Communicate with, configure and monitor HART® smart devices in safe and hazardous areas

MTL4840 Series

CE

- ◆ **SIL3 rating**
- ◆ **Connect up to 7936 loops to a single PC**
- ◆ **LED indication of loop being scanned**

- ◆ **Easily scalable modular system**
- ◆ **Compact, ideal for new projects and upgrades**
- ◆ **Channel to channel isolation option**

The MTL4840 HART® connection system provides a simple interface between smart devices in the field and HART® instrument management software run on a PC.

The system is based on 16-channel modularity to provide a compact, easily configurable and expandable system. Using a standard RS485 serial link, up to 7936 individual HART® devices can be connected to a single workstation.

For the optimum solution, choose from a range of general purpose and IS termination boards. For maximum flexibility the BPHM64 HART® backplane locates an MTL4841 communications module and up to four MTL4842 interface modules. General purpose HART® connection units and IS backplanes are also available, each fitted with an interface cable for connection to the BPHM64 HART® backplane. MTL4841 and MTL4842 modules can also be located on HMU16 termination boards for general purpose applications or on BPMH16 / BPMH16U / BPSH16 / BPSH16-32 backplanes for IS isolator requirements.

The DIN-rail mounting HCU16 and HCU16AOHART® connect to 16 general purpose field instruments while maintaining channel to channel isolation. Resistor conditioning options are compatible with all I/O cards. It allows pass-through connections for transmitter power supply, input signal and common.

The HCU16AO unit includes HART® filters for I/O cards incompatible with HART® signals.
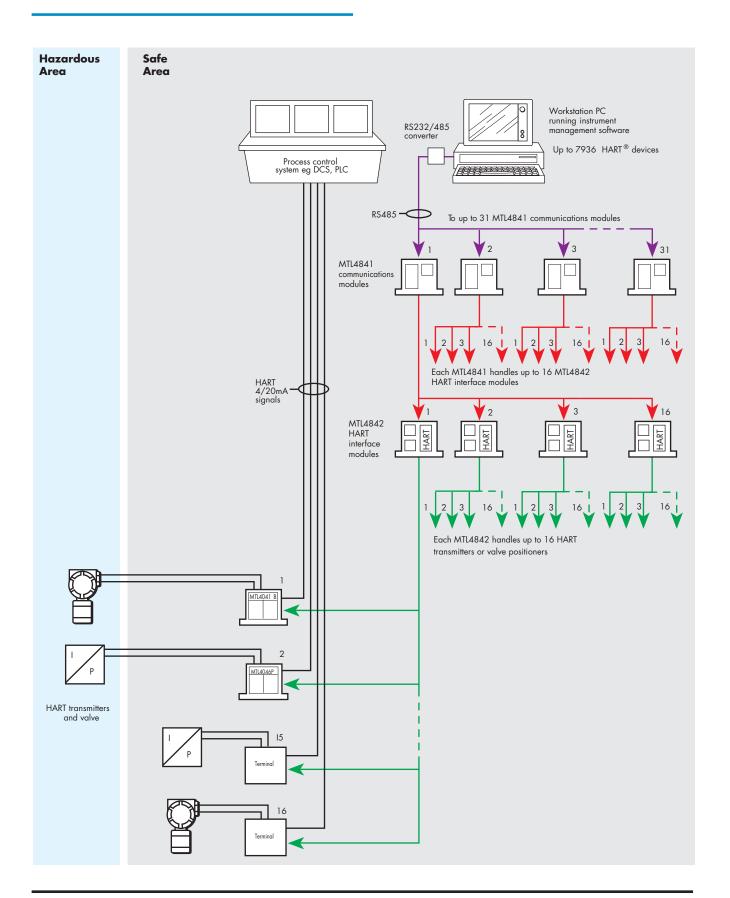
BPMH16/BPMH16U/BPSH16/BPSH16-32 backplanes with MTL4840 HART® modules fitted, connect either 16 or 32 IS field instruments. Adapter cards are available for the BPMH16U for easy integration to I/O cards and users have a choice of a DIN-rail mounting option.

Numerous features may be included in the connection units and backplanes, as required. Channel to channel isolation; resistors where required for HART® signal conditioning; and HART® filters for analogue systems where the output signal interferes with HART® data or becomes unstable with the presence of the HART® signal.

