Operating Instructions

Odorization Control Unit

OSG 2000

RMG Messtechnik GmbH

Otto-Hahn-Str. 5 • 35510 Butzbach (Germany)
P.O.Box 280 • 35502 Butzbach (Germany)
Tel.: +49 (0)6033 897-0 • Fax: +49 (0)6033 897-130

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Contents

1. General

The OSG 2000 odorization control unit is used to control an odorization system proportionally to the gas volume.
The control system is based on a stored-program controller in conjunction with an operator and display panel.
Operation is menu-driven via the keyboard of the operator panel with plain text display. Each program item is described in detail in Sec. 5 “Configuration and Settings”.
The control system has a modular structure and can therefore be customized to meet the individual requirements of each odorization system. The various case designs provide enough space to accommodate additional modules for further functions which can be retrofitted.
The use of a stored-program controller as control system ensures a high degree of reliability and availability.

2. Case variants

The odorization control unit is supplied in three case variants as standard.

2.1 Wall-mounting case ⇒ Type designation ...-W-...

Door-type enclosure made of sheet steel in RAL 7035 with lateral handle bars and fastening lugs.

Dimensions	: W 430 × H 235 × D 180 mm
Cable glands	: M20 for Non-Ex lines; M16 and M20 for Exi control lines
Power supply	: 230 VAC, 50 Hz

2.2 19" rack-mounting case ⇒ Type designation ...-E-...

19" blind plate with an integrated operating and display unit. The control unit is installed on the rear side and can therefore be used as a compact device.

Connection is performed via defined connectors on the rear side of the device.

Dimensions	: 3 height units × 84 depth units (1 height unit = 44.45 mm; 1 depth unit = 5.08 mm) Depth: 150 mm
Power supply	: 230 VAC, 50 Hz

2.3 Decentralized installation of the control system and the operating unit ⇒ Type designation ...-M-...

19" blind plate with an integrated operating and display unit.

The control system is installed in a decentralized way (e.g. mounting plate in the control cabinet) and connected with the operating and display unit through a bus or control line.

Dimensions	: Operating and display unit: 3 height units × 84 depth units (1 height unit = 44.45 mm; 1 depth unit = 5.08 mm), Depth: 45 mm
Control unit	: W 430 × H 130 × D 130 mm
Power supply	: 230 VAC, 50 Hz

3. Overview of Functions

The control system provides three program variants (P 1, P 2, P 3.2) which can be used to perform the following functions:

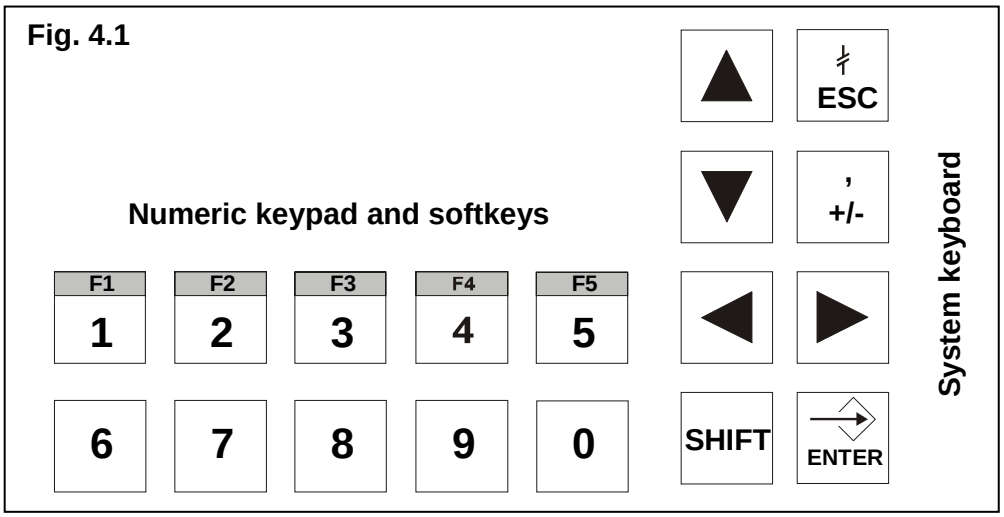
Function	P 1	P 2	P 3.2
Processing the volume inputs I1 and I2 through a memory in accordance with the maximum permissible stroke frequency. This ensures that the proportioning pump performs all volume pulses even in the case of fast pulse sequences (pulse trains).	☒	☒	☒
Processing volume inputs “I1 + I2” or “I1 – I2”.	☒	☒	☒
Volume inputs I1 and I2 via pulse signal.	☒	☒	☒
Volume inputs I1 and I2 via 0/4 - 20 mA current signal.	☒	☒	☒
Pulse comparison (can be switched off) between the proportioning pump and the flow monitor for monitoring the proportioning pump.	☒	☒	☒
User-specific assignment of Exi inputs 1 to 4 at the Exi SM 321 assembly, the NON-EX inputs 5 - 7 at the connector J2 and the relay outputs 1 - 5 at the connector J1 (hardware configuration).	☒	☒	☒
MANUAL operation by means of a selector switch and a manual button in the odorant compartment.	☒	☒	☒
Internal pulse generator with pulse preselection and permanent pulse generation.	☒	☒	☒
Manual setting of pulse length and interpulse period to limit the maximum stroke frequency of the proportioning pump installed.	☒	☒	☒
Counter for monitoring pulses of volume inputs I1 and I2, proportioning pump, flow monitor and the pulse comparison between the proportioning pump and the flow monitor.	☒	☒	☒
Controlling a solenoid valve in the injection pipe. The solenoid valve is closed with interpulse periods > 15 s and is opened with the next volume pulse (with small gas volumes).	☒	☒	☒
Calculation of the pump setting.		☒	☒
Calculation and display of the odorant concentration and the level in connection with a level detector and the ODM 01 measuring device. For remote data transmission, there are 0/4 - 20 mA signals for concentration measurements and the level available at the SM 334 anlog output group of the control unit.			☒
Switching the proportioning pump on and off via the control system.			☒
Selection of the output format for the individual system status messages and alarms. “Centralized Alarm”, “Individual Alarm”, “Centr.&Indiv. Alarms” or “Only Local Display” (administration of system status messages and alarms).			☒
Monitoring volume inputs I1 and I2. (This function can be switched off). An alarm will be initiated if there is no volume input within a time selected by the user.			☒
Controlling an automatic venting device of the gas trap of the GOE 2000 when mercaptans are used (OPTION).			☒

4. General Operation

Operation of the odorization control unit is performed using the keyboard. The keyboard consists of the system keyboard and the numeric keypad. Its structure is shown in Fig. 4.1.

