

# OMS1/100 PB

# Profibus-DP

## Operating Manual

## Laser Measuring Device

*Please keep for future use !*

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## Notation

*Italics* or **bold** print is used for titles of documents or for emphasis.

`Courier` type is used for text which is visible on the screen/display and for software menu selections.

" < > " is used to refer to the keys of your computer keyboard (e.g. <RETURN>).

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## Revision index

### **i**

#### **Note**

The current revision number and date appears on the front cover of this document. Since the footer of each individual page contains its own revision number and date, the revision status may vary within the same document.

The drawings included in the appendix have their own revision index.

Document issued:

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Revision	Date
<ul style="list-style-type: none"> <li>• Supplement to "Module error display": binary coded</li> <li>• Correction in "Module control bits": bit 5 = Execute preset bit 6 = Clear preset</li> <li>• Modification of the Ident-No, Device master file</li> </ul>	26.10.1999
General completions	17.05.2000
Connection note for laser devices with heating	14.08.2000

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## 1 Safety

### 1.1 General risk potential

The Laser Measuring Device OMS1/100 PB cannot be operated independently, but is installed as part of an overall system usually consisting of several interacting components. For this reason, the laser measuring device is not equipped directly with a protective device.

However, different error reports can be read out via an error flag. For resetting the error an acknowledgement by the input "hardware acknowledgement" is necessary. It is therefore essential to integrate the module "Error-Display", Control-Bits" and the input " hardware acknowledgement" into your **own safety system** via the evaluation software (e.g. a PLC).

**The corresponding measures must be taken in order to avoid person and property damages.**

All persons responsible for the assembly, start-up and operation of the device must

- be suitably qualified
- adhere strictly to this operating manual.

Your safety and the safety of your equipment depends on this!

### 1.2 Safety information

This operating manual contains information which must be observed in the interests of your own personal safety and that of your equipment. The safety hints are emphasised by a warning triangle and classified according to the degree of danger as follows:



#### **Warning**

means that failure to take the relevant safety precautions can lead to death, serious injury or major damage to property.



#### **Caution**

means that failure to take the relevant safety precautions can lead to minor injuries or damage to property.



#### **Note**

refers to important information and features of the product, plus tips on its application.

### 1.2.1 Hints on installation

Since the Laser Measuring Device is normally used as part of a larger system, these hints are merely intended as a guide for integrating the device safely into its environment.



#### **Warning**

- The safety and accident prevention regulations applicable to the specific application must be observed.
- In the case of permanently installed plants or systems without an all-pole mains switch and/or fuses, one of these devices must be installed accordingly and the equipment connected to a PE conductor.
- In the case of devices which run on mains voltage, make sure the set nominal voltage range coincides with the local mains voltage before start-up.
- In the case of 24 V supplies, make sure the extra-low voltage is reliably disconnected. Only use power supply units manufactured to the standards IEC 364 - 4 - 41 / HD 384.04.41 (VDE 0100 Part 410).
- Fluctuations or deviations of the mains voltage from the nominal value must not exceed the tolerance limits stated in the specifications, otherwise operational failures and dangerous states in the electrical assemblies cannot be ruled out.
- Precautionary measures must be taken to allow an interrupted program to be properly resumed following a voltage drop or failure. Dangerous operating conditions must not be permitted to arise even for short periods. If necessary, an **"EMERGENCY STOP"** must be forced.
- EMERGENCY STOP devices according to EN 60204/IEC 204 (VDE 0113) must remain operational in all operating modes of the programmable controller. The release of the EMERGENCY STOP devices must not trigger an uncontrolled or undefined reactivation of the equipment.
- Connecting and signal wires must be installed in such a way as to prevent the automation functions from being hampered by inductive and capacitive interference.
- The units of the automation system and their operating elements must be installed in such a way as to ensure adequate protection against accidental actuation.
- In order to prevent a wire or strand breakage on the signal side from causing undefined states in the programmable controller, suitable hardware and software safety precautions must be taken with regard to the I/O interface.

### 1.2.1.1 General interference suppression measures

- Lay the (shielded) connecting cable to the device at a sufficient distance or in a separate room from any power cables which are subject to interference.
- To ensure reliable data transmission, use fully shielded cables and make sure they are well earthed. For differential data transfer (RS422, RS485 etc.), twisted-pair wires must be used in addition.
- Use a minimum cable cross-section of 0.22 mm<sup>2</sup> for data transfer purposes.
- Use a minimum earthing cable cross-section of 10 mm<sup>2</sup> in order to avoid equipotential currents across the shield. Make sure the resistance of the earthing cable is much lower than that of the shield.
- Ensure continuous wiring of the shield and a large contact area on special shield connecting terminals.
- Avoid crossing cables where possible. If unavoidable, only cross them at right-angles.

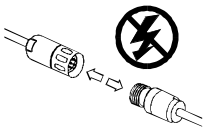
### 1.3 Intended purpose

The measuring system is used for recording linear movements and processing the measured data for a downstream control system with a PROFIBUS-DP interface.

In order to program the device parameters, the measurement system is programmed directly via the Profibus-DP. However, the PROFIBUS-DP master must be able to send a parameterizing telegram. Leuze electronic supplies a disk containing the device master file (.GSD). For further information see chapter "Operating requirements", page 17.



#### **Warning**

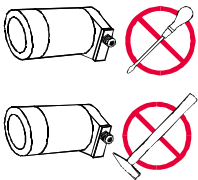


**Switch off the voltage supply before carrying out wiring work or opening and closing electrical connections!**

Short-circuits, voltage peaks, etc. can cause operating failures and uncontrolled operating states, as well as serious personal injuries and damage to property.