Customised backplanes and connection units are available to provide direct connection from DCS I/O cables, replacing the standard termination board.

MTL HART multiplexers are certified by BASEEFA as a safety related sub-system to IEC61508. See the SR Series Interfaces section of this catalogue.

MTL4840 SERIES SYSTEM DIAGRAM

Hazardous Area

Safe Area

Process control system eg DCS, PLC

RS232/485 converter

Workstation PC running instrument management software

Up to 7936 HART® devices

RS485

To up to 31 MTL4841 communications modules

MTL4841 communications modules

1   2   3   31

1 2 3 16   1 2 3 16   1 2 3 16

Each MTL4841 handles up to 16 MTL4842 HART interface modules

HART 4/20mA signals

MTL4842 HART interface modules

1   2   3   16

HART HART HART HART

1 2 3 16   1 2 3 16   1 2 3 16

Each MTL4842 handles up to 16 HART transmitters or valve positioners

1
MTL4041 B

2
MTL4046P

HART transmitters and valve

I/P

I/P   15
Terminal

16
Terminal

MTL4840 SERIES MODULE SPECIFICATIONS

MTL4841 communications module

MTL4841 COMMUNICATIONS MODULE

Host system interface
RS485 2-wire multidrop
Up to 31 MTL4841 modules can be connected to one host station
Unit address: switch-selectable on top of module

Isolation
RS485 output isolated from backplane power supply

Serial communication parameters
RS485 Baud rate: 1.2, 9.6, 19.2, 38.4kbaud, switch-
                        selectable on top of module
RS485 highway length: up to 1km

MTL system interface
Links with up to 16 MTL4842 HART® interface modules via interface bus on backplane/ribbon cable

LED indicators
Green: one provided for power and status indication

Power requirements
Powered from backplane
Power consumption
<1.0W

Instrument management software supported
See 'Instrument management software'

MTL4842 HART® INTERFACE MODULE

MTL systems interface
Links up to 16 loops via backplanes
Receives multiplexer control signals via interface bus from MTL4841 and selects one channel for communication

Unit address
Switch selectable on top of module

Interface bus
Total length of interface bus between module 1 and module 16 must not exceed 4m

LED indicators
Green: one provided for power
Amber: one to indicate unit is selected by MTL4841
Red: four to identify loop address

Power requirements
Powered from backplane

Power consumption
<0.1W

MTL4000 SERIES MODULES
(See 'MTL4000 Series' for detailed specifications and circuit diagrams)

MTL4041A: Current repeater, 4/20mA, passive input for smart transmitters
MTL4041B: Repeater power supply, 4/20mA, for 2- or 3-wire transmitters
MTL4041P: High power repeater power supply, 4/20mA, for 2- or 3-wire transmitters
MTL4044:   Repeater power supply, 4/20mA, two channel, for 2 wire transmitters
MTL4046/C: Isolating driver, for HART® valve positioners
MTL4046P: High power isolating driver for HART® valve positioners

COMMON SPECIFICATION
(applies to all MTL4840 and 4000 Series modules)

Location of units
Safe area (MTL4840 can be located in Div2)
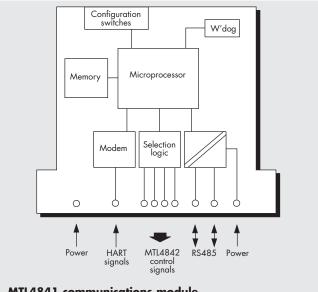
Long-term drift
No recalibration necessary

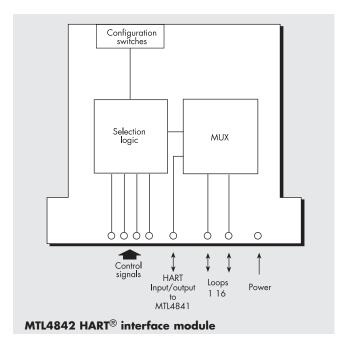**Ambient temperature limits**
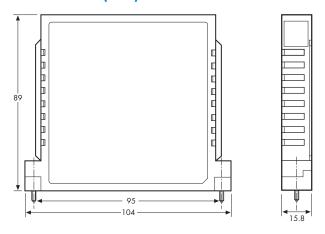–20 to +60°C continuous working
–40 to +80°C storage