In the following text, the functions of the system keyboard and the keys of the numeric keypad are described. The keys 1 to 5 of the numeric keypad and the +/- key of the system keyboard have dual functions.

Fig. 4.1



0 to **9** **Numeric keys**

Keys to enter numeric characters (0 to 9).

F1 1 to **F5 5** **Softkeys**

The numeric keys 1 to 5 have dual functions and can therefore be used either as softkeys or numeric keys. To enable the softkey function, keep the SHIFT key depressed and press one of the keys 1 to 5.

SHIFT + **F1 1** to SHIFT + **F5 5**

SHIFT **SHIFT key**

To switch over to the second function of dual-function keys, press the SHIFT key at the same time as the appropriate key, e.g.

To represent commas: Press SHIFT + **, +/-**

To enable the softkey function: Press SHIFT + **F1 1**

Sign key

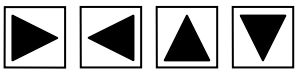
To change the mathematical sign from plus to minus and vice versa. Second function (keep the SHIFT key depressed): entry of a comma.

ENTER key

Press this key to acknowledge and terminate an entry. Also press ENTER to change from the display level to the operating level.

ESCAPE key

- To **undo** an input into a field as long as it has not yet been acknowledged by pressing ENTER.
- To **branch backwards** in a screen to the higher level.
- To **return** when browsing through alarms:
  To discontinue browsing in alarms which are present and return to displaying the current alarm.
- To make a system status message **disappear**.



Cursor keys

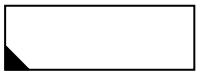
Press these keys to move the cursor. Depending on the operating situation, the cursor is moved to the left, right, top or bottom by character, field, entry or screen.

Password

Individual operating levels are protected by a password.
When the operator tries to access a protected level, he/she is prompted to enter a password.
The password 9999 was set in the factory. Other passwords must be stated on ordering the device.

5. Configuration and Settings

Legend:



Input required. Acknowledge with

Selection required. Acknowledge with

Only visible with the appropriate program options

See appropriate details in Secs. 5.1 to 5.10.

5.1 Displaying all control parameters and data set

(No password is required.) The setting values below are only for a better understanding of the subject matter and do not correspond to the setting values of your own system.

Overview Setting Values (F1)

SHIFT + F1 / 1

Pulse Generator External	"Internal" or "External" pulse generator
▼	
Operating Mode Automatic	"Manual" or "Automatic" operating mode
▼	
Processing Pulse Inp I1 + I2	Processing pulse inputs "I1 and I2" "I1 + I2" or "I1 – I2"
▼	
Volume Input I1 1.5 sm³/Pulse	Pulse value of volume input "I1"
▼	
Volume Input I2 1.5 sm³/Pulse	Pulse value of volume input "I2"
▼	
Pulse Value-Pump 3.4 sm³/Pulse	Pulse value for the proportioning pump
▼	
Pulse Length-Set 0.35 s	Pulse length set for the proportioning pump
▼	
Interpulse Per.-Set 0.15 s	Interpulse period set for the proportioning pump
▼	

Internal Pulse Value 20 Pulses/min	Pulse value for the internal pulse generator
▼	
Pulse Comparison ON	Pulse comparison “ON” or ”OFF”
▼	
Propn. Pump : 500 Flow Monitor: 499	Counter for the pulse comparison between the proportioning pump and the flow monitor
▼	
Odrt. Concentration 49 mg/sm³	Displays the current odorant concentration.
▼	
Odrt. Consumption Total: 5.25 Litres	Displays the consumption of odorant in litres.
▼	
Alarm-Concentration 15 mg/sm³	Value set for the odorant concentration where an alarm is to be initiated.
▼	
Alarm-Level Min: 30 Litres	An alarm will be initiated when the level of the odorant tank falls below the minimum value.
▼	
Alarm-Level Max: 400 Litres	An alarm will be initiated when the level of the odorant tank exceeds the maximum value.

5.2 Parameterizing all control parameters

(A password is required; the password set in the factory is 9999.)

Parameterization OSG 2000 (F2)

SHIFT + F2 / 2

To open the menus and make your selections, press
SHIFT + ▲ or SHIFT + ▼
Press ENTER to acknowledge each entry or selection.

Calculation (F5) Pump Setting

Press SHIFT + F5 / 5 to access the "Calculation Pump Setting" program. For details, see Sec. 5.10.

▼

Pulse Generator External

"Internal" ⇒ The pulses come from the internal pulse generator.
"External" ⇒ The pulses come from an external pulse generator (volume corrector, turbine meter, data logger, etc.).

▼

Operating Mode Automatic

"Manual" ⇒ The pulses come from a separate manual button in the odorization compartment.

"Automatic" ⇒ The pulses come from an external or internal pulse generator.

▼

Processing Pulse Inp I1 + I2

"I1 + I2" ⇒ When joining two separate lines to one main line with **one** odorization system and basically with only **one** pulse input.

"I1 – I2" ⇒ When separating one main line with overall measuring functions (I1) into one main line and one secondary line with separate measuring functions (I2) and with 2 odorization systems.

▼

Proportioning Pump ON

"ON" ⇒ The proportioning pump is switched on.
"OFF" ⇒ The proportioning pump is switched off, e.g. in the case of repairs.

▼

Monitoring Vol. Inp ON

"ON" ⇒ Monitoring of volume inputs is active. An alarm will be initiated if no input pulse is received within 60 minutes.

"OFF" ⇒ Monitoring of volume inputs is not active. Select OFF if the gas pressure regulating and measuring station is out of service.

▼

Pulse Value I1 xxxx sm^3/Pulse

Enter the pulse value for the volume input "I1" in sm^3/pulse.
If the pulse comes directly from a gas meter measuring working cubic metres (volumeter, turbine meter, rotary displacement meter, etc.), the existing pulse value is to be converted from m^3/pulse into sm^3/pulse (up to 25 bar it is sufficient to multiply the value with the absolute pressure, otherwise it is necessary to multiply the value with the conversion factor).

Pulse Value I2
1.50 sm³/Pulse

▼

Enter the pulse value for the volume input “I2” in sm³/pulse.
If the pulse comes directly from a gas meter measuring working cubic metres (volumeter, turbine meter, rotary displacement meter, etc.), the existing pulse value is to be converted from m³/pulse into sm³/pulse (up to 25 bar it is sufficient to multiply the value with the absolute pressure, otherwise it is necessary to multiply the value with the conversion factor).

Pulse Val.Range-Pump
1.53 to 6.15

▼

Displays the permissible pulse value range in sm^3/pulse for the proportioning pump; the default value is given by the “Calculation Pump Setting” program.