**Check all electrical connections before switching on the system!**

Incorrectly wired connections can cause operating failures, while wrong connections can lead to serious personal injuries and damage to property.



**Mechanical or electrical modifications** to the measuring systems **are prohibited for safety reasons!**



**Caution**

Laser beam

Do not look into the beam

Laser class : 2

Acc. to EN 60 825-1 : 1994

Max. laser power  $P_{\max}$  :  $\leq 1$  mW

Wavelength  $\lambda$  : 670 nm

- In the case of Class 2 laser devices, the eye is protected against brief, accidental glances at the beam by the blinking reflex. For this reason, devices of this class can be used without additional protective measures provided the operator is not required to look into the laser beam deliberately for longer periods, i.e. 0.25 s, or to look repeatedly into the laser beam itself or the directly reflected beam.
- The device must be installed in such a way that the exposure of persons to the laser beam can only happen accidentally.
- The laser beam may only extend as far as is necessary for the range measurement. The beam must be limited at the end of the useful range by a diffusely reflecting target area in such a way as to minimise the danger from direct or diffuse reflection. For this purpose, you should use the Leuze electronic reflecting foil supplied with the device.
- The area outside the operating range where the unshielded laser beam falls should be limited as far as possible and should remain out of bounds, particularly in the area above and below eye level.

**i****Note**

The start-up, operating and programming instructions contained in this manual are mandatory.

## 1.4 Authorised operators

The start-up and operation of this device may only be performed by qualified personnel. For the purposes of this manual, the term "qualified personnel" refers to persons who are authorised to operate, earth and label equipment, systems and power circuits according to recognised safety standards.

## 1.5 Safety measures at the installation site



### **Warning**

***Do not perform any welding work once the device is connected and switched on!***

Variations in potential can destroy the device or restrict its operation.

***Do not touch plug contacts with your hands!***

Static charges may destroy electronic components of the device.

***Do not connect unused inputs*** (see pin assignment)!

***Observe the voltage supply range:***

Standard device: 18-27 V DC (+/- 5 %)

Device with heating: 24 V DC



### **Note**

Make sure that the environment of the installation site is protected against corrosive media (acids, etc.)

## **2 Transportation / Start-up**

### **2.1 Transportation / storage**

#### **Transport instructions**

***Do not drop the device or expose it to shocks or vibrations!***

Device contains an optical system with glass elements.

***Only use the original packaging!***

The wrong packaging material can cause damage to the device during transportation.

#### **Storage**

Storage temperature : -20 to +75°C

Store in dry conditions.

## 2.2 Assembly instructions

### Aligning the Laser Measuring Device

The measuring device or reflector is attached to the moving object and the reflector/sensor to the fixed remote station in such a way that the reflector always remains within the visual field of the sensor. This can be done using the light spot of the laser diode, which is still clearly visible on the reflecting foil even at long distance. When aligning the laser measuring device, the user may need to take measures to ensure that it can be mechanically adjusted.

The size of the reflecting foil must be such that the light spot cannot be displaced from the reflector by vibrations. The device comes with a reflecting foil measuring 20 x 20 [cm], but other sizes can be ordered on request.

Once the Laser Measuring Device is optimally aligned with the reflecting foil, "Reset Error" (Module control bits, page 21) must be executed for resetting the Error/Intensity (Module error display, page 20).

### **i**

#### **Note**

Reflecting foils by other manufacturers should be used only after consultation with Leuze electronic, as all the information in the "Specifications" chapter refers to the foil already supplied with the device.

## 2.3 Start-up

### 2.3.1 General

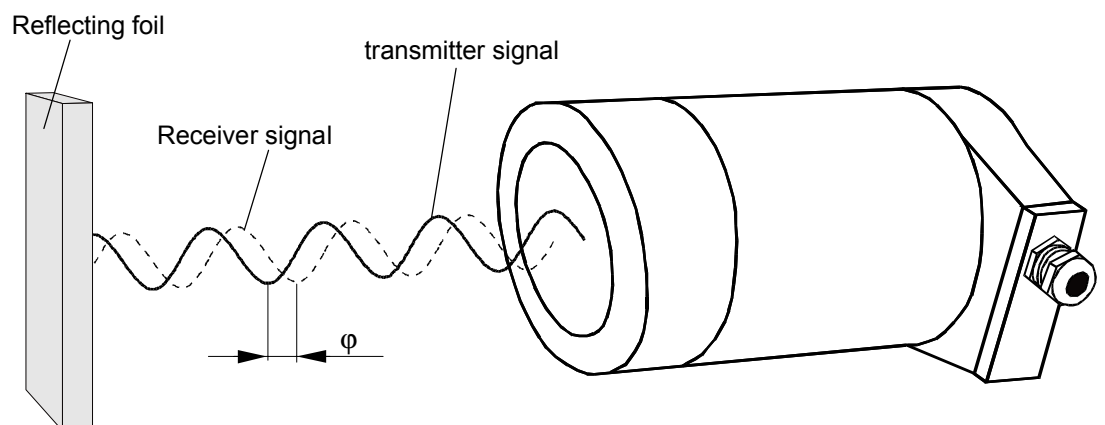
The OMS1 series Laser Measuring Devices are optical sensors for contactless measurement of the distance between the sensor and a reflector.

For this purpose, the measuring device or reflector attached to the moving object and the reflector/sensor to the fixed remote station in such a way that the reflector always remains within the visual field of the sensor.

The laser diode inside the device emits a beam which bounces back off the reflector and is re-received by a detector also housed inside the measuring device. The phase angle of the received signal in relation to the transmitted signal is the measure of distance. The absolute distance value thus obtained is then transferred to the control system via the interface.

