Flam®

Isıtma Teknolojisi

User Manuel

LMV27.1...

Burner Managment System

English

Warning notes

system (P7541)!
To avoid injury to persons, damage to property or the environment, the following
warning notes should be observed!
The LMV27.1... is a safety device! Do not open, interfere with or modify the unit.
Siemens will not assume responsibility for any damage resulting from unauthorized
interference!
• All activities (mounting, installation and service work, etc.) must be performed by
qualified staff
• Before making any wiring changes in the connection area of the LMV27.1…, completely
isolate the unit from the mains supply (all-polar disconnection)
• Ensure protection against electric shock hazard by providing adequate protection
for the burner control's connection terminals
• Each time work has been carried out (mounting, installation, service work, etc.),
check to ensure that wiring and parameters is in an orderly state
• Fall or shock can adversely affect the safety functions. Such units must not be put
into operation, even if they do not exhibit any damage
• For display of the flame on the AZL2…, following general conditions apply:
- Display is subject to various component tolerances so that deviations of
± 10 % can occur
- Note that for physical reasons there is no linear relationship between flame
display and detector signal values

Installation notes

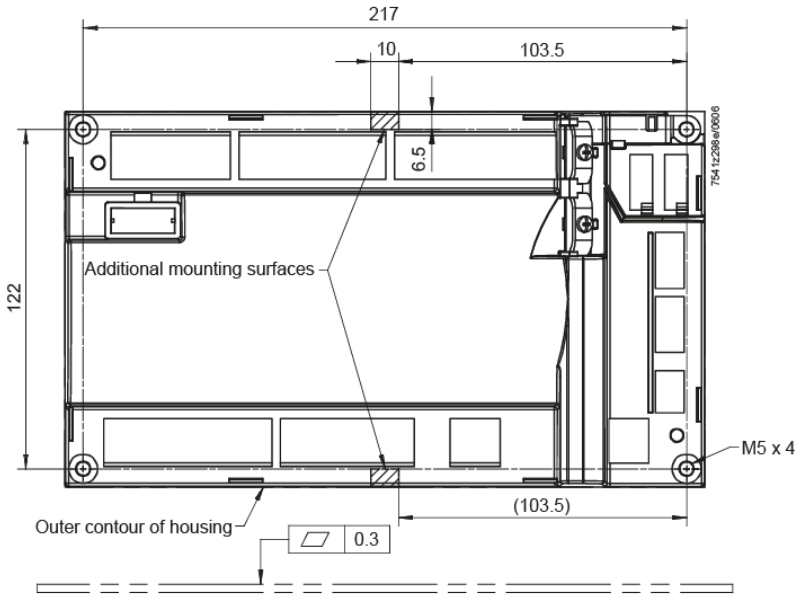
• Always run high-voltage ignition cables separately while observing the greatest
possible distance to the unit and to other cables
• Do not mix up live and neutral conductors

Electrical connection of the flame detectors

It is important to achieve practically disturbance- and loss-free signal transmission:
• Never run the detector cable together with other cables
– Line capacitance reduces the magnitude of the flame signal
2 Use a separate cable
• Observe the maximum permissible detector cable lengths
• The ionization probe is not protected against electric shock hazard. It is mainspowered
and must be protected against accidental contact
• Locate the ignition electrode and the ionization probe such that the ignition spark
cannot arc over to the ionization probe (risk of electrical overloads)

