

GPro 500: Important Notes

For the Use in Hazardous Locations



METTLER TOLEDO

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TABLE OF CONTENT

1	Safety information	5
2	General	5
3	Safety instructions	6
	3.1 For M400 Type3 4-wire series	6
	3.2 Safety instructions for installation, operation and maintenance in hazardous locations (ATEX) GPro 500 series.....	7
4	Connection to supply units	8
5	General safety precautions for installation, operation and maintenance in hazardous locations GPro 500 series	8
6	ATEX	9
7	FM approval (US version)	13
8	Decommissioning, storage and disposal	14
	8.1 Decommissioning	14
	8.2 Storage	14
	8.3 Environmental protection.....	15

FIGURES

Figure 1	Ex setup	15
Figure 2	The GPro 500 Interface between Zone 0 and Zone 1	16
Figure 3	Label	18
Figure 4	Note label.	18
Figure 5	Grounding label.	18
Figure 6	Label for US version.	19
Figure 7	Note label.	20
Figure 8	Grounding labels.	20

1 Safety information

Read these notes and the instruction manual and ensure that you fully understand its content before you attempt to install, use or maintain the GPro™ 500. Important safety information is highlighted in this manual as WARNINGS and CAUTIONS, which are used as follows:



WARNING

Warnings highlight specific hazards which, if not taken into account, may result in personal injury or death.

CAUTION

Cautions highlight hazards which, if not taken into account, can result in damage to the TDL or to other equipment or property.

This manual also incorporates “be aware of” information, which is used as follows:



This highlights information which it is useful for you to be aware of (for example, specific operating conditions, and so on).

2 General

This manual contains information of installation, operation and maintenance of the GPro 500 TDL. A description of the GPro 500 TDL and its basic features is also included.



The GPro 500 TDL is available for use in explosive atmospheres as defined in EN 60079-14 (ATEX) or IEC 60079-10 (ATEX).

For more information on Equipment Protection Levels refer to “Explosion Protection” and Relationship of Equipment Protection Levels to ATEX Categories.

Please read the entire manual carefully before using the GPro 500 TDL. It is a sophisticated instrument utilizing state-of-the-art electronic and laser technology. Installation and maintenance of the instrument require care and preparation and should only be attempted by competent personnel. Failure to do so may damage the instrument and void the warranty.

CAUTION

METTLER TOLEDO strongly recommends having the final installation and commissioning executed under the full supervision of a METTLER TOLEDO representative.

Do not power up the system before the wiring has been fully checked by trained personal.

It is strongly recommended to have the wiring approved by a METTLER TOLEDO Service representative.

Wrong wiring can lead to damage of the sensor head and/or the M400 transmitter.

CAUTION

Do not install the probe into the process without the process side purging being switched on (SP probes and W Wafers).

Without purging, optical components in the probe may be contaminated and therefore affect the GPro 500's ability to measure (see also Chapter 3.1.5 "Signal Optimization").

METTLER TOLEDO strongly recommends having the final installation and commissioning executed under the full supervision of a METTLER TOLEDO representative.

3 Safety instructions

3.1 For M400 Type 3 4-wire series



Before connecting the M400 to a supply unit make sure that its output voltage cannot exceed 30 V DC, or be less than 20 V DC. Do not use alternating current or main power supply.

**WARNING**

Installation of cable connections and servicing of this product require access to shock hazard voltage levels.

**WARNING**

Power supply and relay or open collector (OC) contacts wired to separate power source must be disconnected before servicing.

**WARNING**

Power supply must employ a switch or circuit breaker as the disconnecting device for the equipment.

**WARNING**

Electrical installation must be in accordance with the National Electrical Code and/or any other applicable national or local codes.



RELAY RESP. OC CONTROL ACTION: the M400 transmitter relays will always de-energize on loss of power, equivalent to normal state, regardless of relay state setting for powered operation. Configure any control system using these relays with fail-safe logic accordingly.



PROCESS UPSETS: Because process and safety conditions may depend on consistent operation of this transmitter, provide appropriate means to maintain operation during sensor cleaning, replacement of sensor or instrument calibration.

3.2 Safety instructions for installation, operation and maintenance in hazardous locations (ATEX) GPro 500 series



WARNING

Devices of these series are approved for operation in hazardous locations.



WARNING

During installation, commissioning and usage of the device, the stipulations for electrical installations (IEC EN 60079-14/IEC EN 60079-10) in hazardous areas must be observed.



WARNING

When installing the device outside the range of applicability of the 2014/34/EU directive, the appropriate standards and regulations in the country of use must be observed.



WARNING

Manipulations of the device other than described in the instruction manual are not permitted.