The Laser Measuring Devices are configured by a Profibus-DP master directly via the Profibus-DP. The configuration modules are component of the GSD file.

#### Principle:



$\varphi$  = Phase displacement

d = Distance

$$d = f(\varphi)$$

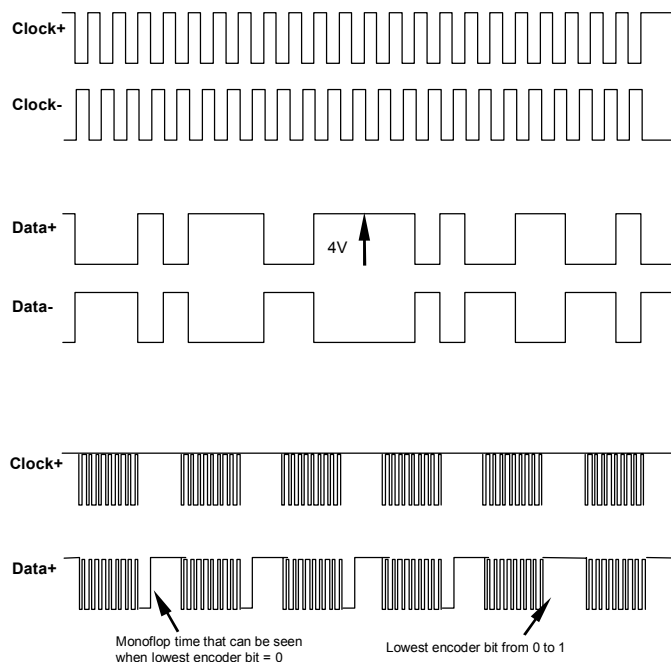
### 2.3.2 Device interface SSI

The Profibus Laser Measuring Device is equipped with an additional SSI data interface, i.e. the data are transmitted via the synchronous-serial technique. The Profibus interface and the SSI interface can be used at the same time (see also pin assignment LZ-ELE TI-D 0002 in the back part of this documentation).

The SSI technique is a synchronous/serial transfer process for the encoder positions, and has become more or less standard for absolute encoders. Using the RS422 interface makes it possible to obtain sufficiently high transfer rates. The device operates at a clock rate of 80 kHz to 820 kHz max.

The transfer process works as follows: the user transmits bundles of clock pulses via the clock-pulse lines. With every incoming pulse, the device returns the information in its shift register bit by bit to the transmitter via the data lines, starting with the most significant bit. The last data bit is followed merely by zero bits. In the interval between the bundles, "1" bits are sent. The interval is detected by a re-triggerable monoflop. Only then can a new bundle begin. The mono-time is 20µs.

In the example below, the receiver reads the value 001 0111 0011 1101 0011 0010 (HEX 173D32) as the encoder position.



## i

### Note

Since this transmission technique affords no protection against faulty transfer data, it is essential to use well shielded twisted-pair cables.

### 2.3.3 Wiring

#### 1. Configuration of the SSI data format via the GSD file

The OMS1 with Profibus interface offers the possibility to transfer the measured value data via the SSI interface. Component of the GSD file is a module which realizes the configuration (see page 23, "Module SSI interface").

#### 2. Configuration of the SSI data format via the PC adapter

In addition, via an optional available PC adapter (MA OMS1 PCA), the SSI interface can be programmed with additional functions.

To this, the 15 pole connector of the PC adapter must be connected with the switch cabinet module (MA OMS1 PCAS).

Pin 1 (RS 485-) and pin 2 (RS 485+) of the switch cabinet module must be connected with the OMS1/100 PB pin 3 (RS 485-) and pin 4 (RS 485+) (see wiring on the following page).

Via the PC adapter all device parameters are programmable, the main parameters of the device also can be configured via the Profibus. The parameters which are configured via the Profibus always have priority. If the control executes a "Download" of the slave parameters, these always have priority. Parameters, which possibly have been configured double via the PC adapter, will be retyped with the download of the control parameters.

