technical datasheet

MTL5995

isolated power supply for fieldbus systems

- Straightforward 'clip-on' DIN-rail mounting
- Low cost per fieldbus segment
- High packing densities
- Simplified installation and maintenance using plug-in connectors

FOUNDATION

The MTL5995 is a general purpose power supply unit designed for use in 31.25kbit/s (H1) fieldbus systems. It complies with the requirements of Fieldbus Foundation™ power supply Type 131† (non-IS supply intended for feeding an IS barrier).

To comply with fieldbus standards, each bus must be terminated at both ends. MTL's FBT1-IS, F100 or FCS-MBT fieldbus terminators can be supplied for this purpose; or its switch-enabled, internal terminator can be used for installations in which an MTL5995 is located at one end of the fieldbus trunk.

When designing a fieldbus segment the total current consumption of the fieldbus devices should be calculated for normal operation. This should be within the range of the published design current for the power supply.

For the MTL5995 power supply, the current limit is at least 20mA higher than the maximum design current. This provides a margin for inrush current when a new device is added to the network. Therefore, with a fieldbus loaded with its maximum design current, a fieldbus device can be disconnected and reconnected without the risk that other devices on the bus will reset.

The MTL5995 clips quickly onto DIN rail, so it is compatible with the industry-standard mounting system. Wiring is simplified by a single, secured, plug-in fieldbus connector (MTL5995-PS), or a pair of plug-in fieldbus connectors (MTL5995) and a power plug which accepts a power bus; all leading to quicker insertion, fewer wiring errors and trouble-free, tidier installations.

† *The applicable fieldbus specifications and standards are: FOUNDATION™ fieldbus 31.25kbit/s Physical Layer Profile Specification, document FF-816, IEC 61158-2: 1993 and ISA-S50.02-1992 for 31.25kbit/s fieldbus systems.*

COOPER Crouse-Hinds

MTL5995
FIELDBUS POWER SUPPLY
31.25kbit/s fieldbus

The MTL5995 provides a pair of plug-in fieldbus connections. The MTL5995-PS is recommended for new fieldbus installations.

SPECIFICATION

OUTPUT

Voltage
19V±2%
<2Ω dc impedance

Design current
0 to 350mA,

Current limit
>370mA

Output ripple
Complies with clause 22.6.2 of the fieldbus standards† for output current >10mA.

Internal termination
Selected by a switch in the base of the unit.

INPUT

Supply voltage
20 to 30V dc –20°C to +60°C

Power requirement, with 350mA output load
420mA typical at 24V
370mA typical at 30V
520mA typical at 20V

Power dissipation within unit, with 350mA output load
3.4W typical at 24V
4.5W maximum at 30V

Note: *To allow adequate heat dissipation under all likely thermal conditions, it is recommended that the MTL5995-PS is installed on DIN-rail with 10mm clearance from any adjacent unit. 10mm DIN-rail module spacers (part no. MS010) are available from MTL for this purpose.*

LED indicator
Green: one provided for power indication

Isolation
250V rms between fieldbus and power supply terminals

Location of units
Safe area

Terminals
Accommodate conductors with cross-section of 0.14 to 2.5mm^2, stranded or single-core

Mounting
On 35mm (top hat) rail to EN 50022–35 x 7.5; BS 5584;
35 x 27 x 7.3 DIN 46277

Ambient temperature limits
–20 to +60°C (–6°F to +140°F) operating
–40 to +80°C (–40°F to +176°F) storage

Humidity
5 to 95% relative humidity

Weight
110g approx

SAFETY

Location of module
Safe area, Zone 2, IIC T4 hazardous area or Class 1, Div 2, Groups A, B, C, D T4 hazardous location.

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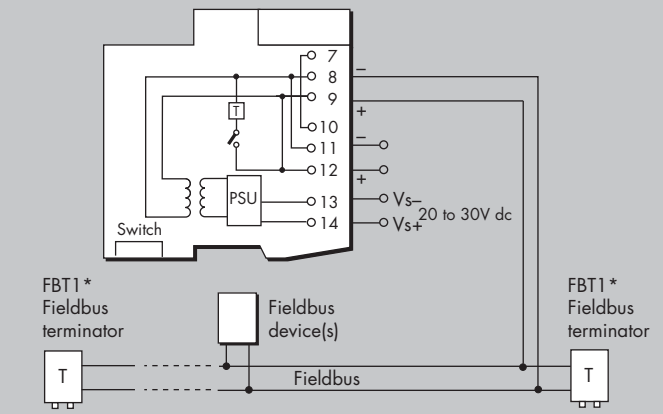
Safe or Division 2/Zone 2 hazardous area



Terminal	Function
7	Internally linked to 10
8 & 11	Fieldbus device(s) connection –ve
9 & 12	Fieldbus device(s) connection +ve
10	Internally linked to 7
13	Supply –ve
14	Supply +ve

Note: *Terminals 7 and 10 are linked internally to assist in the process of terminating cable screens.*

Location of field wiring
Safe area, Zone 2, IIC T4 hazardous area or Class 1, Div 2, Groups A, B, C, D T4 hazardous area.