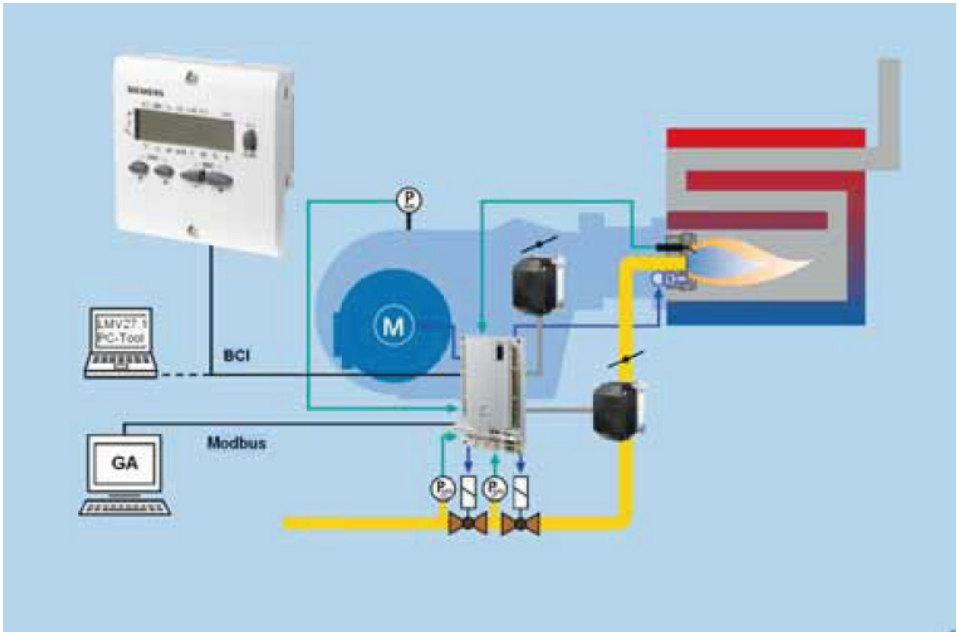
Mechanical design

The LMV27.1... is a microprocessor-based system with matching system components
for the control and supervision of forced draft burners of medium to high capacity.
The following system components are integrated in the LMV27.1… basic unit:
• Burner control with gas valve proving system
• Electronic air / fuel ratio control with a maximum of 2 actuators
• Modbus interface
Example:
Modulating gas burner
The system components (display and operating unit, actuators) are connected directly
to the LMV27.1…basic unit. All safety-related digital inputs and outputs of the system
are monitored by a contact feedback network (CFN). For intermittent operation in connection
with the LMV27.1..., an ionization probe or optical flame detector type QRB…
or QRC… is used.
The burner management system is operated and parameterized with the help of the
AZL2… display and operating unit or a PC tool. The AZL2... features an LCD and menu-
driven operation, offering straightforward operation and targeted diagnostics. To
simplify diagnostics, the display shows the operating states, the type of fault and the
point in time the fault occurred. The different parameter setting levels for the burner /
boiler manufacturer and the heating engineer are protected by passwords. Basic settings
that the plant operator can make on site do not demand a password. There is also
a communication interface COM from which higher level systems such as building automation (GA). Using the BCI and OCI410… interfaces, a PC with ACS410 software can



be connected. Among other features, the software affords convenient readout of settings
and operating states, parameterization of the LMV27.1..., and trend logging.
The burner / boiler manufacturer can choose from a number of different fuel trains and
has a wide variety of parameter setting choices (program times, configuration of inputs
and outputs, etc.) to ensure optimum adaptation to the relevant application.
The SQM3... and SQN1… actuators are driven by stepper motors and offer highresolution
positioning. The characteristics and settings of the actuators are defined by
the LMV27.1... basic unit.

Degree of protection	IP00 Note: The burner or boiler manufacturer must ensure degree of protection IP40 to DIN EN 529 for burner controls by adequate installation of the LMV2…
Perm. mains primary fuse (externally)	max. 16 AT
Unit fuse F1 (internally)	6.3 AT (DIN EN 60 127 2 / 5)



Type summary

Microprocessor-based burner control for single-fuel burners of any capacity, electronic
air / fuel ratio control, up to 2 actuators, integrated gas valve proving system.

Type reference	Mains voltage	Parameter set	Type of flame detector	TSA	
				Gas	Oil
LMV27.100A2	AC 230 V	Europe	QRA2… / QRA4… (USA) / QRA10… / QRB… / QRC… / ION	3 s	5 s