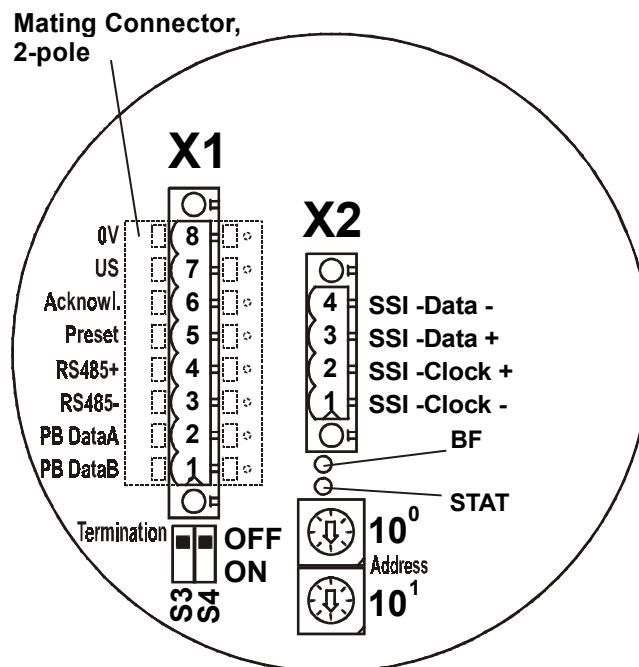


#### Note:

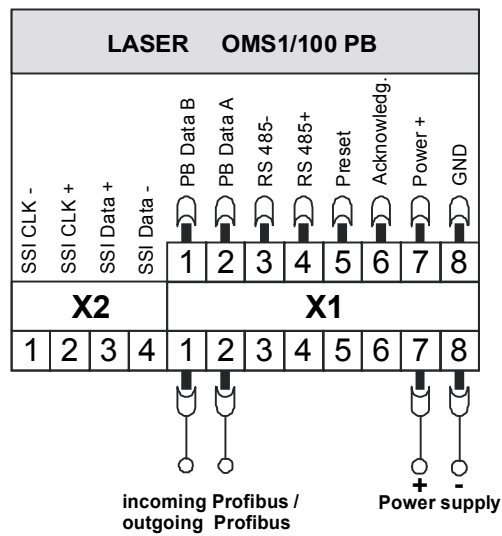
If the SSI interface is used in addition, the Profibus network cannot be branched further parallelly because the PG-number at the casing cover is bounded.

Therefore, the OMS1 has to be installed as last station in the Profibus network.

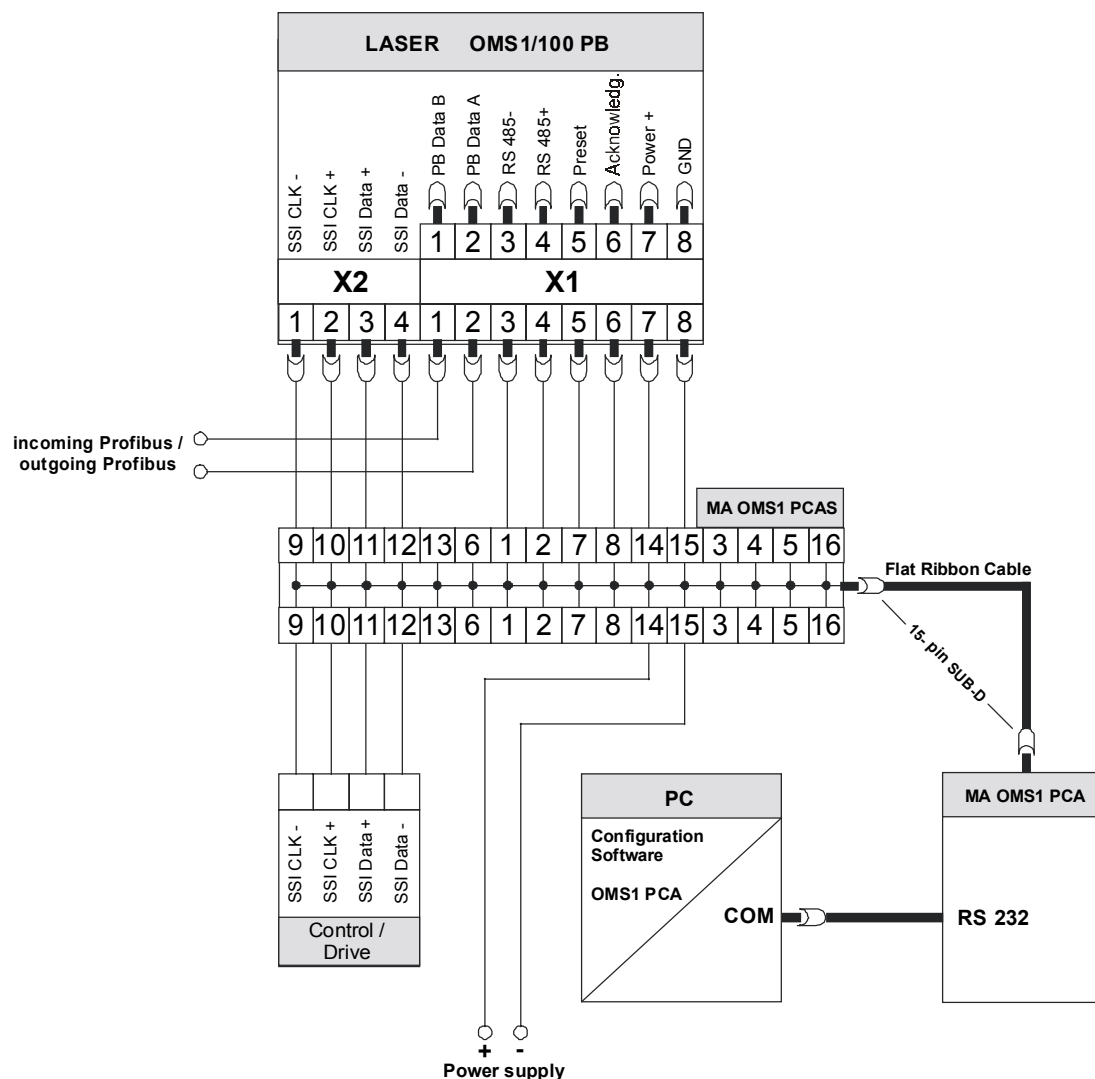
#### Connecting panel



Connection diagram for Profibus connection



Connection diagram for Profibus- / SSI-Connection with parametering possibility via MA OMS1 PCA / MA OMS1 PCAS





## 2.3.4 Profibus-DP interface / Profibus-DP master

### 2.3.4.1 Identification number

The Laser Measuring Device has the PNO ID number 2601 (hex). This number is reserved and filed with the PNO. With the GSD-file the ID number will be transferred into the control and when booting the control, the device ID number will be compared.

### 2.3.4.2 Operating requirements

Theoretically, the Laser Measuring Device can be connected to any Profibus-DP network, provided the PROFIBUS-DP master is capable of transmitting a parameter message. Similarly, the configuration software should be able to display the parameter structure specified in the device master file in order to allow the parameters to be entered. If this is not the case, the Laser Measuring Device can not be put into operation.