Pulse Value-Pump
3.40 sm³/pulse

▼

Enter the chosen pulse value for the proportioning pump.
See page 20 “Proportioning pump” and the “Operating Instructions for the GOE 2000“, Secs. 2.3 and 4.6.2.

Pulse Comparison
ON

▼

“ON“ ⇒ The comparison of pulses between the proportioning pump and the flow monitor is active. An alarm will be initiated if there is a deviation of more than 1% (5 strokes).

“OFF” ⇒ The comparison of pulses between the proportioning pump and the flow monitor is not active. “OFF” is to be selected if no flow monitor is installed or if the flow monitor is defective.

Proportioning Pump
MH-6-47

▼

Displays the proportioning pump selected in the “Calculation Pump Setting” program.

Pulse Length-Default
0.35 s

▼

Default value for the minimum pulse length (pick-up time) for the proportioning pump selected in the “Calculation Pump Setting” program.

Pulse Length-Set
0.35 s

▼

Enter the pulse length (pick-up time) for the proportioning pump. The default value can be increased. See page 20, Proportioning pump.
If the pulse length falls short of the default value, the proportioning pump will not produce its maximum output!

Interpulse Per.-Def.
0.15 s

▼

Default value for the minimum interpulse period (release time) for the proportioning pump selected in the “Calculation Pump Setting” program.

Interpulse Per.-Set
0.15 s

▼

Enter the interpulse period (release time) for the proportioning pump. The default value can be increased.
See page 20, Proportioning pump.
If the interpulse period falls short of the default value, the proportioning pump will not produce its maximum output!

Monitoring Time
Input Pulses …….s

Monitoring time for incoming volume pulses in seconds. The monitoring time is to be entered in seconds. The time span can be selected by the user from 1 to 9999 seconds.

Reset Control
SHIFT + F5

Reset command SHIFT + F5 **,** only necessary if a fault occurs.

System Settings
SHIFT + F5

System settings which can only be accessed by the manufacturer's specialist staff. A password is required.

5.3 Configuration of variable inputs and outputs

(A password is required; the password set in the factory is 9999.)

Hardware Configuration (F2)

SHIFT + F2

To open the menus and make your selections, press
SHIFT + ▲ or SHIFT + ▼
Press ENTER to acknowledge each entry or selection.

Intrinsically safe (Exi) inputs

Exi Input 1
"Not assigned!"

Exi Input 2
"Not assigned!"

Exi Input 3
"Not assigned!"

Exi Input 4
"Not assigned!"

Exi inputs 1 to 4 (SM 321 assembly-NAMUR)
Selection of the assignments. "Not assigned!" **has been set in the factory** prior to delivery.
For all inputs which are not connected, "Not assigned!" **has to** be selected.

"Level Switch Max"
"Volume Input 2"
"Volume Input 1"
"Remote Sw. Auto/Man." ⇒ for Ex i circuit
"Flow Monitor"
"Level Switch Min"
"Manual Button" ⇒ for Ex i circuit
"Sensor ODM Low" ⇒ for ODM measuring device, lower sensor
"Sensor ODM High" ⇒ for ODM meas. device, upper sensor
"Not assigned!"

Not explosion-protected (NON-Ex) inputs

NON-Ex Input 5
"Not assigned!"

▼

NON-Ex Input 6
"Not assigned!"

▼

NON-Ex Input 7
"Not assigned!"

▼

NON-Ex inputs 5 to 7 (LBG 01 assembly-J2 connector)
Selection of the assignments. "Not assigned!" **has been set in the factory** prior to delivery.
For all inputs which are not connected, "Not assigned!" **has to** be selected.

"Level Switch Max"
"Flow Monitor"
"Level Switch Min"
"Manual Button" ⇒ Ex d
"Vacuum pump Max 2"
"Vacuum pump Max 1"
"Not assigned!"

The not explosion-protected input 7 has an additional assignment option: "Special Function". Here the monitoring functions desired by the customer can be connected. The "Customer-Specific Alarm Indication" fault message is displayed and transmitted as a centralized alarm.

Relay outputs

Relay Output 1
"Not assigned!"

▼

Relay Output 2
"Not assigned!"

▼

Relay Output 3
"Not assigned!"

▼

Relay Output 4
"Not assigned!"

▼

Relay Output 5
"Not assigned!"

Relay outputs 1 to 5 (LBG 01 assembly-connector J1)
Selection of the assignments. "Not assigned!" **has been set in the factory** prior to delivery.
For all outputs which are not connected, "Not assigned!" **has to** be selected.

"Fault-Volume Inputs" ⇒ Fault of volume inputs
"Tank Level Max" ⇒ Maximum odorant tank level exceeded (level detector)
"Tank Level Min" ⇒ Odorant tank level below minimum (level detector)
"Odrt. Conc. Min" ⇒ Odorant concentration below minimum
"End Of Meas. Range"
"Change Odrt. Tank" ⇒ Only with exchangeable odorant tanks
"Level Switch Max" ⇒ Overfilled
"Level Switch Min" ⇒ Odorant is lacking
"Power Failure"
"Fault-Pulse Compar." ⇒ Fault of pulse comparison
"Fault-Control Unit"
"Centralized Alarm"
"SV-Injection Pipe" ⇒ Solenoid valve, injection pipe
"Volume Input 2"
"Volume Input 1"
"Special Function"
"SV-Small Qty Meas." ⇒ Solenoid valve, ODM meas. device
"Not assigned!"

5.4 Adminstration of system status messages and alarms (option)

(A password is required; the password set in the factory is 9999.)

Administration (F2)
System Msgs / Alarms

SHIFT + F2 / 2

To open the menus and make your selections, press
SHIFT + ▲ or SHIFT + ▼
Press ENTER to acknowledge each entry or selection.

Fault-Control Unit
Centralized Alarm

Select the way alarms are to be processed.
All system status messages and alarms were configured as "Centralized Alarm" in the factory.

▼

Fault-Pulse Compar.
Centralized Alarm

"Centralized Alarm"
"Individual Alarm"
"Centr.&Indiv.Alarms"
"Only Local Display"

▼

Power Failure
Centralized Alarm

▼

Level Switch Min
Centralized Alarm

▼

Level Switch Max
Centralized Alarm

▼

Change Tank
Centralized Alarm

▼

End Of Meas. Range
Centralized Alarm

▼

Odrt. Conc. Below Min
Centralized Alarm

▼

Ext. M/A Sw. Active
Centralized Alarm

▼

Tank Level Min
Centralized Alarm

▼

Tank Level Max
Centralized Alarm

Failure-Level Detec.
Centralized Alarm

▼

Vol. Inputs Disturbed
Centralized Alarm

5.5 Counters for volume pulses, proportioning pump, flow monitor and pulse comparison

(No password is required.)