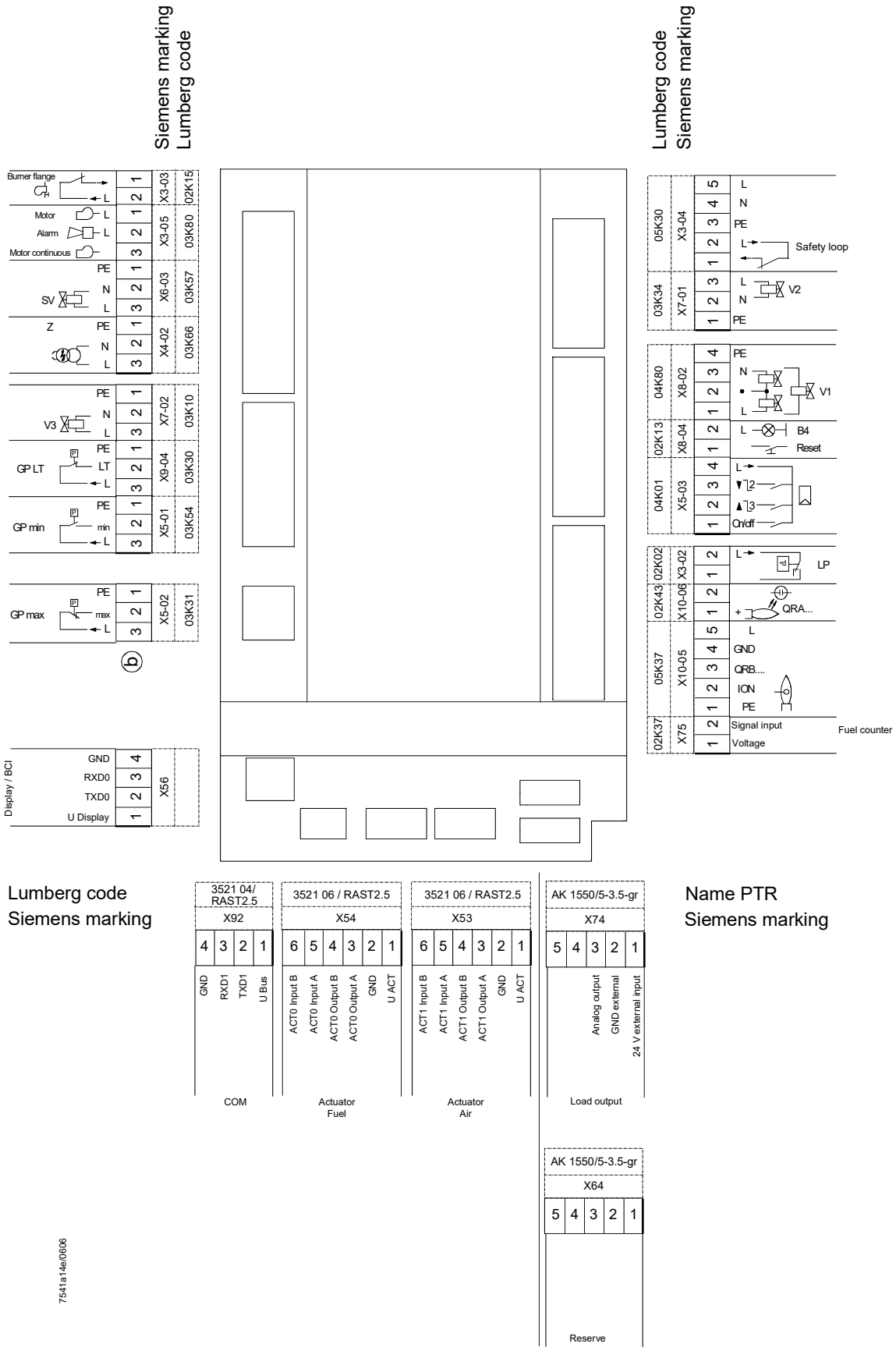
Technical data

LMV27.1… basic unit

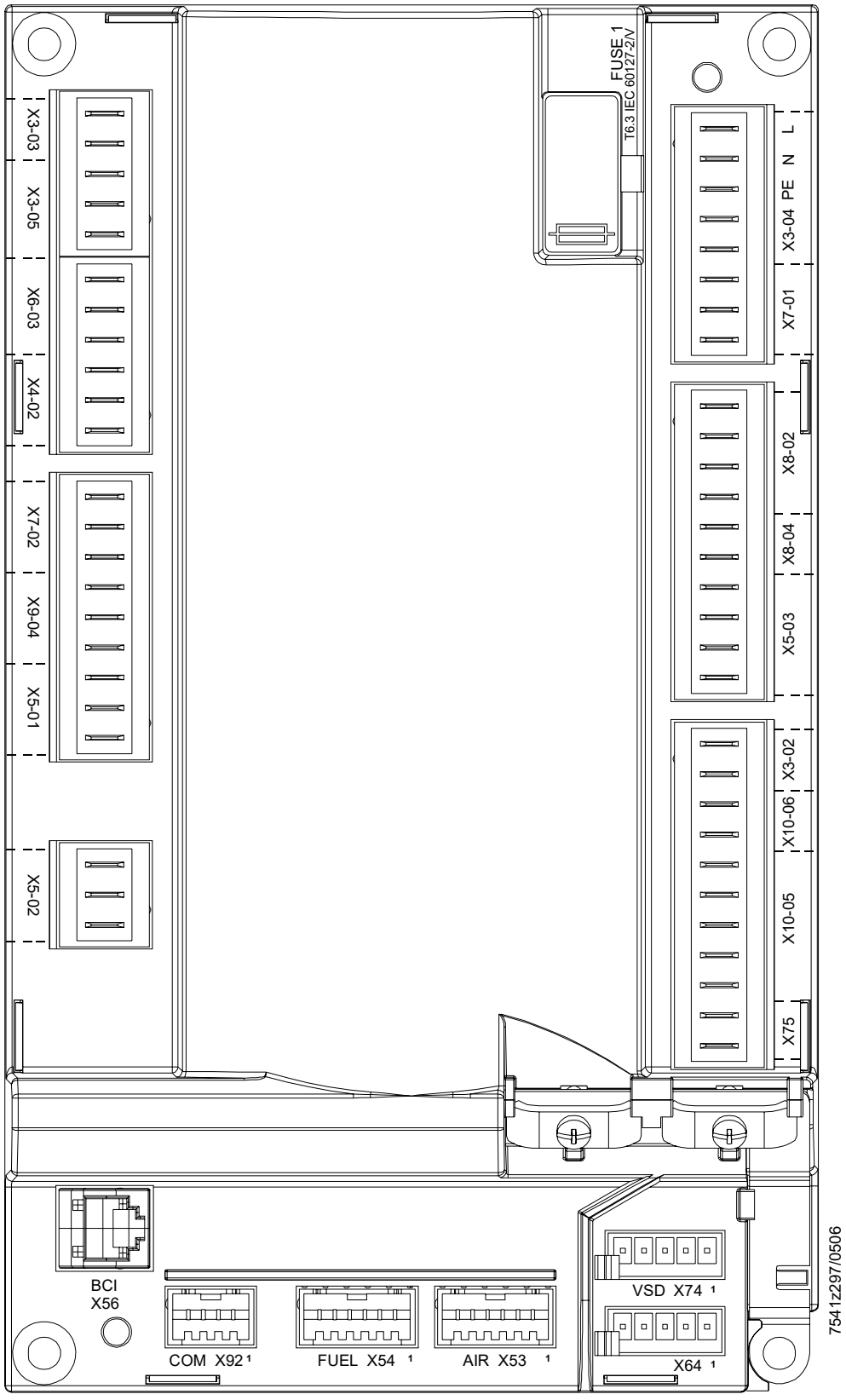
Mains voltage	AC 230 V -15 % / +10 %
Mains frequency	50 / 60 Hz ±6 %
Safety class	I, with parts according to II and III to DIN EN 60 730-1

Undervoltage • Safety shutdown from operating position at mains voltage	approx. AC 186 V
Restart on rise in mains voltage	approx. AC 195 V