Leuze electronic supplies a disk containing the device master file (.GSD). The disk is component of the device or can be reordered under article number 500 32825.

For details of how to integrate the laser device master file into the interface of the DP master configuration software, please refer to the relevant control-documentation.

### 2.3.4.3 Setting the station address

The station address of the Laser Measuring Device is set exclusively via the rotary switches which becoming visible after removing the cover. In the case of view from above the lower switch sets the tens and the upper switch the units of the station address (see "Connecting panel", page 15).

The addressing of the Laser Measuring Device is limited within the Profibus address area. Valid station addresses are 3 - 99.

If an invalid station address is set, the device will not start up.

### 2.3.4.4 Bus termination

All PROFIBUS networks must be terminated by a resistor at the ends of the bus segments.

The termination resistor network and resistors for connecting to the data reference potential are located on the printed circuit board with the terminals, and can be connected via DIL switches if necessary, provided the Laser Measuring Device is the last station of a bus segment. In this case the supplied 220 ohm resistor in the mating connector must remain in the terminals.

As a general rule, both switches must always be switched on (if device is the last station) or switched off (if the device is not the last station).

If the Laser Measuring Device is not the last station, the 220 ohm resistor must be removed. The outgoing bus cable from the laser must then be connected to the clearing terminals.

### 2.3.4.5 Baud rate

The Baud rate at which the PROFIBUS is operated may lie within the range of 9.6 kBaud to 12 Mbaud, and is detected automatically by the Laser Measuring Device.

**2.3.4.6 Device master file**

The device master file of the Laser Measuring Device has the filename OMS12601.GSD.

To find out how to integrate these files into the system configuration, please refer to the documentation of the configuration program for the Profibus master.

The Laser Measuring Device also has two bitmap files named LZ\_2601N.BMP and LZ\_2601S.BMP which represent the Laser Measuring Device in the normal and faulty states respectively.

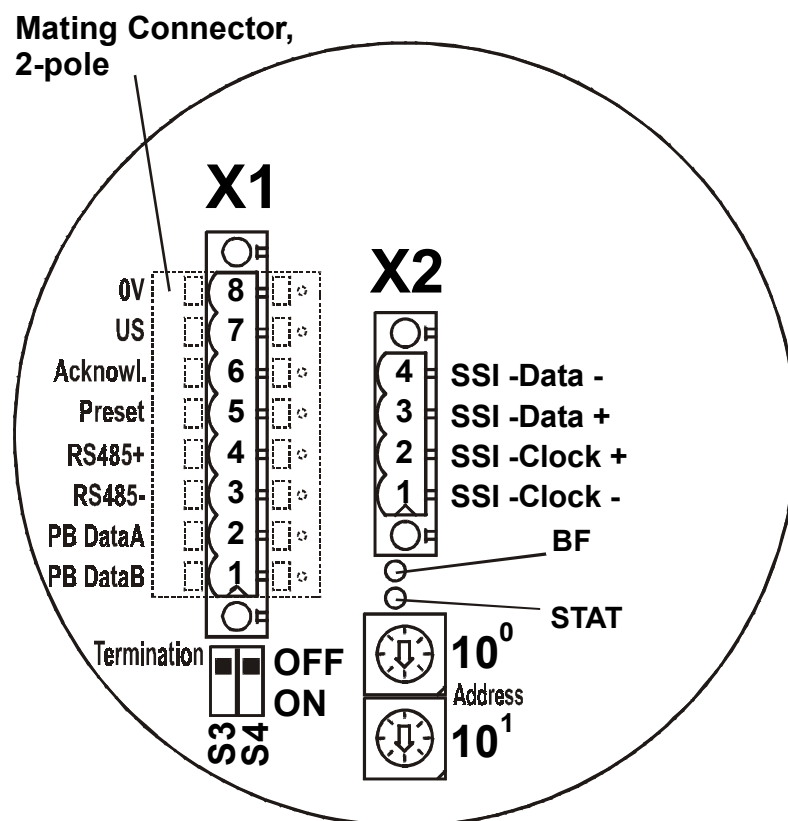
These images also have to be integrated into the system configuration according to the instructions of the relevant documentation.

**2.3.4.7 Bus status**

The laser has two LEDs which display the bus status of the laser on the rear side.

If the red LED flashes or shines static, the laser isn't integrated error-free in the Profibus network. The laser is not allocated to the master.

If the green LED only lights up, the laser is detected and included as a station in the Profibus line.



## 3 Configuration and parametering via Profibus-DP master

### 3.1 Modular configuration

Since all functions of the Laser Measuring Device are used not at any time, individual functions can be disabled on the bus.

For this, in the mask of configuration software of the profibus master, the Laser Measuring Device is represented as a modular compact device .

That means after insertion of the laser into the configuration list of the master, the corresponding configuration list at first is empty.

Every module requires inputs and outputs and has a parameter data set. The parameter data set must be set dependent of the application.

***That the laser starts at the profibus, in the configuration list at least one module must be entered.***

#### **i**

**Important note:**

***It exist configuration programs which include an "universal module". This module is not defined in the device master file of the laser and must not be used.***

#### 3.1.1 Module position

The module uses two input words which are consistently transferred via the bus. The position of the Laser Measuring Device is transferred via these two input words.

*Position of the I/O data in the input double word ED x*



**corresponding parameter data:**

#### **Resolution**

Sets the resolution of the measurement system.