Counters (F3)

SHIFT + F3 / 3

Volume Input I1 123	Counter for volume input “I1”. If the counter reads 999, it will be reset at 0.
▼	
Volume Input I2 456	Counter for volume input “I2”. If the counter reads 999, it will be reset at 0.
▼	
Proportioning Pump 880	Counter for pulses to the proportioning pump. If the counter reads 999, it will be reset at 0.
▼	
Flow Monitor 880	Counter for pulses from the flow monitor. If the counter reads 999, it will be reset at 0.
▼	
Propn. Pump: 500 Flow Monitor: 499	Counter for the pulse comparison. After 500 pulses from the proportioning pump, a comparison will be made with the pulses from the flow monitor. The comparison will remain displayed until the next comparison is made. An alarm will be initiated if pulses deviate by more than 1% (5 pulses).
▼	
Reset Counters **SHIFT + F2**	Use SHIFT + F2 / 2 to reset all counters at 0.

5.6 Calculating the odorant concentration and consumption (option)

(A password is required; the password set in the factory is 9999.)

ODM
Meas. Device (F4)

SHIFT + F4 4

To open the menus and make your selections, press
SHIFT + ▲ or SHIFT + ▼
Press ENTER to acknowledge each entry or selection.

Odrt. Concentration
25.00 mg/sm³

Displays the value calculated by the ODM 01.

▼

Odrt. Consumption
Total: 7.22 Litres

Displays the quantity of odorant consumed since the odorant tank was filled or changed the last time.

▼

Alarm-Conc. Min
15.00 mg/sm³

Alarm for the odorant concentration. Enter the minimum value for the concentration where an alarm is to be initiated.

▼

AO Concentration
Min. xxx mg/sm³

Define the scaling of the analog minimum value where an alarm is to be initiated.

▼

AO Concentration
Max. xxx mg/sm³

Define the scaling of the analog maximum value where an alarm is to be initiated.

▼

AO Conc. MR
Max. xxx mA

Define the scaling of the analog output for calculating the concentration ⇒ Select the relevant output signal:
"0 to 20 mA"
"4 to 20 mA"
"Not Activated!"

▼

Density Of Odorant
xxx kg/m³

Input the density of the odorant used in kg/m³. For the relevant data, please see the appropriate safety data sheet or contact your odorant supplier.

▼

Odorant
Tetrahydrothiophene

Select the odorant used:
"Tetrahydrothiophene"
"Gasodor-s-free"

▼

Odrt. Consumption
Counter Reset (F5)

After filling or changing the odorant tank, the odorant consumption counter has to be reset.

▼

Vol. Meas. Burette 21000 mm³	In the case of new odorization systems, this value is entered by the manufacturer. When the ODM 01 measuring device is replaced, the value shown on the data plate is to be entered here.

!!!! NOTE !!!!

Any modification of this value will result in incorrect measuring results when calculating the concentration and consumption.

5.7 Level detector (option)

(A password is required; the password set in the factory is 9999.)

Level Detector (F4)

SHIFT + F4 4

To open the menus and make your selections, press

SHIFT + ▲ or SHIFT + ▼

Press ENTER to acknowledge each entry or selection.

Level Detector
OFF

▼

Select:

"ON": A level detector has to be installed in the odorant tank

"OFF": No level detector available.

Odorant Level
22.22 Litres

▼

Displays the current odorant level of the odorant tank in litres.

Alarm-Level
Min: 30.00 Litres

▼

Enter the minimum level of the odorant tank in litres where an alarm is to be initiated.

Alarm-Level
Max: 400 Litres

▼

Enter the maximum level of the odorant tank in litres where an alarm is to be initiated.

AO Level
Min.: xxx Litres

▼

Analog output, minimum level

AO Level
Max.: xxx Litres

▼

Analog output, maximum level

AO Level MR
4 to 20 mA

▼

Define the scaling of the analog output for the level indicator ⇒
Select the relevant output signal:
"0 to 20 mA"
"4 to 20 mA"
"Not Activated!"

Odorant Tank
GSR 400

Select the odorant tank and/or reserve tank used.

Operation with odorant tank (OT) and reserve tank (RT)

"50-17" ⇒ OT = 50 l, RT= 17 l (max. 65 l)

"GA 200-17" ⇒ OT = 200 l (dished bottoms), RT= 17 l (max. 187 l)
"GA 200-35" ⇒ OT = 200 l (dished bottoms), RT= 35 l (max. 212 l)
"GN 200-17" ⇒ OT = 200 l (flat bottoms), RT= 17 l (max. 180 l)
"GN 200-35" ⇒ OT = 200 l (flat bottoms), RT 35 l (max. 192 l)

Operation only with odorant tank (OT), without (RT)

"GSR 400" ⇒ OT =400 l (max. 440 l)

Operation only with reserve tank (RT), without (OT)

"RB-17" ⇒ RT =17 l (max. 12 l)
"RB-35" ⇒ RT =35 l (max. 25 l)

5.8 Internal pulse generator with preselection

(A password is required; the password set in the factory is 9999.)

Internal Pulse Generator (F4)

SHIFT + F4 4

To open the menus and make your selections, press
SHIFT + ▲ or SHIFT + ▼
Press ENTER to acknowledge each entry or selection.

Preselection
OFF

▼

"ON" ⇒ Only the preselected number of pump strokes will be performed.
Standard selection to prevent undesired internal pulses to the proportioning pump.

"OFF" ⇒ Pulses with the stroke frequency set (internal pulse value in pulses/min) are sent continuously.

Pulse Generator
External

▼

"Internal" ⇒ The pulses come from the internal pulse generator.
"External" ⇒ The pulses come from an external pulse generator (volume corrector, turbine meter, data logger, etc.)

Internal Pulse Value
20 Pulses/min

▼

Enter the desired stroke frequency for the internal pulse generator; possible values are from 5 to 120 pulses/min.

Pump Strokes No.
20

▼

Enter the desired number of pump strokes with preselection set at "ON".

Start Pump Strokes
SHIFT + F5

Start the preset pump strokes by pressing SHIFT + F5 5 .

5.9 Acknowledging alarms via the operator panel

(Same function as the acknowledgement button of the device or remote acknowledgement)

(No password is required.)

Acknowledge Fault (F5)

SHIFT + F5 / 5

5.10 Displaying the software version

Software Version V1.0

Displays the installed software version of the CPU.