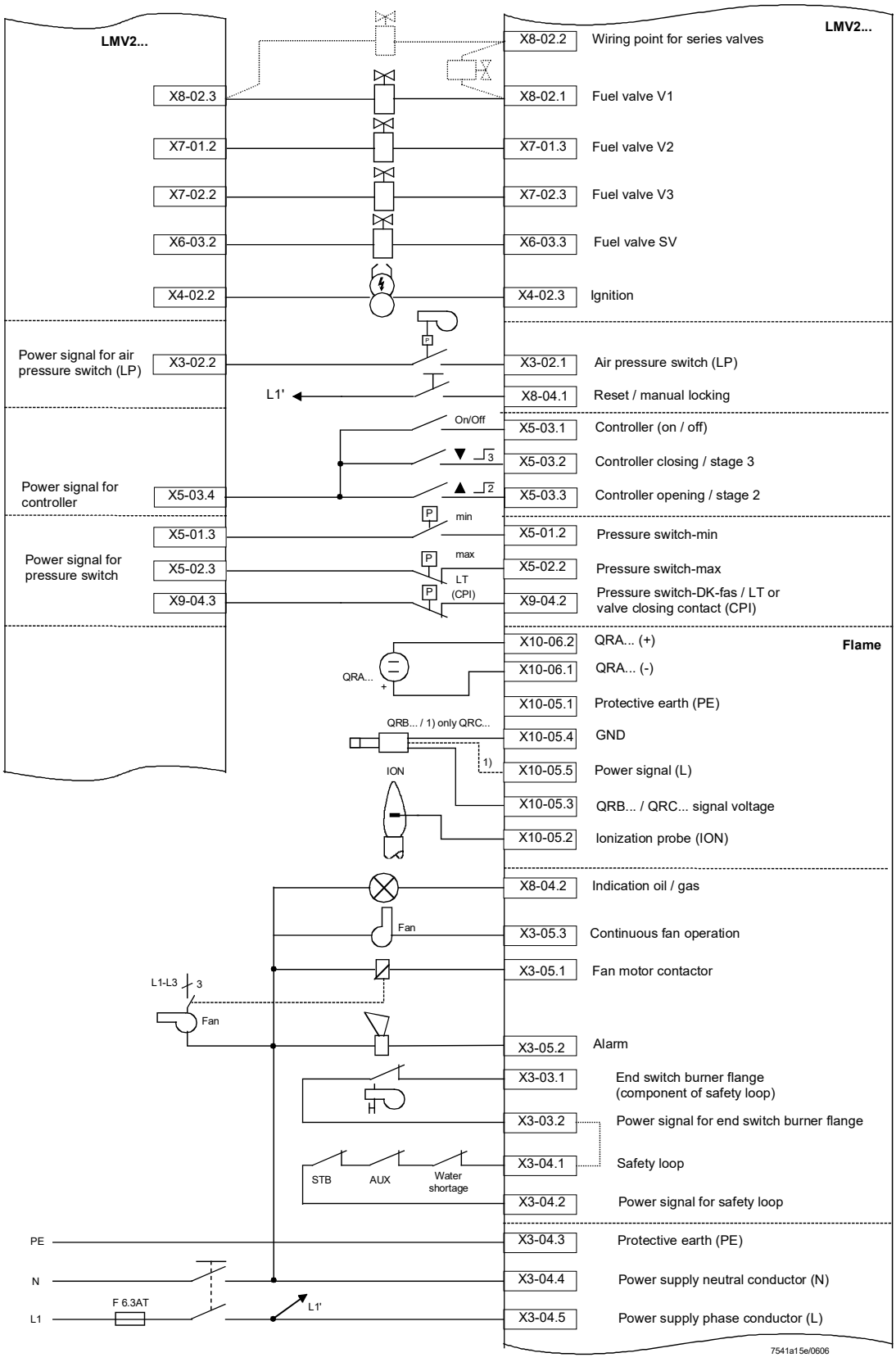
Block diagram inputs / outputs



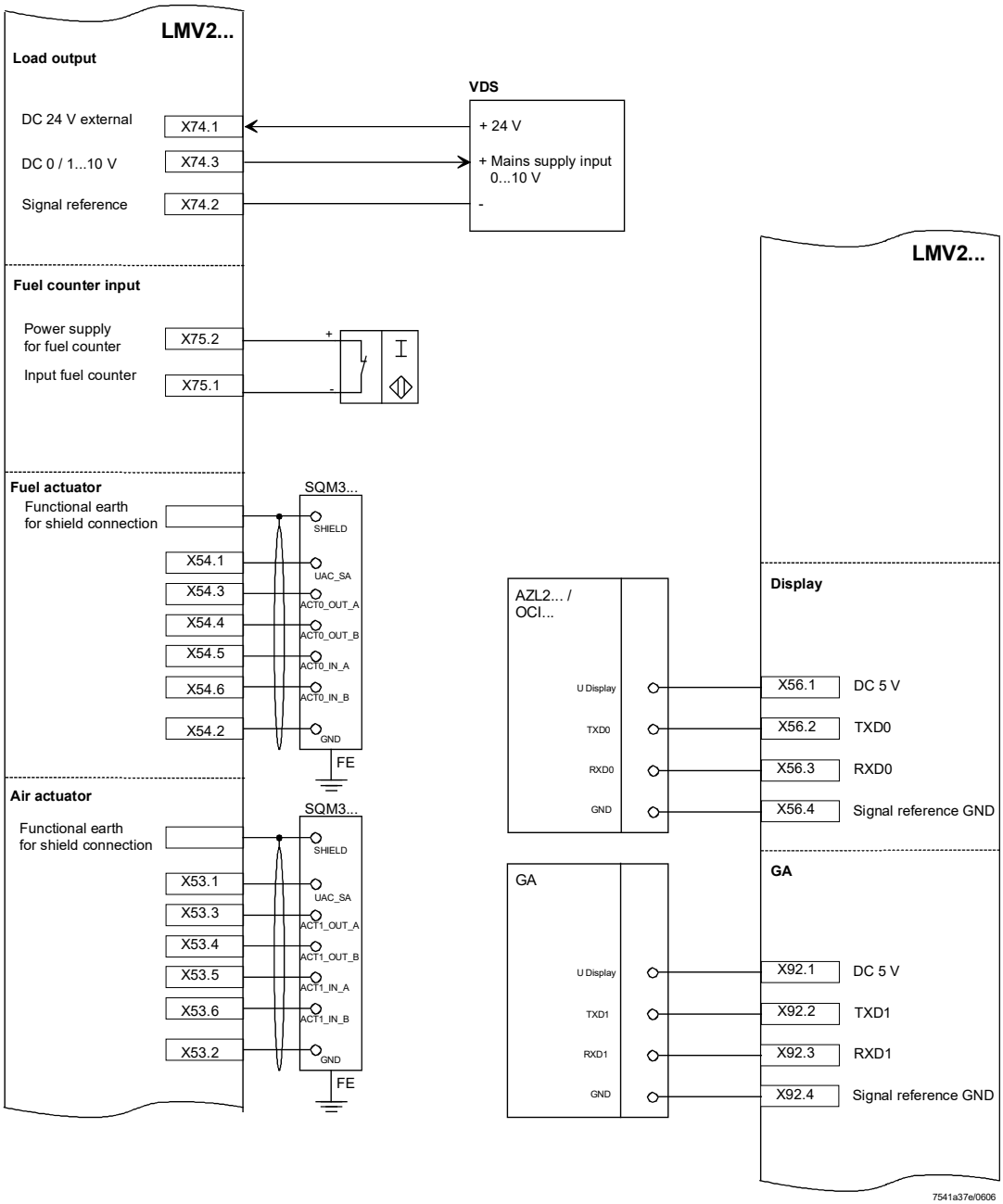
Inputs / outputs (cont'd)



Connection diagram