The available options are:

- 1/10 millimeter
- millimeter
- centimeter
- 1/100 millimeter
- free [1/1000 mm]

Default: 1/10 mm

**free resolution HI word and LO word**

If as resolution was chosen "free [1/1000 mm]", this parameter then determines the corresponding data value for the free scaling of the position value. Otherwise, this parameter has no importance.

Default: 0

**Count direction**

Sets the count direction of the measurement system.  
The available options are:

Beginning = 0 position values increasing  
Beginning = Measurement range = 100m position values decreasing

Default: 0

**Initial value HI word and LO word**

It determines an initial value which is added to the current position or which is subtracted from that to achieve a shift of the measured value. Only positive numbers are allowed.

Default: 0

**Direction**

Determination, whether the initial value is to be added or is to be subtracted to the position.  
The available options are:

positive Initial value is added  
negative Initial value is subtracted

Default: positive

**3.1.2 Module error display**

The module uses 1 input byte. Via this input byte, the table index of the error report of the Laser Measuring Device is transmitted. Coding is binary.

**Possible error reports are:**

- 0 = No error
- 1 = FRAM-access
- 2 = FRAM-check-sum
- 3 = Intensity
- 4 = Power failure
- 5 = Warm start
- 6 = —
- 7 = Device temperature (outside range of 0–50°C)
- 8 = —

**Error value**

It determines which data value should be transmitted in the module position in the case of an error.

The available options are:

entering	the value is pre-set by the customer
last valid value	output of the last valid position
null	the position is set to "0"
0xFF	all 32 bits are set to "1" (0xFFFFFFFF or -1)

Default: entering

**Error value HI and LO word**

If the parameter error value was set to "entering", the desired position value must be indicated here.

Default: 0

**3.1.3 Module control bits**

The module uses 1 output byte. Via this output byte control commands can be transmitted to the laser. The output byte is coded in bits.

Bit 0	not used
Bit 1	not used
Bit 2	not used
Bit 3	not used
Bit 4	not used
Bit 5	Execute preset
Bit 6	Clear preset
Bit 7	Reset error

corresponding parameter data

**Hardware acknowledgement**

It determines whether resetting of error reports via the 24V control input should be possible or not.

Default: Hardware acknowledgement off

**Auto-Reset**

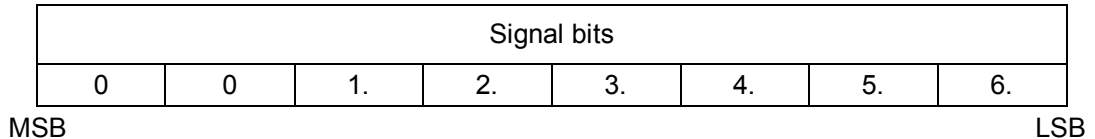
It determines whether occurring error reports should be cleared automatically after eliminating the trouble.

Default: Auto-Reset off

### 3.1.4 Module signal bits

The module uses one input byte and represents the signal bits programmed with OMS1 PCA (PC-program) onto the Profibus. The programming of the signal bits occurs exclusively with the OMS1 PCA software. Max. 6 signal bits can be programmed. The signal bits can be assigned alternatively with four various software limit switches or can be configured with various status signals.

Allocation of the signal bits in the input byte of the control:



The module has no parameters.

### 3.1.5 Module preset

The module preset uses no inputs and no outputs and is only used for the parameterization of the preset function of the Laser Measuring Device.

The available options are:

#### **Preset releasing**

It determines whether the preset function is active or not. If this function is not active, the subsequent parameters have no importance.

#### **Preset 1 HI word and LO word**

It determine the position value to which the laser is adjusted, when the preset function is executed. The preset value must be programmed in the range from 0 ... measuring length.

#### **Preset edge**

It determines whether the preset function is activated with an rising or falling edge at the preset input.

This parameter has no influence at the release of the preset over a control bit via the profibus. There is always the rising edge valid.

#### **Response time [ms]**

It determines the response time of the rising edge of the preset input up to the actual adjusting. This parameter is used for the interference suppression of the signal at the preset input.

### 3.1.6 Module SSI interface

The module SSI interface uses no inputs and no outputs and is used only for the parameterization of the SSI interface of the laser.

#### corresponding parameters:

##### 26-bit-repetition

It determines whether the output of the position value is repeated automatically in the case of more than 26 positive clock edges or whether zero bits are sent.

##### Data type

It determines the type of the output data. At present, only the actual position can be output.

##### Data bits

It determines the number of the data bits which are output. Possible entries are 16...32.



##### **Note:**

The number of the configurable data bits must agree with the predefined clock number of the drive repeater.

No. of clocks = No. of data bits + 1 synchronization bit

##### Code

Defines the output code of the SSI interface.

Selection:

Binary  
Gray

##### Negative values

Defines the type of the negative values which are output.

Selection:

Complement	Output of twos complement
Sign/Absolute value	Sign and absolute value of the position value