5.11 Calculating the pulse value range and the stroke setting for the proportioning pump (option)

(A password is required; the password set in the factory is 9999.)

Calculation (F5) Pump Setting

SHIFT + F5 / 5

To open the menus and make your selections, press

SHIFT + ▲ or SHIFT + ▼

Press ENTER to acknowledge each entry or selection.

Max. Gas Flow Rate
10000 sm³/h

▼

Enter the maximum gas flow rate in sm^3/h.

Proportioning Pump
MH-6-47

▼

Select the RMG proportioning pump:
“MH-6-47”
“MH-6-65”
“5/12.5-Solenoid 11”
”5/12.5-Solenoid 13”
”7/12.5-Solenoid 11”
”7/12.5-Solenoid 13”
”10/12.5-Solenoid 11”
“10/12.5-Solenoid 13”

Refer to the “BINDER manufacturer’s plate” under “Typ” for the type of solenoid used, e.g.:
Typ 4103E11 E11 ⇒ “Solenoid 11”
Typ 4103E13 E13 ⇒ “Solenoid 13”

Odorant
Tetrahydrothiophene

▼

Select the appropriate odorant:
”Tetrahydrothiophene”
”Gasodor-s-free”

Pulse Val.Range-Pump
1.53 to 6.15

▼

6. Display and Remote Transmission of System Status Messages and Alarms

Any faults or messages occurring are automatically displayed at level “0”.

Press ▲ or ▼ to scroll in the window if there is more than one fault or message.

Press ESC ENTER to return to operating level “1”.

As a rule, all faults or messages occurring are combined in a centralized alarm which is indicated by the red pilot lamp of the control unit (poor condition ⇒ flashing light, good condition ⇒ permanent light).

The output variants for remote transmission of the individual alarms or messages are described in Sec. 5.4.

Text for remote transmission Text to be displayed	Program variants			Text shown in the display	Display & remote trans-mission
	P 1	P 2	P 3.2		
Fault-Control Unit Fault of control unit	☒	☒	☒	☒	☒
Fault-Pulse Compar. Fault of pulse comparison	☒	☒	☒	☒	☒
Vol. Inputs Disturbed Fault of volume inputs			☒	☒	☒
Power Failure Power failure	☒	☒	☒	☒	☒
Tank Level Max Maximum level exceeded	☒	☒	☒	☒	☒
Tank Level Min Odorant level below minimum	☒	☒	☒	☒	☒
Change Tank Change odorant tank or replenish odorant			☒	☒	☒
Ext. M/A Sw. Active Note! Manual mode is active	☒	☒	☒	☒	
XXXXXXXXXXXXXXXXXXXXXXXXX Unacceptable data for pulse length / interpulse period		☒	☒	☒	
Failure-Level Detector Fault of level detector			☒	☒	☒
Level Switch Max:			☒	☒	☒
Level Switch Min:			☒	☒	☒
End Of Meas. Range End of measuring range			☒	☒	☒
Odrt. Conc. Below Min Odorant concentration below minimum			☒	☒	☒

7. Technical Data

Power supply

Voltage : 230 V / 50 Hz ± 10%
Power requirement : 56 VA
Fuse F1 (230 VAC) : T 2 A (breaking capacity 1500 A)
Fuse F2 (24 VDC) : M 1.2 A

Note!

If work has to be done on the proportioning pump or the control unit, switch off the mains voltage externally.

When the battery is changed, the mains voltage must not be disconnected!

Components:

Central assembly : CPU 312 to 315
depending on the program used

Digital input/output assembly : SM 323, 8 inputs, 8 outputs

Operating unit and display : OP 3

Power electronics assembly with power pack : LBG-01 with 5 connectors
Assignments of connectors 1 to 3, see Sec. 8.
Connectors 4 and 5 for internal wiring.

Luminous switch (green) : for the control voltage, bulb T 1 ¾,
28 VDC, 1.12 watt, LUMITAS No. 31-963.28

Luminous pushbutton (red) : for the acknowledgement of faults, bulb T 1 ¾,
28 VDC, 1.12 watt, LUMITAS No. 31-963.28

Explosion-protected digital input assembly : SM 321- NAMUR, 4 inputs [EEx ib] (option)

Analog input/output assembly : SM 334, 4 inputs, 2 outputs (option)

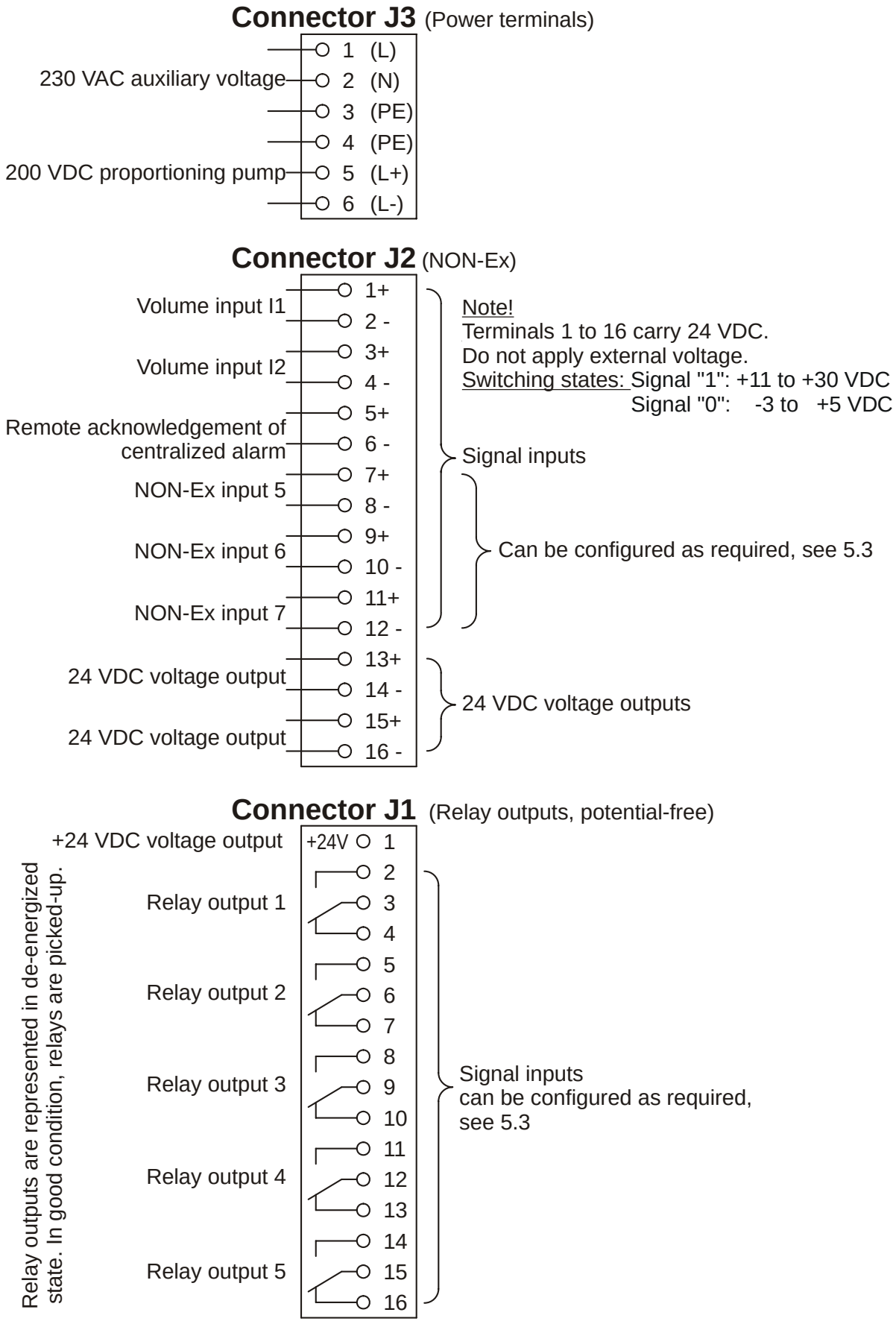
Transmitter supply unit : KFD2-STV4-Ex1-2 for the level detector (option)
Input: 4 to 20 mA-EEX ia, output: 2 to 10 VDC

