGG9.217	RAST5	X75
BPZ:AGG9.303	AGG9.303	RAST5	X3-05
BPZ:AGG9.304	AGG9.304	RAST5	X4-02
BPZ:AGG9.306	AGG9.306	RAST5	X5-01
BPZ:AGG9.307	AGG9.307	RAST5	X5-02
BPZ:AGG9.309	AGG9.309	RAST5	X6-03
BPZ:AGG9.310	AGG9.310	RAST5	X7-01
BPZ:AGG9.311	AGG9.311	RAST5	X7-02
BPZ:AGG9.313	AGG9.313	RAST5	X9-04
BPZ:AGG9.403	AGG9.403	RAST5	X5-03
BPZ:AGG9.406	AGG9.406	RAST5	X8-02
BPZ:AGG9.501	AGG9.501	RAST5	X3-04
BPZ:AGG9.504	AGG9.504	RAST5	X10-05
BPZ:AGG9.853	AGG9.853	RAST3,5	X64 and X74

Accessories

AGG5.310
 Article no.: **BPZ:AGG5.310**
 Accessories set speed control, for burner management systems, composed of sensor disk Ø 50, sensor and mounting set

Transformer

A5Q20002669
 Article no.: **BPZ:A5Q20002669**
 Transformer to increase ionization voltage for AC 120 V devices.



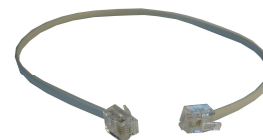
Presentation of products (cont'd)

Cable

AGV50.100

Article no.: **BPZ:AGV50.100**

Signal cable for AZL2..., with RJ11 connector, length 1 m, pack of 10



AGV50.300

Article no.: **BPZ:AGV50.300**

Signal cable for AZL2..., with RJ11 connector, length 3 m, pack of 10

AGV60.50

Article no.: **BPZ:AGV60.50**

Connecting cable between LMV26... and AGM60.1A9. cable length 0.5 m



AGV61.100

Article no.: **BPZ:AGV61.100**

Connecting cable between LMV36... and AGM60.4A9 (US), cable length 1 m

Proportional controlling element with mounting plate

VKP

Proportional controlling element for mounting between threaded flanges in gas trains.



ASK33.1

Article no.: **BPZ:ASK33.1**

Larger mounting plate required to replace existing mounting plate. Required for mounting the actuators SQM4 or SQM33.



ASK33.2

Article no.: **BPZ:ASK33.2**

Additional mounting plate is required for mounting the actuator SQN13.



Gas damper for mounting kit

VKF41.xxxC

Butterfly valves designed in intermediate flange design, for integration into gas trains.



ASK33.4

Article no.: **BPZ:ASK33.4**

Mounting kit for mounting the actuators SQM33.5 on the butterfly valve VKF41...C.



Available documentation

Type reference	Designation	Documentation
A5Q20002669	Ionization current supervision for AC 120 V devices	CC1A7541.2
ACS410	Software	CC1J7352
AGG3.131	Connector set	C7541 (74 319 0637 0)
AGG3.132	Connector set	C7541 (74 319 0637 0)
AGG3.151	Connector set	C7547 (74 319 0670 0)
AGG3.162	Connector set	C7547 (74 319 0671 0)
AGG5.310	Accessories set speed control	M7550.1 (74 319 9322 0)
AGG9.203	Connector set	---
AGG9.204	Connector set	---
AGG9.206	Connector set	---
AGG9.209	Connector set	---
AGG9.217	Connector set	---
AGG9.303	Connector set	---
AGG9.304	Connector set	---
AGG9.306	Connector set	---
AGG9.307	Connector set	---
AGG9.309	Connector set	---
AGG9.310	Connector set	---
AGG9.311	Connector set	---
AGG9.313	Connector set	---
AGG9.403	Connector set	---
AGG9.406	Connector set	---
AGG9.501	Connector set	---
AGG9.504	Connector set	---
AGG9.853	Connector set	---
AGM60.1A9	Dual fuel switch unit	CC1P7547
AGM60.4A9	Dual fuel switch unit	CC1P7544
AGV50.100	Signal cable	---
AGV50.300	Signal cable	---
AGV60.50	Connecting cable	---
AGV61.100	Connecting cable	---
ASK33.1	Mounting plate	CC1N7646
ASK33.2	Mounting plate	CC1N7646
ASK33.4	Mounting kit	CC1N7632
AZL21...	Display and operating units	CC1N7542
AZL23...	Display and operating units	CC1N7542
LMV26.3...	Burner management system	CC1P7547
LMV27.100...	Burner management system	CC1P7541
LMV36.520...	Burner management system	CC1P7544

Available documentation (cont'd)

Type reference	Designation	Documentation
LMV37.4...	Burner management system	CC1P7546
OCI410...	Interface	CC1N7616
OCI412.10	Interface	CC1N7615
QRA2...	Flame detectors	CC1N7712
QRA4...	Flame detectors	CC1N7711
QRA10...	Flame detectors	CC1N7712
QRB1	Photo resistive flame detectors	CC1N7714
QRB3	Photo resistive flame detectors	CC1N7714
QRB4	Yellow flame detector	CC1N7720
QRC...	Blue-flame detectors	CC1N7716
SQM33.4...	Actuators	CC1N7813
SQM33.5...	Actuators	CC1N7813
SQM33.7...	Actuator	CC1N7813
SQN1...	Actuators	CC1N7803
VKF41...C	Butterfly valves	CC1N7646
VKP...	Proportional controlling element	CC1N7632

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