### 3.1.7 Module adjustment

The module "Adjustment" is not activated

## 4 Appendix

### 4.1 Specifications

#### 4.1.1 Electrical ratings

<b>Measuring principle:</b> .....	Phase delay time measurement
<b>Range (measurement on reflecting foil):</b> .....	0.2 - 100 m
Range > 100m .....	upon request
<b>Operating voltage</b>	
Standard device:.....	18-27 V DC (+/- 5%)
Device with heating.....	24 V DC
<b>Power consumption (no-load):</b> .....	< 6 watts
<b>Power consumption with heating:</b> .....	< 60 watts
<b>Opto-transmitter</b> ..... Laser diode (red light)	
Wavelength $\lambda$ : .....	670 nm
Max. laser power: .....	$P \leq 1$ mW
Laser protection class: .....	2 (IEC 825)
Lifetime: .....	50 000 h
<b>Opto-receiver:</b> .....	Photodiode
<b>* Resolution:</b> .....	$\geq 0,001$ mm
<b>Updating / refresh cycle:</b> .....	1000 values / s
<b>Reproduction</b> .....	$\pm 2$ mm (at 5 sigma for sigma = 0,4 mm)
<b>Integration time</b> .....	< 2 ms
<b>Programming via RS485:</b> .....	PC IBM compatible (OMS1 PCA) / Profibus-DP
<b>SSI interface</b>	
* Output code:.....	Binary, Gray
Clock input:.....	Optocoupler
Clock frequency:.....	80 kHz - 820 kHz
Data transfer length: .....	Depending on cable cross-section, shielding,
Data output: .....	RS422 (2-wire)
* Output format: .....	Multiple transmission, manual
<b>Profibus-DP interface</b>	
Output code:.....	PROFIBUS-DP acc. to DIN 19245 Part 1-3
Baud rate:.....	Binary
Special features:.....	9,6 kBaud to max. 12 MBaud
Station addresses .....	Programming is performed via the parameterization message at the start-up of the encoder or PROFIBUS-DP master
	3 - 99
<b>Inputs</b>	
* Preset:.....	Electronic adjustment, "0" < + 2 V DC, "1" > + 8 V DC, max. 30 V DC

\* Programmable parameter



**4.1.2 Environmental conditions**

<b>EMC:</b> .....	EN 61000-4-2 (IEC-801-2) / EN 61000-4-4 (IEC-801-4)
<b>Operating temperature range</b> .....	0-50°C
Device with heating:.....	-30 to +50°C
<b>Thermal drift</b> .....	1 ppm / °C
<b>Storage temperature range:</b> .....	-20 to +75°C
<b>Relative air humidity:</b> .....	98 % (no moisture condensation)
<b>* Degree of protection</b> .....	IP 65 (DIN 40 050)

\* The degree of protection is based on the assumption that the Laser Measuring Device cables are correctly screwed in and connected.

## 4.2 Ordering information

### 4.2.1 Laser devices

Art.-No.:	Type	Description
500 32811	OMS1 / 100 PB	Laser device PB-Interface 100 m
500 34146	OMS1 / 100 PB-H	Laser device PB-Interface 100 m with heating
500 34145	OMS1 / 100 PB-L	Laser device PB-Interface 100 m with linearization

## 4.3 Accessories

Art.-No.:	Type	Description
500 32825	Disk OMS1 GSD	Device master file
500 32816	RF1 200x200	Reflector 200 x 200 mm
500 32814	MA OMS1 IS	INTERBUS-S connecting unit (option)

**Pin assignment:**

**Laser Measuring Devices OMS1/100 PB Profibus-DP Class 2**

*General note:*

If the device is the last station in the profibus line, the DIP switches *S3* and *S4* for the profibus terminator (switching-on of the terminal resistance) must be switched on. Otherwise they must be switched off and the terminating resistor (220 ohms) in the mating connector (8-pole) equipped by the delivery must be taken.

The profibus also works when the device is removed. Is the device the last station in the profibus line, the reference potential of the terminator resistances is missing!

In order to enable a separate wiring of incoming and outgoing signals the profibus terminals and the terminals for the supply voltage have two connection possibilities (mating connector). Leuze electronic recommends for the operation to use only bus cables certified by the PNO. With the BCD address switches  $10^1$  and  $10^0$  the station address for the profibus is set from 3 to 99.

*Explanation of terms:*

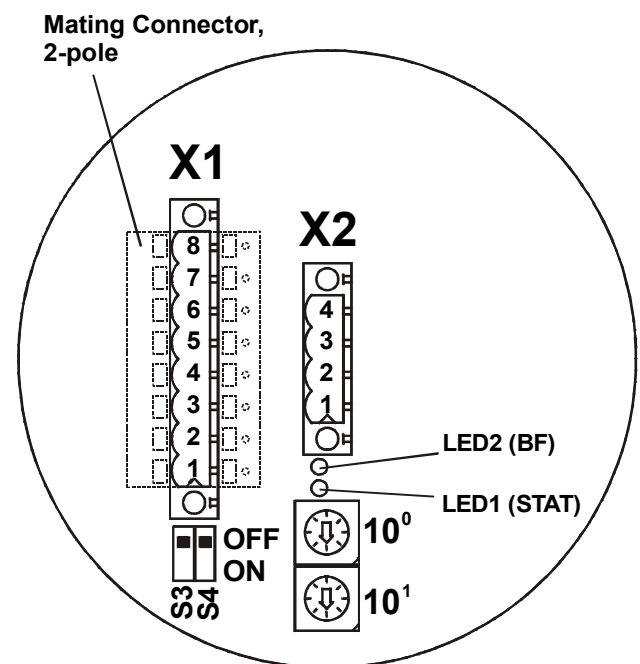
COMBICON 4 / 8-pole:	Connector Phoenix COMBICON 12A/250V, grid 5.08 mm		
Connection:	inflexible 0,2 - 2,5 mm <sup>2</sup>	flexible 0,2 - 2,5 mm <sup>2</sup>	Conductor size (AWG) 24 - 12
	flexible with wire end sleeve without plastic sleeve: -	flexible with wire end sleeve with plastic sleeve: -	
US:	Supply voltage: Standard device: 18 - 27 V DC, Device with heating: 24 C DC		
US-input:	1-level > +8V, 0-level < +2V, up to ±35V, 5 kOhm		
Opto-input:	Opto coupler for cable transmitter (RS422)		
RS422-output:	see DIN 66 348, part 2		

