



# MTL4850



- ◆ **Designed to mount directly to a range of customised connection units**
- ◆ **Designed for use in SIL3 loops (non interfering)**
- ◆ **Connect over 2000 loops on one RS485 network**
- ◆ **Auto baud rate detection**
- ◆ **LED indication for fault diagnosis**
- ◆ **Isolated Power Supply**
- ◆ **Firmware upgradeable**
- ◆ **Onboard Diagnostics**
- ◆ **Alarm output**

The **MTL4850 HART multiplexer** provides a simple interface between smart devices in the field, control/safety systems and HART® instrument management software running on a PC.

**The system is based on 32-channel** modularity to provide a compact, easily configurable and expandable system. Using a standard RS485 serial link, up to 2016 individual HART devices can be connected to a single network.

**For the optimum solution**, the MTL4850 mounts directly to either a range of generic or customised connection units/backplanes.

#### **Connectivity to HART Configuration and Instrument Management Software**

**The online access to the information** contained within HART devices allows users to diagnose field device troubles before they lead to costly problems. Software can capture and use diagnostic data from HART field instruments via the MTL HART connection hardware. This allows users to realise the full potential of their field devices to optimise plant assets, which results in significant operations improvement and direct maintenance savings.

**IMS products provide** essential configuration, calibration, monitoring and maintenance history functions for conventional analogue (4-20 mA) and HART protocol compatible smart process instruments and field devices. They deliver powerful tools to meet the need for standardised instrument maintenance procedures and record keeping mandated by some quality standards and regulatory bodies.

**The benefits** of utilising these powerful software packages online include:

- Reduced commissioning time and costs
- Reduced maintenance costs
- Reduced documentation
- Reduced process downtime

The MTL4850 offers connectivity to a comprehensive range of FDT based software packages via the comms Device Type Manager (DTM). The DTM can be downloaded from [www.mtl-inst.com](http://www.mtl-inst.com). Other software packages work with the MTL4850 through custom software drivers or by the inclusion of the device description (DD) file for the MTL multiplexers

HART® is a registered trademark of the HART Communication Foundation



**SPECIFICATION**

**Number of channels**

32

**Channel transmitter type**

HART rev 5 – 7

**Channel interface**

2 connections to each channel field loop (64 total)

**Host system interface**

RS485 2-wire multidrop  
(up to 63 MTL4850 modules can be connected to one host)

**RS485 baud rate**

38400, 19200, 9600, 1200 baud - (auto-detected)

**Address selection**

8-bit interface, up to 64 addresses

**Alarm output** (Open Collector - Referenced to 0V)

$V_{max} = 35V, I_{max} = 5mA, P_{max} = 100mW$

**ISOLATION**

**Channel-to-channel isolation**

50V dc

**Field loop isolation**

50V dc

Module is coupled to loops via capacitor in each connection leg (i.e. 2 capacitors per channel)

**RS485 interface isolation** (Between module and interface)

25V dc

**Alarm output isolation** (Between module and output)

50V dc

**PSU isolation** (Between module and PSU input)

50V dc

**POWER**

**Supply voltage**

19V to 35V dc

**Current consumption**

60mA at 24V ±10%

**Power dissipation**

<1.6W at 24V ±10%

**PSU protection**

Reversed polarity protected  
Fused (375mA)

**ENVIRONMENTAL**

**Temperature range**

Operating: -40°C to +70°C  
Non-operating: -40°C to +85°C

**Relative humidity**

5% to 95% - non-condensing

**MECHANICAL**

**Dimensions**

See drawing

**Weight**

125 gm

Compatible FDT Frames include:-

FDT Frame	Manufacturer
FieldCare	Endress & Hauser/Metso Automation
PACTware	PACTware Consortium
FieldMate	Yokogawa
FDT Container	M&M Software

**Approvals**

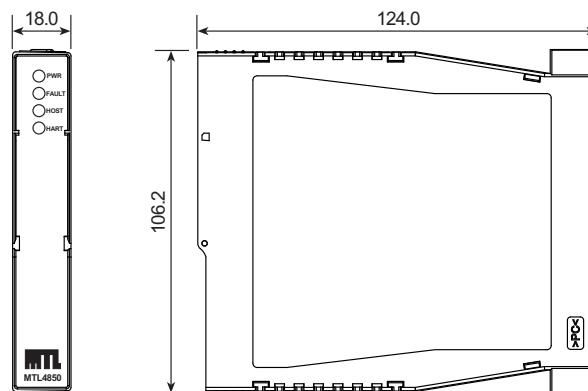
Zone 2 mounting                      ATEX & IECEx  
Div 2 mounting                        CSA, FM & FMC

For full details of approvals and certification refer to the MTL website - see below.