Analog / frequency converter : AFU 9.00 for the volume inputs (option)
Input: 0/4 to 20 mA, output 0 to 2800 pulses/h

Type of proportioning pump	Displacement [mm³/stroke]	Max. stroke frequency [pulses/h]	Pulse length [s]	Inter-pulse period [s]
MH–6-47	10 to 80	7200	0.35	0.15
MH–6-65	15 to 150	7200	0.35	0.15
5/12.5-Solenoid 11 (MHO–15-300-M11)	30 to 280	5000	0.55	0.16
5/12.5-Solenoid 13 (MHO–15-300-M13)	30 to 280	4300	0.66	0.18
7/12.5-Solenoid 11 (MHO–15-500-M11)	60 to 550	5000	0.55	0.16
7/12.5-Solenoid 13 (MHO–15-500-M13)	60 to 550	4300	0.66	0.18

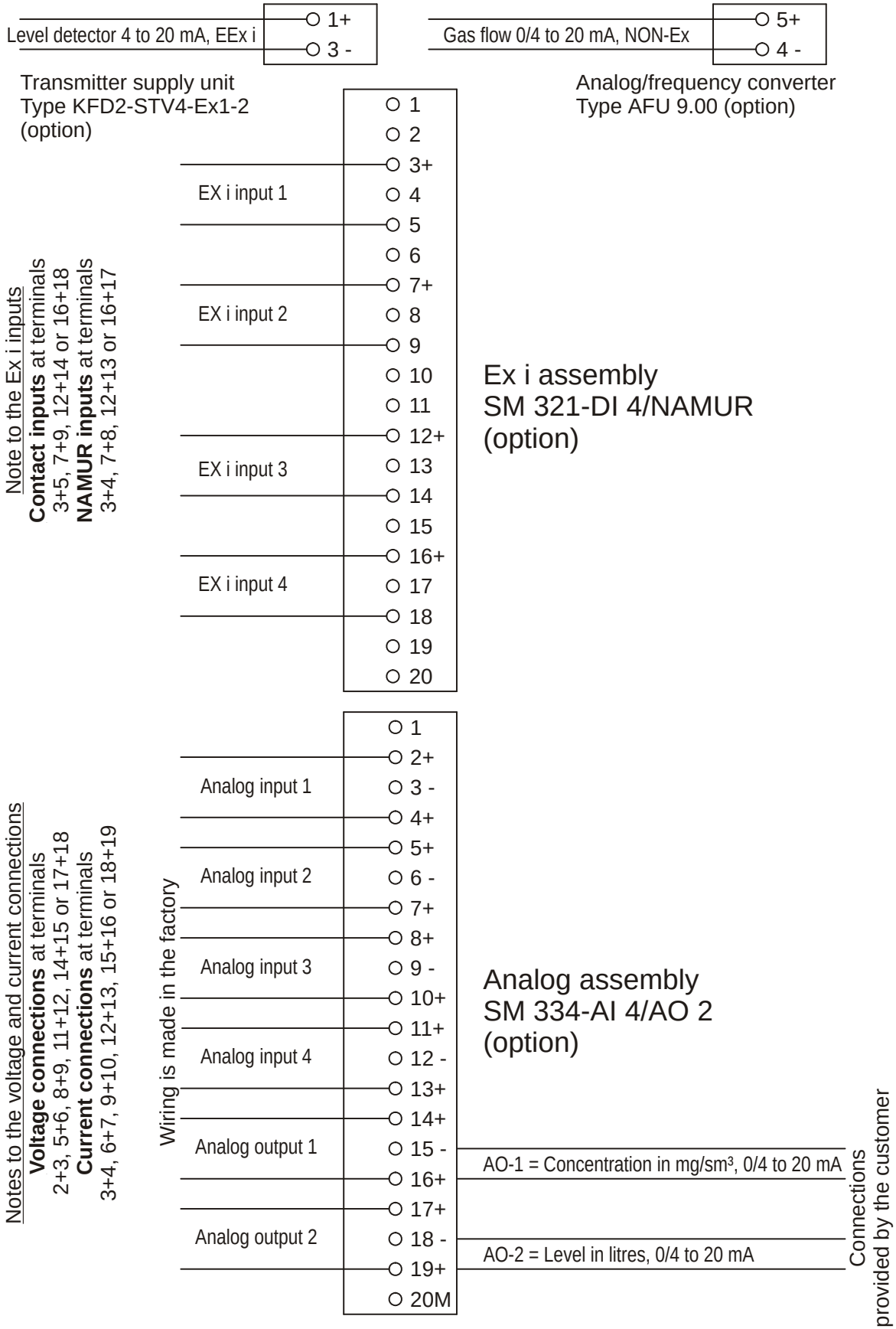
8. Terminal Assignments for the LBG 01 Assembly (Standard)

In the case of special-purpose stations, terminal assignments may differ from the terminal assignments shown below. Please see the circuit manual enclosed.



9. Terminal Assignments for Additional Equipment (Options)

In the case of special-purpose stations, terminal assignments may differ from the terminal assignments shown below. Please see the circuit manual enclosed.