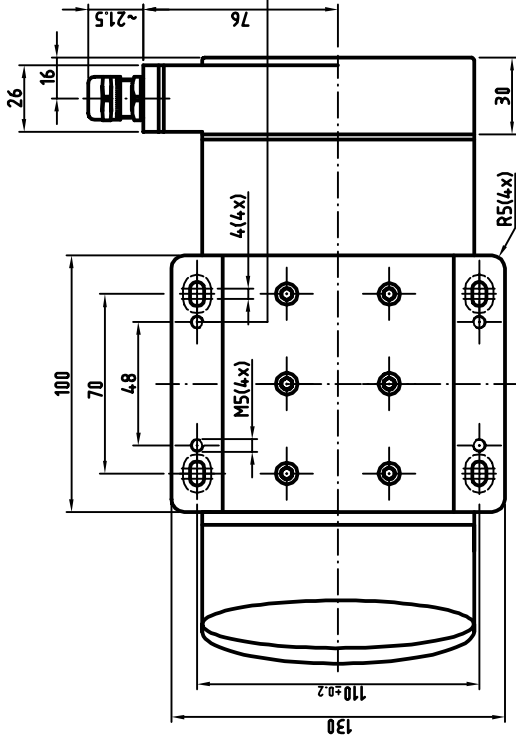
**X1 - COMBICON 8-pole**

- Pin 8 GND, supply voltage 0 V
- Pin 7 US, supply voltage
- Pin 6 US-input hardware acknowledgement
- Pin 5 US-input for Preset 1
- Pin 4 Programming interface RS485 +
- Pin 3 Programming interface RS485 -
- Pin 2 Profibus DataA
- Pin 1 Profibus DataB

**X2 - COMBICON 4-pole**

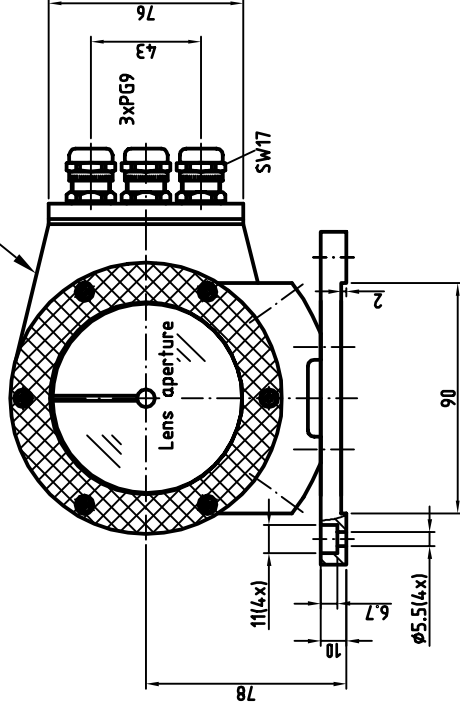
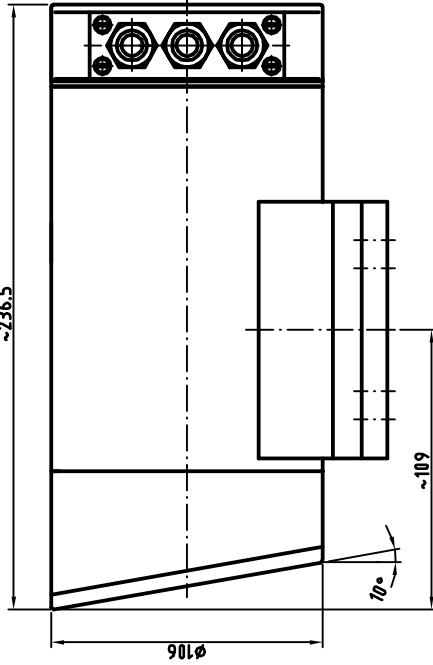
- Pin 4 RS422-output for SSI-data -
- Pin 3 RS422-output for SSI-data +
- Pin 2 Opto-input for SSI-clock +
- Pin 1 Opto-input for SSI-clock-





Screws to the adjustment of the distance measurement (hexagon socket, 3mm)

Cable inlet rotatable (90° steps)



**TYPE NAME: OMS1/100 PB**

MEASURING RANGE 100m  
 INTERFACE PROFIBUS DP  
 OUTPUT CONFIGURATION RS485  
 CODE PROGRAMMABLE  
 RESOLUTION 0.5mm  
 INPUT POWER SUPPLY VOLTAGE 18-27V  
 TEMPERATURE RATINGS 0-50°C  
 PROTECTION RATINGS IP65  
 LASER CLASS 2  
 CONNECTOR TYPE 3xPG9 radial

REFLECTOR yes  
 OPTION ENC PROGRAMMABLE, 12MBAUD  
 OPTIONS

Range 0.2-100m  
 Power consumption 0.5A at 18V  
 Power consumption 0.35A at 27V  
 Max. Laser power P=<1mW



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 Telefon 07021/573-0

Leuze electronic GmbH + Co. In der Braike 1 D-73277 Owen/Teck Telefon 07021/573-0		Maßstab 1:2 DIN A3 Projekt-Nr.:	
Erstl./20.09.99 Habetler		Article-No.: 500 32811	
Bearb.:		Order-No.:	
Gepr.:		OMS1/100 PB	
Norm.:		Drawing-No.:	
Pin connections: Z-ELE-T1-GB-0002		Blatt 1	
1 Text ergänzt	26.04.00 Flüg	E4-885-002	
Zust./Änderung	Datum	EDV-Nr.:	

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