The GPro 500 comes with a pre-installed cable and cable gland. Do not attempt to replace the cable as it will void the warranty and violate the ATEX classification!



WARNING

Opening the sensor head voids warranty and violates the ATEX hazardous area classifications!



WARNING

Installation may only be carried out by trained personal in accordance with the instruction manual and as per applicable standards and regulations.

- Cleaning: In hazardous locations the device may only be cleaned with damp cloth to prevent electrostatic discharge.

4 Connection to supply units



US Version:

The US version must be installed using a suitable cabling conduit system in accordance with local codes and regulations. To aid installation, the unit is supplied without an attached cable.

The terminals are suitable for single wires/flexible leads 0.2 mm² to 1.5 mm² (AWG 24–16).

	WARNING
	The electrical installation must be performed in accordance with National Electrical Codes of practice and/or any other applicable national or local codes.

	WARNING
	Wait 2 minutes before opening the enclosure after de-energizing the system.

	WARNING
	When fitting the enclosure cover onto the sensor head, the 8 x M5 fixing screws must be tightened to 8 Nm torque.

	WARNING
	For gas group A, sealing of the conduit is required at the enclosure entry. For gas groups B, C and D, no conduit sealing is required.

5 General safety precautions for installation, operation and maintenance in hazardous locations GPro 500 series

	WARNING
	Devices of these series are approved for operation in hazardous locations.

	WARNING
	During installation, commissioning and usage of the device, the stipulations for electrical installations (IEC EN 60079-14/IEC EN 60079-10) in hazardous areas must be observed.

	WARNING
	When installing the device outside the range of applicability of the 2014/34/EU directive, the appropriate standards and regulations in the country of use must be observed.