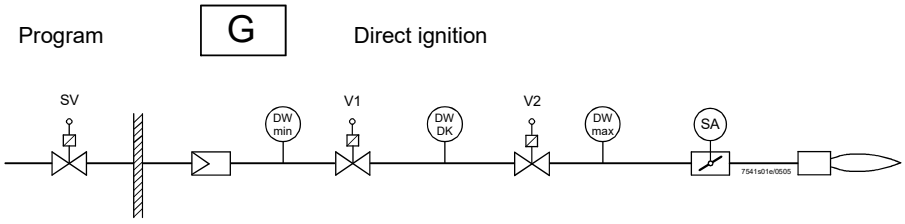


Connection diagram (cont´d)

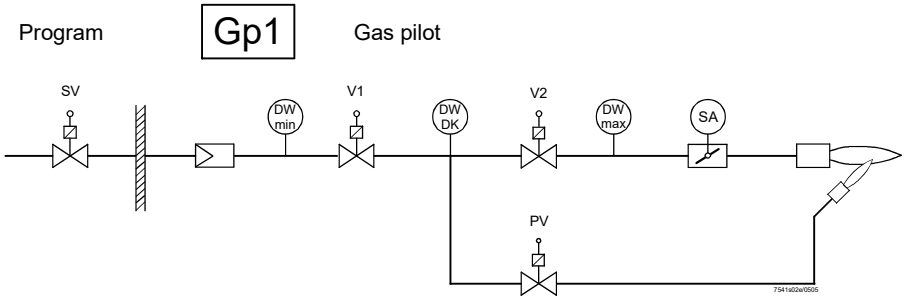


Fuel train applications (examples)