**LED INDICATORS**

LED	Colour	State	Description
PWR	green	Off	Multiplexer is not receiving power
		On	Multiplexer is receiving power
FAULT	red	Off	Multiplexer is in the running state
		Steady flash	Multiplexer rebuild is in progress
		Short/long flash	No HART loops found
		On (steady)	A fault was detected and multiplexer operation was halted
HOST	yellow	Off	No communication on the channel
		Short flash (0.25 sec)	Correctly framed message received by the multiplexer
		Long flash (1 sec)	Response transmitted—this is re-triggerable so repeated transmissions will leave the indicator permanently on
HART	yellow	Off	No communication on the channel
		Short flash (0.25 sec)	Message transmitted
		Long flash (1 sec)	Response transmitted—this is re-triggerable so repeated transmissions will leave the indicator permanently on

**DIMENSIONS (mm)**



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.

## MTL4850 BACKPLANE SPECIFICATIONS GENERAL PURPOSE VERSIONS

### HMP-HM64 BACKPLANE

**Capacity**

2 x MTL4850 HART multiplexer modules

**Maximum power requirements**

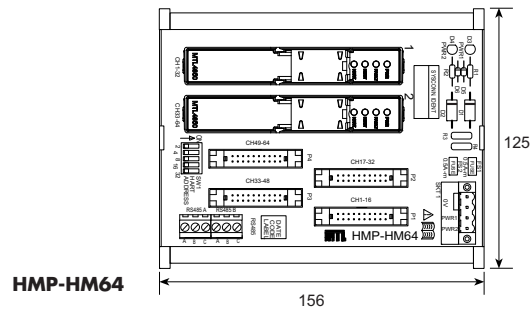
2.9W when equipped with –  
2 x MTL4850 HART multiplexers modules

**HART interface connectors**

4 x DIN41651 20-way HART signal cables  
(16 HART signal connections + 4 common returns on each cable. Connections to HART signals via screw terminal interface or custom backplane. Contact MTL for details.)

**Weight (excl. modules and accessories)**

220g approx.



HMP-HM64

### HTP-SC32 BACKPLANE \*

**Capacity**

1 x MTL4850 HART multiplexer module

**Maximum power requirements**

1.4W

**Weight (excl. modules and accessories)**

330g approx.

### COMMON SPECIFICATION HMP-HM64 & HTP-SC32

**Power requirements, Vs**

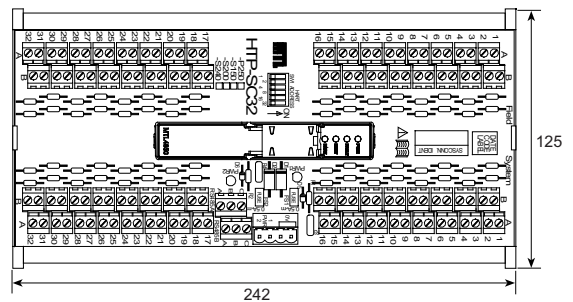
21 to 35V dc through plug-in connectors

**Mounting**

Supplied fitted in DIN-rail (T- or G- section) carrier

**RS485 port**

2.5mm<sup>2</sup> screw terminals



HTP-SC32

### HCU16 HART CONNECTION UNIT\*

**Accuracy (HCU16-P250 only)**

250Ω ±0.05%

**Connectors**

2.5mm<sup>2</sup> screw clamp terminals  
3 terminals per channel  
20-way HART signal cable (to HMP-HM64)

**Weight**

383g approx.

### HCU16AO CONNECTION UNIT WITH FILTERS

**Series impedance**

dc < 2Ω  
HART signal > 240Ω

**Connectors**

2.5mm<sup>2</sup> removable screw clamp terminals  
2 terminals per channel in groups of 4 channels  
20-way HART signal cable (to HMP-HM64)

**Weight**

768g approx.

### COMMON SPECIFICATION HCU16 & HCU16AO

**Capacity**

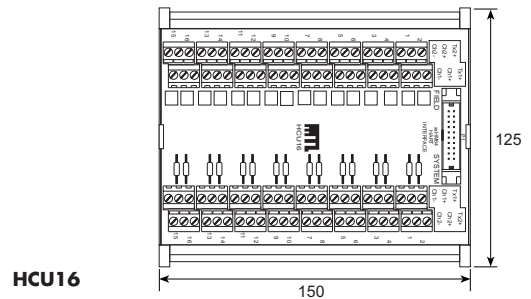
16 channels

**Isolation**

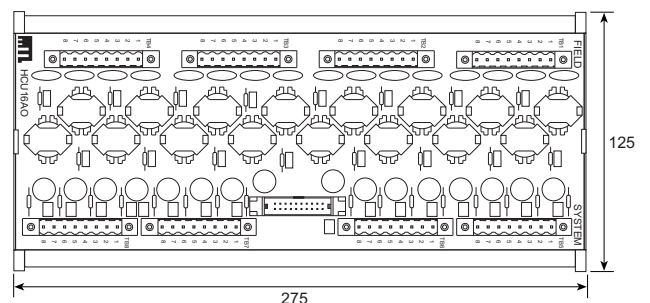
Channel-to-channel 50V dc

**Mounting**

Supplied fitted in DIN-rail (T- or G- section) carrier



HCU16



HCU16AO

\* for further details of the model options refer to the Instruction Manual INM4850 - available from the MTL website.