10 Instructions for Changing the Battery

Several (older) CPU types are equipped with a backup battery. This can be seen if the cover at the bottom of the CPU unit is opened (see illustration). The other device types are equipped with a memory card which does not require a backup battery. If a backup battery is installed, follow the instructions below:

Changing the backup battery

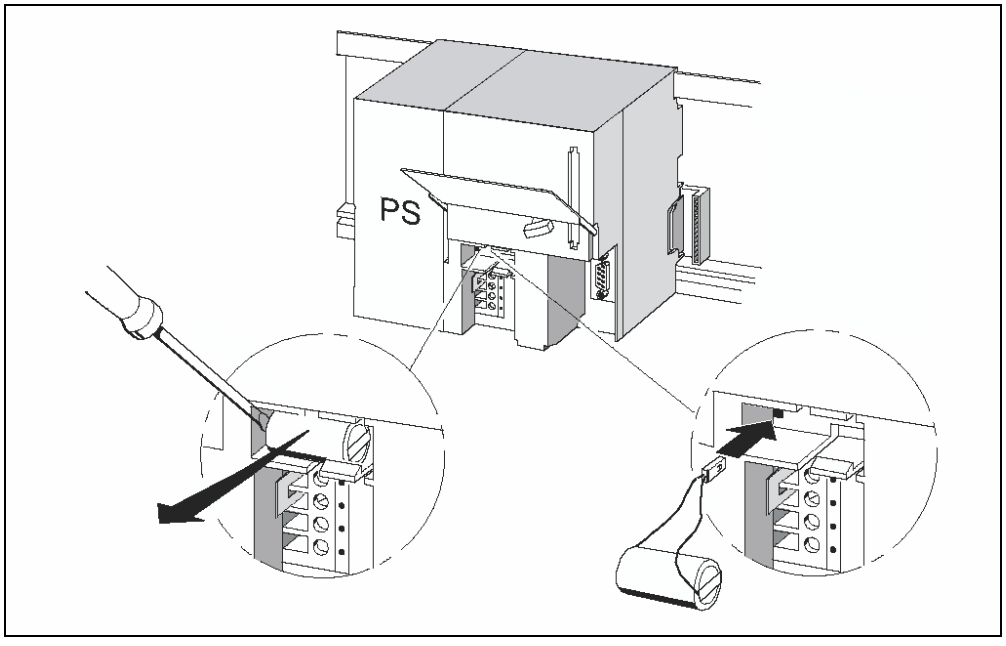
Always change the backup battery in POWER ON mode of the CPU, in order to avoid data loss in the internal memory or stopping the real-time clock.

Note!

Data in the internal main memory will be lost if you change the backup battery in POWER OFF mode of the CPU.
Always replace the backup battery in POWER ON mode!

To change the backup battery, proceed as follows:

Step	CPU 313/314	CPU 314 IFM/315/315-2 DP/ 316-2 DP/318-2 DP
1.	Open the front door of the CPU.	
2.	Pull the backup battery out of the battery compartment with a screwdriver.	Pull the backup battery by means of its cable out of the battery compartment.
3.	Plug the connector of the new backup battery into the corresponding socket in the battery compartment of the CPU. The notch on the battery connector must show towards the left hand side.	
4.	Insert the new backup battery into the battery compartment of the CPU.	
5.	Close the front door of the CPU.	



How often is the backup battery to be changed?

We recommend an annual change of the backup battery.

How to dispose of backup batteries?

Comply with your local regulations or rules on battery disposal.

Storing backup batteries

Store backup batteries in a dry and cool place.
The shelf life of backup batteries is five years.

Warning
If heated or damaged, backup batteries can ignite or explode and cause severe burning injury.
Store backup batteries in a dry and cool place.

Rules for handling backup batteries

To avoid any risk when handling backup batteries, comply with the following rules:

Warning
Improper handling of backup batteries can result in injury or damage to property.
Improperly handled backup batteries can explode and cause severe burns.

Do not

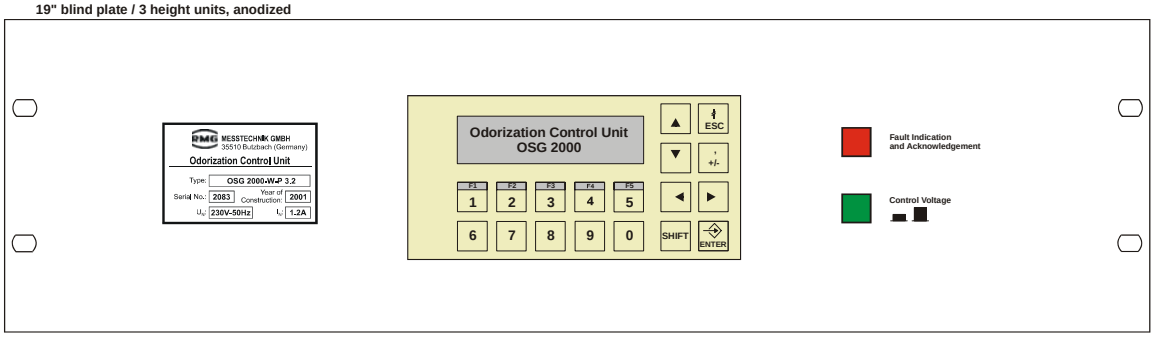
- charge
- heat up
- incinerate
- drill through
- squash
- short-circuit backup batteries!