Field wiring protection
Normally non-arcing/Ex nA

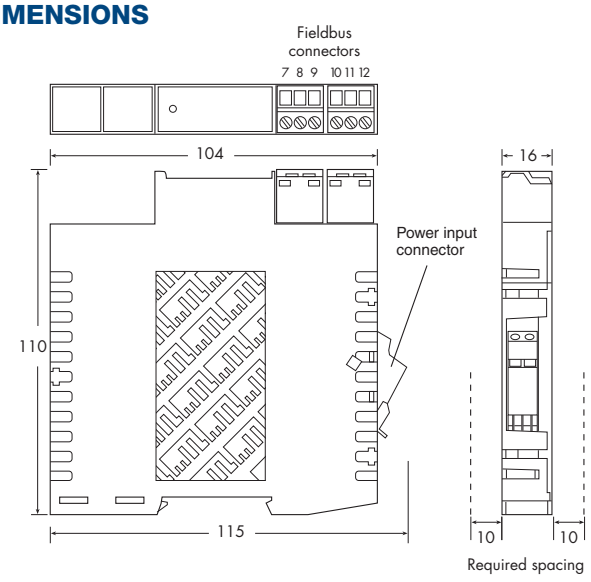
CERTIFICATION

EUROPE (ATEX)
EN 50021 ⟨Ex⟩ II 3 G Ex nA IIC T4

USA (FM)
Class No.3611 Class1, Div 2 Grps A-D

CANADA (CSA)
C22.2 No.213 Class1, Div 2 Grps A-D; Ex nA IIC T4

DIMENSIONS



The given data is only intended as a product description and should not be regarded as a legal warranty of properties or guarantee. In the interest of further technical developments, we reserve the right to make design changes.

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MTL5995-PS
FIELDBUS POWER SUPPLY
31.25kbit/s fieldbus

The MTL5995-PS provides a single, secured, plug-in fieldbus connection and is recommended for new fieldbus installations.

SPECIFICATION

OUTPUT

Voltage
19V±2%
<2Ω dc impedance

Design current
0 to 350mA,

Current limit
>370mA

Output ripple
Complies with clause 22.6.2 of the fieldbus standards† for output current >10mA.

Internal termination
Selected by a switch in the base of the unit.

INPUT

Supply voltage
20 to 30V dc –20°C to +60°C

Power requirement, with 350mA output load
420mA typical at 24V
370mA typical at 30V
520mA typical at 20V

Power dissipation within unit, with 350mA output load
3.4W typical at 24V
4.5W maximum at 30V

Note: *To allow adequate heat dissipation under all likely thermal conditions, it is recommended that the MTL5995-PS is installed on DIN-rail with 10mm clearance from any adjacent unit. 10mm DIN-rail module spacers (part no. MS010) are available from MTL for this purpose.*

LED indicator
Green: one provided for power indication

Isolation
250V rms between fieldbus and power supply terminals

Location of units
Safe area

Terminals
Accommodate conductors with cross-section of 0.14 to 1.5mm^2, stranded or single-core

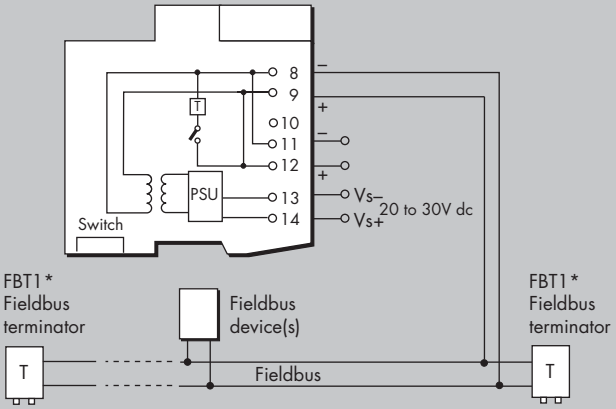
Mounting
On 35mm (top hat) rail to EN 50022–35 x 7.5; BS 5584;
35 x 27 x 7.3 DIN 46277

Ambient temperature limits
–20 to +60°C (–6°F to +140°F) operating
–40 to +80°C (–40°F to +176°F) storage

Humidity
5 to 95% relative humidity

Weight
110g approx

Safe or Division 2/Zone 2 hazardous area



Terminal	Function
8 & 11	Fieldbus device(s) connection –ve
9 & 12	Fieldbus device(s) connection +ve
10	Terminal for inteconnecting cable screens
13	Supply –ve
14	Supply +ve

SAFETY

Location of module
Safe area, Zone 2, IIC T4 hazardous area

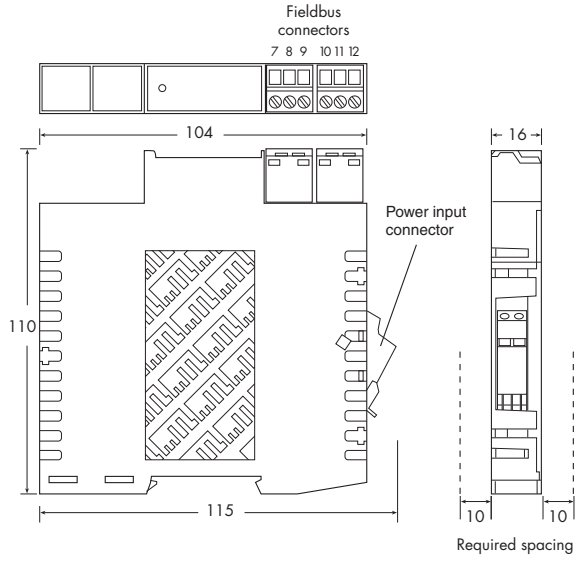
Location of field wiring
Safe area, Zone 2, IIC T4 hazardous area

Field wiring protection
Normally non-arcing/Ex nA

CERTIFICATION

EUROPE (ATEX)
IEC 60079-15 ⟨Ex⟩ II 3 G Ex nA IIC T4

DIMENSIONS



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