## MTL4850 BACKPLANE SPECIFICATIONS INTRINSIC SAFETY VERSIONS

### CPH-SC16/CPH-SC32 BACKPLANES

#### Capacity

- 16 x MTL4541/A, MTL4546/Y isolators
- 16 x MTL4544/A, MTL4549/Y (CPH-SC32 only)
- 1 x MTL4850 HART multiplexer

#### Power requirements, Vs

- 21 to 35V dc through plug-in connectors

#### Maximum power requirements

- CPH-SC16 0.65A
- CPH-SC32 1.2A

#### Safe-area connectors

- 2.5mm<sup>2</sup> screw terminals (2 terminals/module)

#### RS485 port

- 2.5mm<sup>2</sup> screw terminals

#### Accuracy

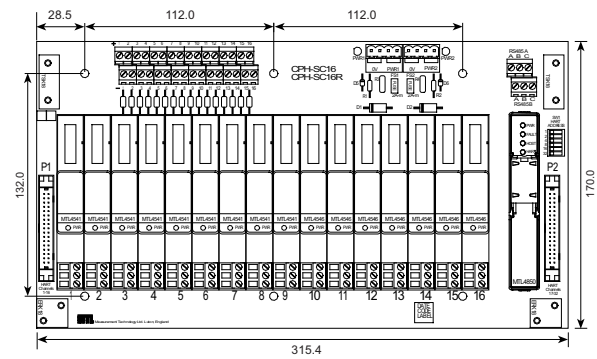
- CPH-SCxxR: 250Ω ±0.05% conditioning resistor

#### Weight (excl. modules and accessories)

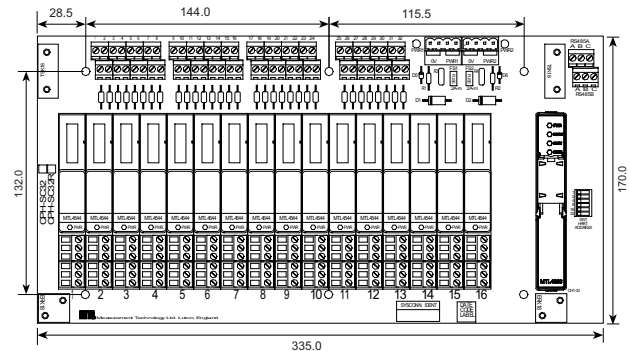
- CPH-SC16 410g approx.
- CPH-SC32 470g approx.

## CUSTOMISED CONNECTION UNITS

MTL offers a range of general purpose and IS interfaces providing direct connection with control system I/O cables as well as HART® connectivity. For general purpose signals, a number of custom HART® interface termination units are available for most DCS and PLC I/O cards. These replace the existing DCS termination units, saving space and allowing easy upgrading. Please contact MTL for details.



CPH-SC16(R)



CPH-SC32(R)

## ORDERING INFORMATION

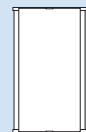


#### HART multiplexer

- MTL4850** HART multiplexer module (connects with up to 32 loops)

#### General purpose connection units

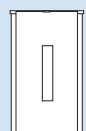
- HMP-HM64** 64ch HART backplane (Link to connection units via signal cable)
- HCU16 †** HART connection unit, 16ch i/p
- HCU16-P250 †** HART connection unit, 16ch i/p
- HCU16-S150 †** HART connection unit, 16ch i/p
- HCU16-S200 †** HART connection unit, 16ch i/p
- HCU16AO** HART connection unit, 16ch o/p (With HART filters)



- HM64RIB20-xx** 20-way HART signal cable (xx = 0.5, 1.0, 1.5, 2.0, 3.0, 4.0, 4.5, 6.0 (metres))

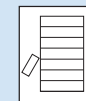
#### Integrated connection units

- HTP-SC32 †** Integrated HART connection unit, 32ch
- HTP-SC32-P250 †** Integrated HART connection unit, 32ch
- HTP-SC32-S150 †** Integrated HART connection unit, 32ch
- HTP-SC32-S200 †** Integrated HART connection unit, 32ch
- HTP-SC32-S240 †** Integrated HART connection unit, 32ch



† See Notes

#### MTL4500 Series backplanes



- CPH-SC16** 16ch backplane
- CPH-SC16R** 16ch backplane, (250Ω conditioning resistor)
- CPH-SC32** 32ch backplane
- CPH-SC32R** 32ch backplane, (250Ω conditioning resistor)

#### Literature

- INM4850** MTL4850 Instruction manual
- INA4850** ATEX safety instructions

#### Notes:

- no suffix** No parallel resistor, 0Ω link in series - for use with current inputs with 250 ohm input impedance or HART compatible outputs
- P250** 250Ω parallel resistor, 0Ω link in series - for use with 1-5V system inputs
- S150** 150Ω series link, no parallel resistor - for use with current inputs with 100 ohm input conditioning
- S200** 200Ω series link, no parallel resistor - for use with current inputs with 50 or 63.5 ohm input conditioning
- S240** 240Ω series link, no parallel resistor - for use with isolators connected to field terminals.

