

Fiber Optic Interface System
Intrinsically Safe Power Supply
Intrinsically Safe Battery



Puma[®] Terminal Accessories For Use In Hazardous Areas

METTLER TOLEDO

Flexible Solutions for Weighing in Hazardous Areas.

- Match the power source to the application
- Eliminate costly barriers
- Make quick, easy connections

Fiber Optics

METTLER TOLEDO's Fiber Optic Interface System solves the problem of safely transferring data through an explosive environment. The interface system consists of fiber optic transmitters, fiber optic cable and a safe area data converter. Combined, these items provide a safe, cost-effective solution. When used with the intrinsically safe PUMA terminal, the system is Factory Mutual (FM) and Canadian Standards Association (CSA) approved.

Transferring data using light transmission



via fiber optics eliminates noise problems and surges associated with copper wire in an electrical environment. It also eliminates errors and downtime costs associated with ground potential differences, cross-talk, EMI, RFI or lightning storms because light signals are immune to electrical interference.

METTLER TOLEDO offers two types of fiber optic cable – plastic core and glass core. Both use a simple snap-in connector at the ends to permit easy, fast connection to the transmitting device and converter. The glass core

cable provides lower signal loss than the plastic core, which allows longer lengths to be used. The maximum transmission distance for each type of fiber optic cable is determined by the transmitting device.

The converter is bi-directional, allowing RS-232 or 20mA commands to be converted to fiber optic signals to be sent back into the hazardous area. A second fiber optic cable is required for bi-directional communication.

The fiber optics interface is Factory Mutual and Canadian Standards Association approved only when installed with the PUMA terminal per METTLER TOLEDO control drawings 148450R (FM) or 152949R (CSA). The fiber optics interface can be used in all hazardous areas where the PUMA terminal and battery pack or power supply are approved.

AC Power Supply

METTLER TOLEDO offers a continuous, intrinsically safe AC power supply for use with the PUMA terminal and other intrinsically safe terminals. Using the intrinsically safe AC power supply eliminates the need to change and

recharge batteries which are typically used in hazardous areas. It comes complete with all hardware and is designed as a potted, tamper-proof assembly which is easy to install. The design includes a replaceable fuse to protect the primary circuitry.

The power supply can be installed within the hazardous area next to the terminal. A standard 1.5 m (5 ft)

cable is supplied for connection with additional cable lengths available up to a maximum of 45.7 m (150 ft). The connection of the AC power source to the power supply must be done in accordance with local and national standards. These standards may vary depending upon the country of installation.



A Factory Mutual (FM) approval and a Canadian Standards Association (CSA) approval have been obtained for the power supply when installed with the PUMA terminal per METTLER TOLEDO control drawings 148450R (FM) and 152949R (CSA). The intrinsic-

Configuration Example



sically safe AC power supply is suitable for Class I, II or III, Division 1 or 2, Groups C, D, E, F or G areas. When located in a safe area, the AC power supply can power the intrinsically safe terminal in a Class I, II or III, Division 1 or 2, Groups A, B, C, D, E, F or G area.

The power supply is available in either a 120 VAC or a 230 VAC version. It operates at less than 100°C (212°F) at 40°C (104°F) ambient, and therefore does not require a temperature code marking.

7AH External Battery

There is an extended life 7 AH (Amp-Hour) external battery available which provides long operating time between recharges. This option is used when portability is desired or when AC power is not readily available. The operating time will vary depending upon the weighing system and the number of serial ports used.

The 7AH external battery is typically installed within the hazardous area next to the terminal. A short 1.5 m (5 ft) cable connects the two together. Additional cable length may be added

up to a maximum of 15.2 m (50 ft). Recharging the external battery must be done in a safe area. METTLER TOLEDO offers chargers for both 120 VAC and 230 VAC power and for most types of power outlet configurations. The battery can support at least 100 recharges before it reaches the point where it will only provide half the capacity as when it was new.

A quick-disconnect plug is provided for easy removal when recharging is required. The battery assembly also includes mounting brackets which allow mounting to a wall, column or other flat surface. A Factory Mutual (FM) approval and a Canadian



Standards Association (CSA) approval have been obtained for the 7AH external battery when installed with the PUMA terminal per METTLER TOLEDO control drawings 148450R (FM) and 152949R (CSA). The external battery is suitable for Class I, II or III, Division 1 or 2, Groups A, B, C, D, E, F or G applications.

The 7 AH external battery operates at less than 100°C (212°F) at 40°C (104°F) ambient, and therefore does not require a temperature code marking.

Note: The user's insurance carrier may require that the user obtain approval for use of this equipment in a specific area. This approval transaction is between the user and his or her insurance carrier. The user assumes total responsibility and liability for submission and approval by his or her insurance carrier for use in a specific area.



	Fiber Optic Converter
Operating Temperature	-10° to 40°C (14° to 104°F) at 10 to 95% relative humidity
Dimensions	Approximately 125 x 125 x 35 mm (4.9 x 4.9 x 1.4 in)
Operating Power	12 VDC at 500mA
AC Power	120 VAC or 240 VAC plug-in transformer
Serial Connection	RS-232 or 20mA via DB-25 pin female connector
Ports/Channels	Two full bi-directional ports to support two channels

	7 AH Extended Battery	AC Power Supply
Construction	18 gage type 304L stainless steel	Malleable cast iron junction boxes with zinc plating
Operating Temperature	From -10° to 40°C (14° to 104°F) at 10 to 95% relative humidity	From -10° to 40°C (14° to 104°F) at 10 to 95% relative humidity
Dimensions	Approximately 235 x 120 x 115 mm (9.3 x 4.75 x 4.6 in)	Approximately 120 x 420 x 75 mm (4.7 x 16.5 x 2.9 in)
Output Power	13.6 VDC, 0.895A max.	13 VDC, 100 mA typical
Input Power	—	120 VAC or 230 VAC at 0.1 Amp 50/160 HZ
Operating Time	From 175 to 380 hours based upon load	Continuous
Recharge Time	12 hours	—
Approvals	FM and CSA for Division 1,2; Class I,II,III; Groups A-G	FM and CSA for Division 1,2; Class I,II,III; Groups A-G (Power supply located in safe area for Groups A and B)

	Fiber Optic Cable Plastic Core	Fiber Optic Cable Glass Core
Construction	Single step index plastic fiber sheathed in black polyethylene jacket	Multimode step index glass fiber sheathed in blue plenum PVC jacket with Kevlar strength fibers
Operating Temperature	-20° to 80°C (-4° to 176°F)	-40° to 85° C (-40° to 185°F)
Storage Temperature	-55° to 85° C (-67° to 185°F)	-40° to 85° C (-40° to 185°F)
Short-term Tensile Strength	14 kg (31 lb)	25 kg (55 lb)
Minimum Bend Radius	25 mm (1 in)	15 mm (0.6 in)
Cable Attenuation (Typical)	0.25 db/m (650nm LED @ 25°C)	0.007 db/m (650nm LED @ 0° to 70°C)
Core Diameter (Typical)	1 mm (0.04 in)	200 µm
Jacket Diameter (Typical)	2.2 mm (0.085 in)	2.2 mm (0.085 in)
Transmission Distance	Determined by transmitting device	Determined by transmitting device
UL Listing (Includes passing UL 1581 flame retardancy test)	(UL)E122312-C OFN	E96635OFNP
Protective Conduit Necessary	No	No
Field Splicing and Termination	Yes – kit available	No – available in 50 ft (15m) increments from 50 ft (15m) to 1000 ft (300m)



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