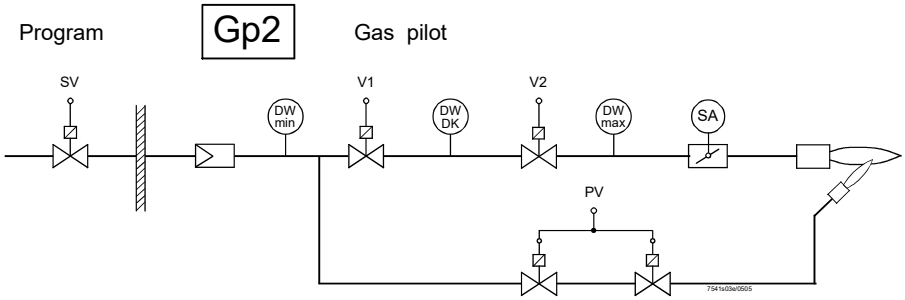
Direct gas ignition



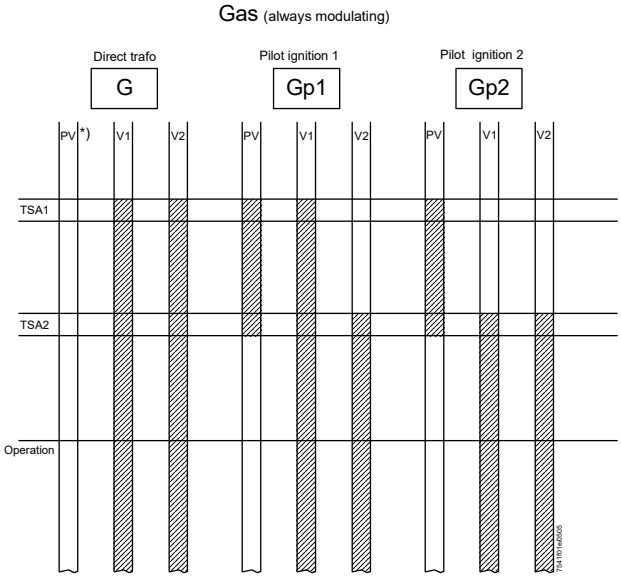
Gas pilot ignition 1



Gas pilot ignition 2



Fuel valve control program

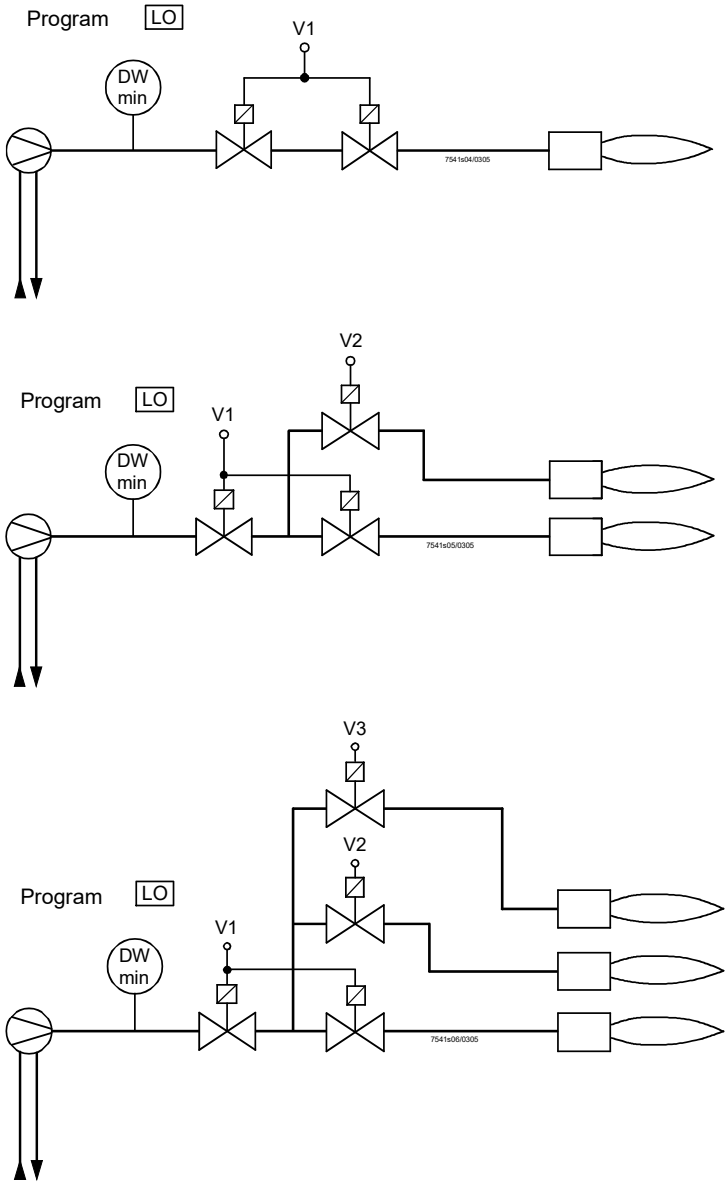


Legend for fuel trains:

*)	Not used
1)	Series connection of two 115 V-valves (each requiring approx. 25 VA control power)
2)	Preheating device
V	Fuel valve
DK	Gas valve proving
DW	Pressure switch
HE	Heating element
HO	Heavy fuel oil
LO	Light fuel oil
SA	Actuator
No	**N**ormally **O**pen
SV	Shutoff valve (outside the building)