6 ATEX

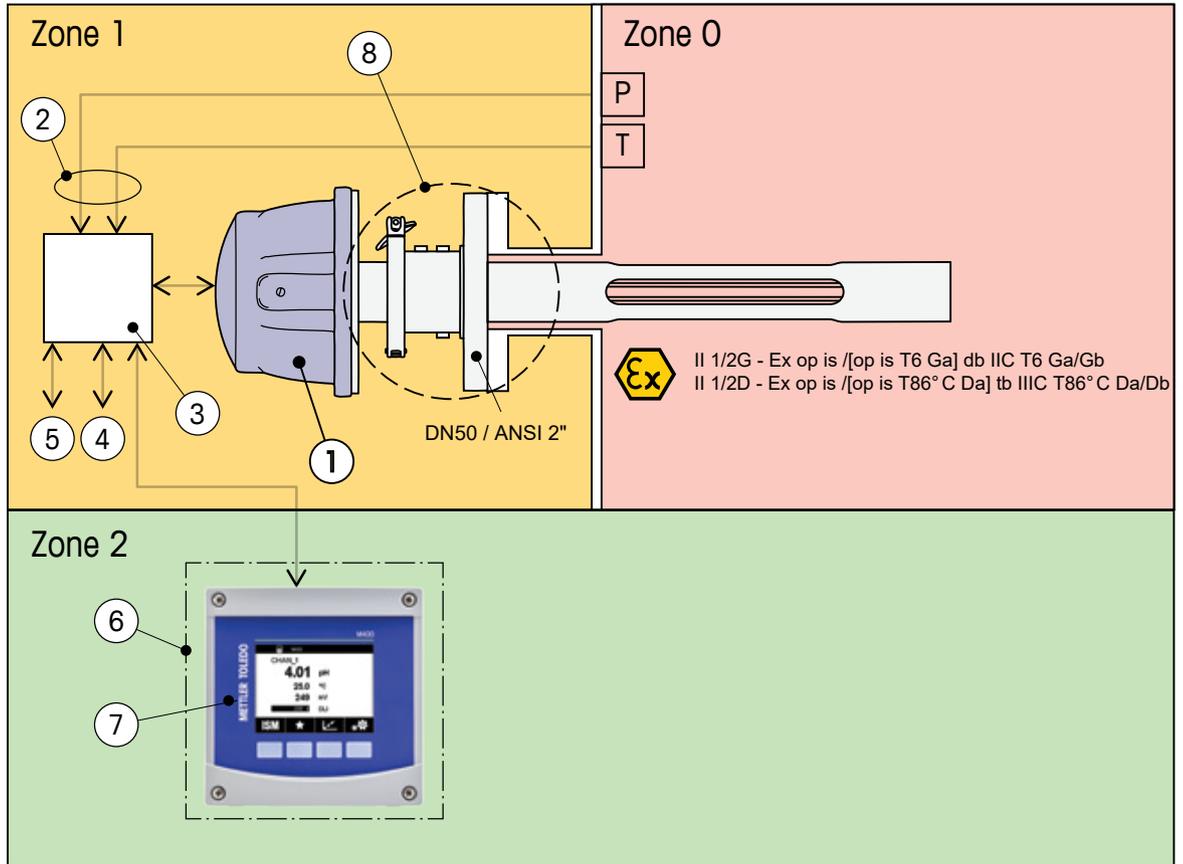


Figure 1 Ex setup

- 1 GPro 500
- 2 $2 \times 4 \dots 20$ mA (pressure and temperature)
- 3 Junction Box (Ex-e)
- 4 Ethernet
- 5 External power supply
- 6 Purge box for Zone 1 (optional)
- 7 M400
- 8 For detailed cross section view – see “The GPro 500 Interface between Zone 0 and Zone 1”

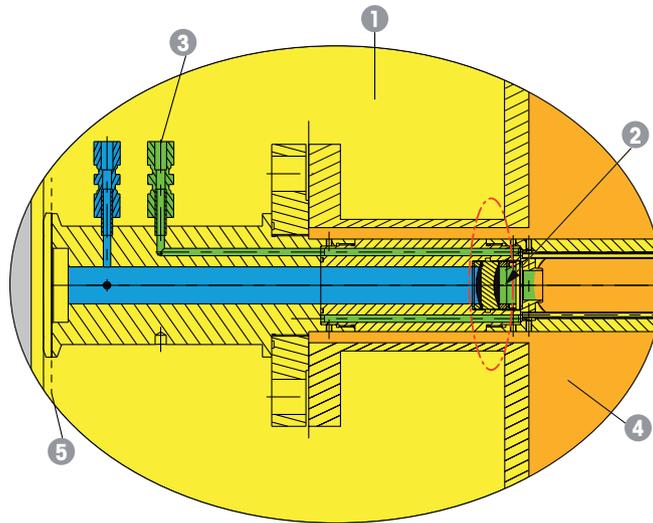


Figure 2 The GPro 500 Interface between Zone 0 and Zone 1

- 1 Zone 1 region
- 2 Process window
- 3 Check valve
- 4 Zone 0 region
- 5 Interface sensor head – probe

The process window and the check valve make sure that Zone 0 and Zone 1 are physically separated. The sensor head is always in Zone 1 and the probe is in Zone 0.

Non-metallic boundary wall Sensor Head

- Material of non-metallic boundary wall: Fused silica glass C 7980
- Temperature range of the non-metallic boundary wall: –20–55 °C
- Maximum pressure of non-metallic boundary wall: 0.5 barg

CAUTION
For intended installation in an Ex classified area,
please observe the following guidelines (ATEX 2014/34/EU⁽¹⁾).
 (1)For UK statutory Requirements SI 2016 No. 1107)

Ex classification: **Ex II 1/2G - Ex op is/[op is T6 Ga] db IIC T6 Ga/Gb**
 and
 Ex II 1/2D - Ex op is/[op is T86° C Da] tb IIIC T80° C Da/Db

Designation and number of the declaration: **SEV 15 ATEX 0131X**
 IECEx SEV 15.0013X
 CML 22 UKEX 2213X



WARNING

Repairs of the flameproof joints must be made in compliance with the constructive specifications provided by the manufacturer.
Repairs must not be made on the basis of values specified in tables 1 and 2 of IEC 60079-1 Ed. 7.0.



WARNING

In the normal configuration, the temperature at the interface 5 between the sensor head and the probe may not exceed 55 °C. If the temperature exceeds 55 °C at the interface to the sensor head temperature class T6 (85 °C) is no longer valid and the ATEX classification is violated.



WARNING

If the temperature at the interface 5 between the sensor head and the probe exceeds 55 °C, the Thermal Barrier – see Appendix 2, chapter 2.3 “Accessories” – has to be used in a way that the temperature at the interface to the sensor head never exceeds 55 °C. If the temperature exceeds 55 °C at the interface to the sensor head temperature class T6 (85 °C) is no longer valid and the ATEX classification is violated.



WARNING

The metallic enclosure of the TDL sensor has to be connected by conductive wiring with the grounding system of the plant.