11. Dimensional Drawings

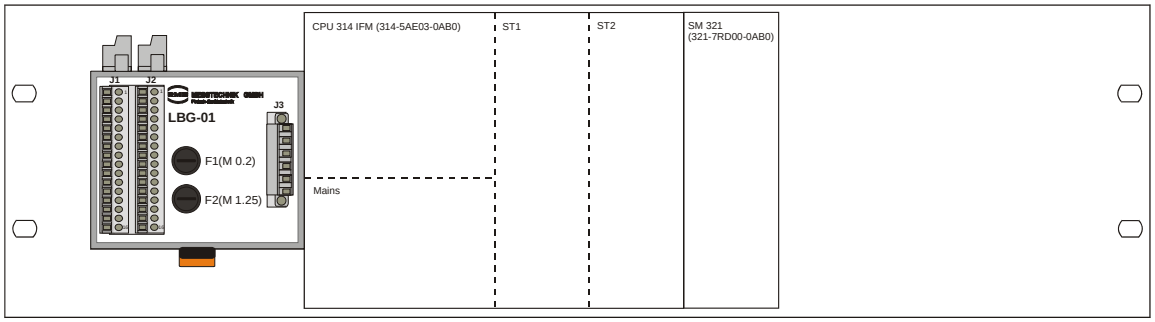
19" rack-mounting case

Front view

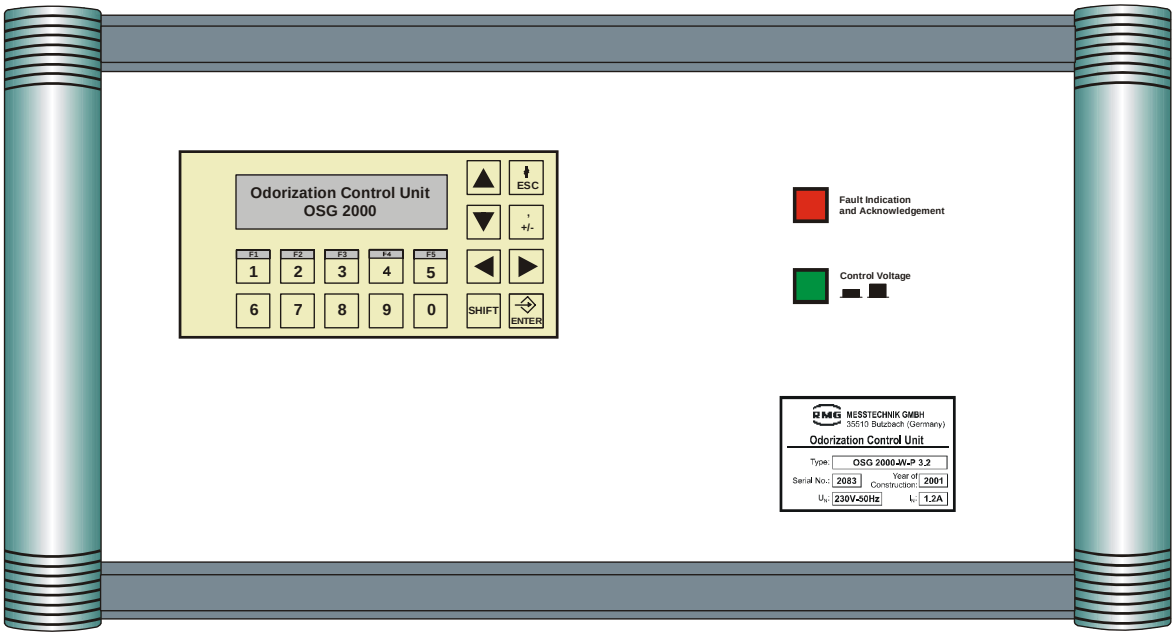
19" blind plate / 3 height units, anodized



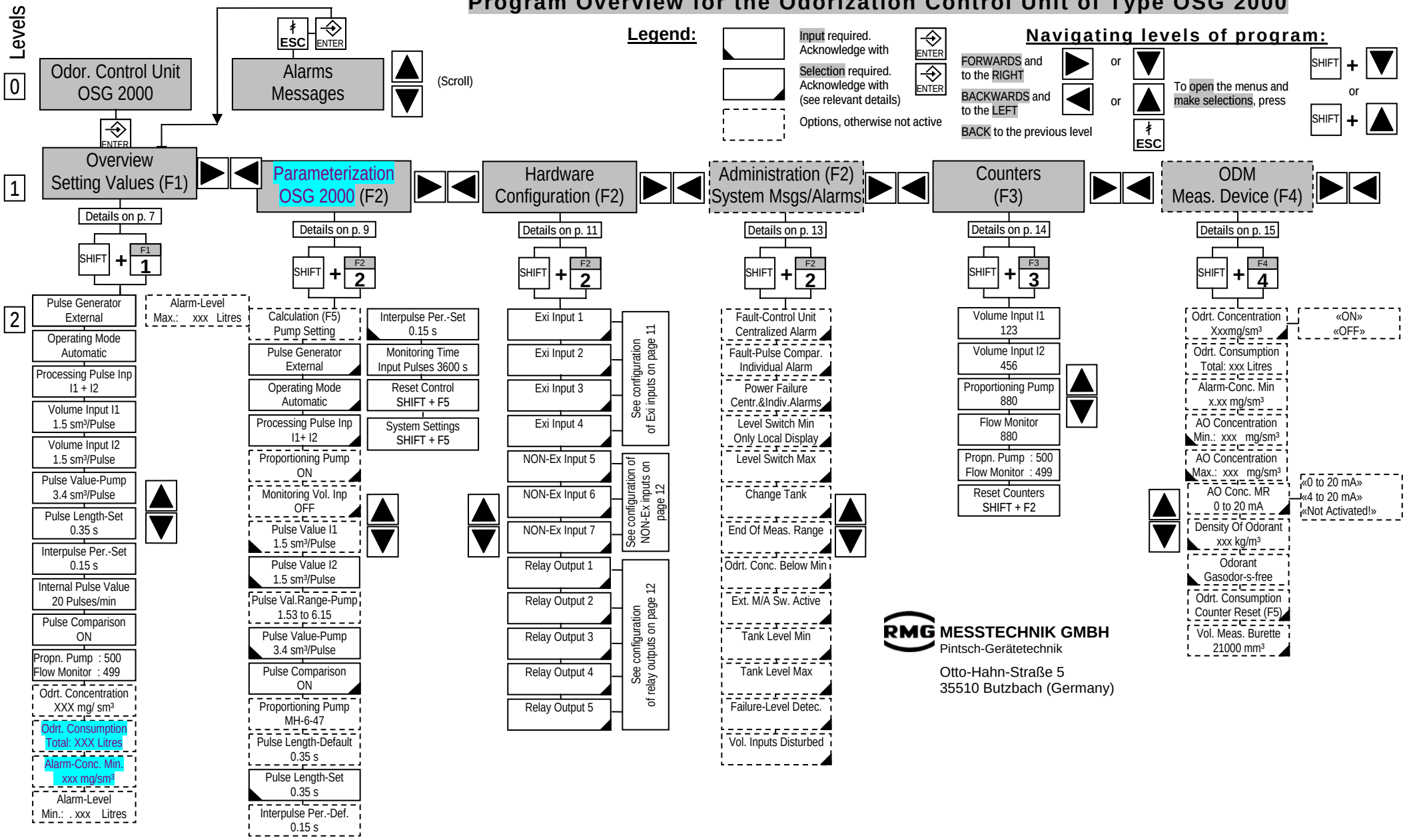
Rear view



Wall-mounting case



Program Overview for the Odorization Control Unit of Type OSG 2000



RMG MESSTECHNIK GMBH
Pintsch-Gerätetechnik
Otto-Hahn-Straße 5
35510 Butzbach (Germany)

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