Humidity
5 to 95% RH (non-condensing)

MTL4842 HART® interface module

DIMENSIONS (MM)

Mounting
On surface or DIN-rail mounted MTL or custom backplanes.
Mounting pitch 16mm

Weight
100g approximately

MTL4840 SERIES ORDERING INFORMATION

MTL4840 Series modules

MTL4841	HART communications module pre-configured for Cornerstone™ protocol	
MTL4841-AMS	HART communications module pre-configured for AMS Intelligent Device Manager	
MTL4841-PRM	HART communications module pre-configured for PRM	
MTL4842	HART interface module (communicates with up to 16 loops)	

General purpose connection units

BPHM64	64 ch HART backplane	HART interface connector
HCU16	HART connection unit	No parallel resistor, 0Ω link fitted in series
HCU16-P250	HART connection unit	250Ω parallel resistor, 0Ω link fitted in series
HCU16-S200	HART connection unit	No parallel resistor, 200Ω resistor fitted in series
HCU16-S150	HART connection unit	No parallel resistor, 150Ω resistor fitted in series
HCU16AO	16 ch HART connection unit	With HART filters
HMU16	16 ch HART communication unit	

MTL4000 backplanes

BPMH16	16 ch backplane	Safe-area multiway connector
BPSH16	16 ch backplane	Safe-area screw-clamp connector
BPSH16-32	32 ch HART backplane	
BPMH16U	16 ch HART backplane	Requires backplane adapter card (call MTL for options)

Backplane accessories

ERK18	Earth rail kit	For BPMH16 and BPSH16 backplanes
TSK18	Tagging strip kit	For BPMH16 and BPSH16 backplanes
ELC38	38-way Elco connector	For BPMH16 safe-area connection
FUS02	Fuse kit, pack of 10	Protects MTL4841/4842
FUS16	Fuse kit, pack of 10	Protects backplane module positions 1 to 16
VMPH16	Backplane mounting plate	For DIN-rail and non-metallic surface mounting (BPMH16 and BPSH16 only)
DMK01	DIN-rail mounting kit	DIN-rail mounting kit, T- or G-section (pack of 40) 16-way backplanes require 6
SMS01	Surface mounting kit	Pack of 40 - 4 required for each backplane
HM64RIB10-xx	Ribbon Cable 10-way	-xx specifies the cable length - max 4m
HM64RIB20-xx	Ribbon Cable 20-way	-xx specifies the cable length - max 4.5m

Isolating interface modules and accessories

MTL4041A	Current repeater	4/20mA, passive input, for smart transmitters
MTL4041B	Repeater power supply	4/20mA, for 2- or 3-wire transmitters
MTL4041P	High power repeater power supply	4/20mA, for 2- or 3-wire transmitters
MTL4044	Repeater power supply	2ch, 4/20mA, smart, for 2-wire transmitters
MTL4046	Isolating driver	For HART valve positioners
MTL4046C	Isolating driver	For HART valve positioners
MTL4046P	High power isolating driver	For HART valve positioners
CCH01	Crimp connector header	
CRC01	Large crimps	Pack of 100
CRC02	Small crimps	Pack of 100
SCC01	Screw-clamp connector	
MPL01	Module position label, blank	Pack of 50

Literature

INM4840	MTL4840 instruction manual

THE COMPLETE SYSTEM

The following components form a complete system:

MTL4840 HART® connection system – provides simple connection to field instruments, using general purpose and IS termination boards.

Personal computer – running instrument management software and linked to MTL4841 HART communications modules by:

Converter – connecting the computer's RS232 port to the MTL4840 Series' backplane RS485 connector.

Instrument management software

APPROVALS - *FOR THE LATEST CERTIFICATION INFORMATION VISIT WWW.MTL-INST.COM/CERTS_1.NSF*

Country	US
Authority	FM
Standard	Class 3600, 3611, 3810
	Class 1, Div 2, Gps ABCD

Product No.	Certificate No.
MTL4841	3009149
MTL4842	3009149
HCU16	3009149
BPMH64	3009149