PV	Pilot valve

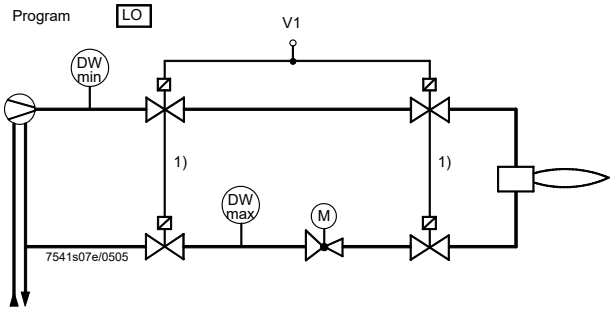
Fuel train applications (examples)

Direct ignition with
light fuel oil, multistage

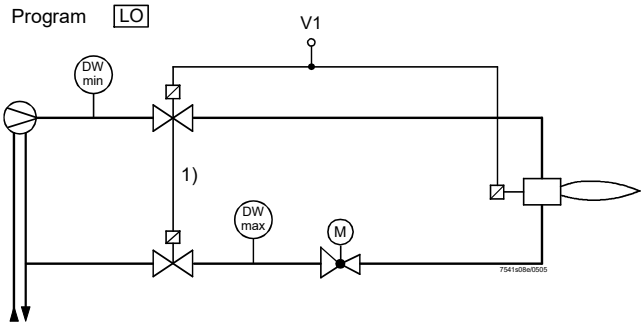


Fuel train applications (examples)

Direct ignition with light fuel oil, modulating



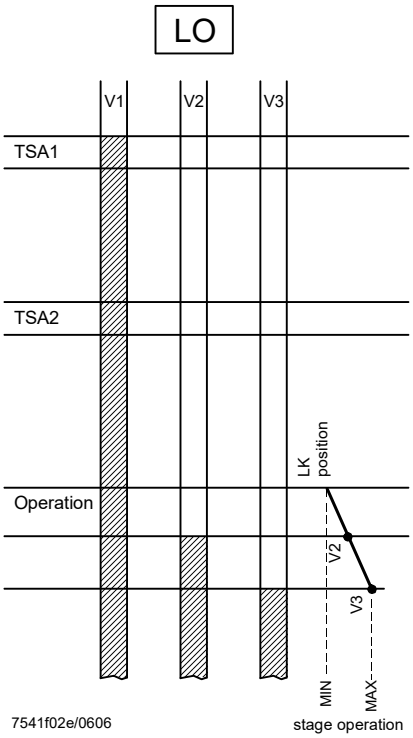
Modulating burner (without shutdown facility for adjustable head)



Modulating burner (with shutdown facility for adjustable head)

Fuel valve control program

Light fuel oil (Trafo direct ignition)



Dimensions

Dimensions in mm

LMV27.1...