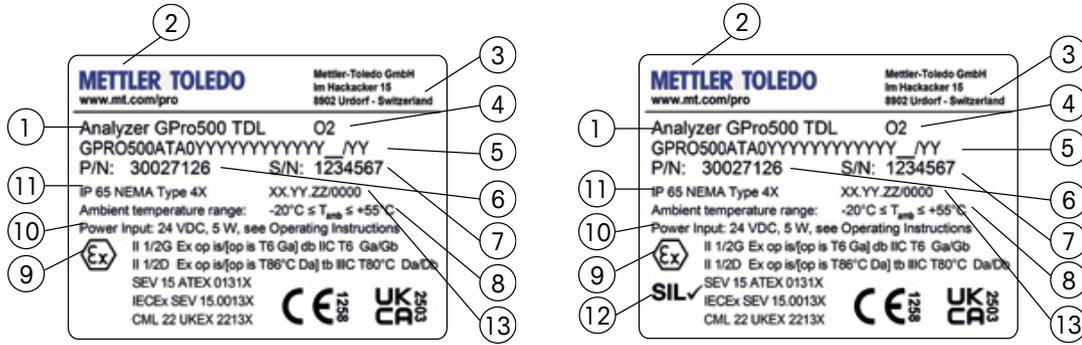


Figure 3 Label.

- 1 Product name
- 2 Manufacturer
- 3 Country of origin
- 4 Gas to be measured
- 5 Product key
- 6 Part no.
- 7 Serial no.
- 8 Ambient temperature limits
- 9 ATEX markings
- 10 Power rating
- 11 Enclosure ratings
- 12 SIL Mark
- 13 FW/HW version

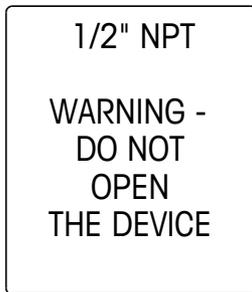


Figure 4 Note label.



Figure 5 Grounding label.

7 FM approval (US version)



**Ex classification: CI I, Div 1, Grp A, B, C, D, T6
CI II, III, Div 1, Grp E, F, G, T6**

– Designation and number of the declaration: Original project ID 3044884

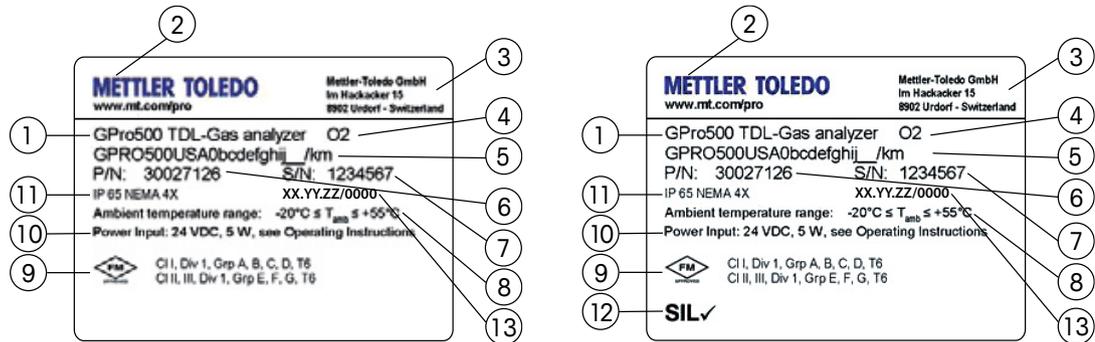


Figure 6 Label for US version.

- 1 Product name
- 2 Manufacturer
- 3 Country of origin
- 4 Gas to be measured
- 5 Product key
- 6 Part no.
- 7 Serial no.
- 8 Ambient temperature limits
- 9 FM markings
- 10 Power rating
- 11 Enclosure ratings
- 12 SIL Mark
- 13 FW/HW version

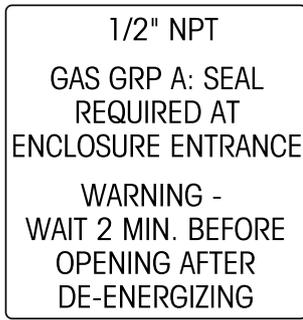


Figure 7 Note label.

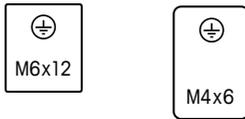


Figure 8 Grounding labels.

8 Decommissioning, storage and disposal

Please refer to "Safety information". Decommissioning may only be carried out by persons with appropriate training or by skilled technicians.

8.1 Decommissioning

For decommissioning see section "Decommissioning, storage, disposal" in the instruction manual.

8.2 Storage

Store the GPro 500 in a dry place.

8.3 Environmental protection



Waste electrical products should not be disposed of with household waste. Please recycle where facilities exist. Check with your Local Authority or retailer for recycling advice.

Sorting

Sorting into waste groups takes place when dismantling the device. The groups are listed in the current European Waste Catalogue. This catalog is valid for all wastes, whether intended for disposal or for recycling.

The packaging is made up of the following materials:

- Cardboard
- Foam plastic

The housing is made of the following materials:

- Steel
- Polypropylene
- Medium wetted polymers as given in the specifications

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Market Organizations please go to:
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For more information



Management System
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