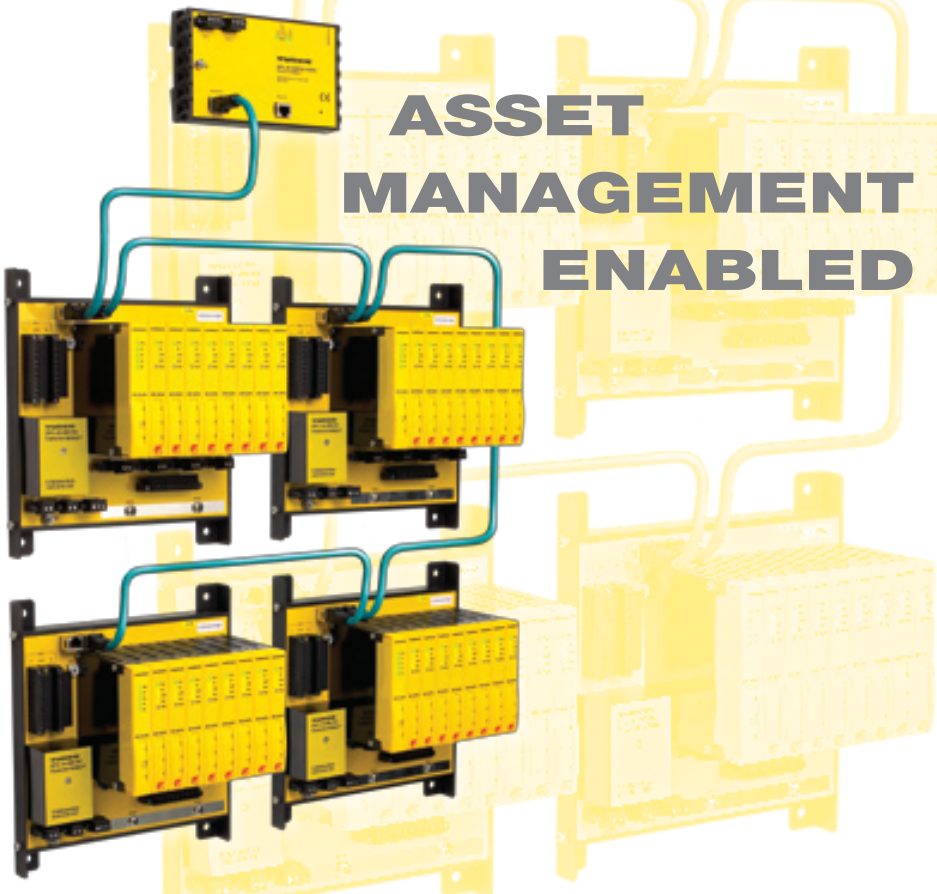




TURCK

**PROCESS
AUTOMATION**

**FOUNDATION™
fieldbus
Diagnostic
Power
Conditioner
System**



**ASSET
MANAGEMENT
ENABLED**

....Point To Point!....Point To Bus!....Bus To Bus!

www.turck.us

The Diagnostic Power Conditioner System

The DPC-System (Diagnostic Power Conditioner System) is a power supply system for the installation of FOUNDATION™ fieldbus H1 segments. It also provides comprehensive diagnostic functions for monitoring FOUNDATION fieldbus segments, and supports asset management for the entire physical layer.

A DPC system consists of one or more module racks (DPC-49-MB-RC), each with up to eight isolated power supply modules (DPC-49-IPS), and one advanced diagnostic unit (DPC-49-ADU). Up to four H1 segments for each module rack can be operated and monitored redundantly. The diagnostic data from the H1 segments is transmitted via the HSE field device (DPC-49-HSEFD/24VDC) to the higher level asset management system.

The advanced diagnostic unit (DPC-49-ADU) is used as a communication and diagnostic interface between the H1 segments and the HSE field device, and monitors the electrical and communication parameters of the H1 segments. Operation without the advanced diagnostic unit is possible. In this configuration, a simple diagnostics unit provides local diagnostics.

The diagnostic information that is collected is then transmitted via the HSE field device to the higher fieldbus level (e.g. to the host) as diagnostic and alarm data. The diagnostic units and isolated power supply modules can be plugged and unplugged during operation (hot swappable).

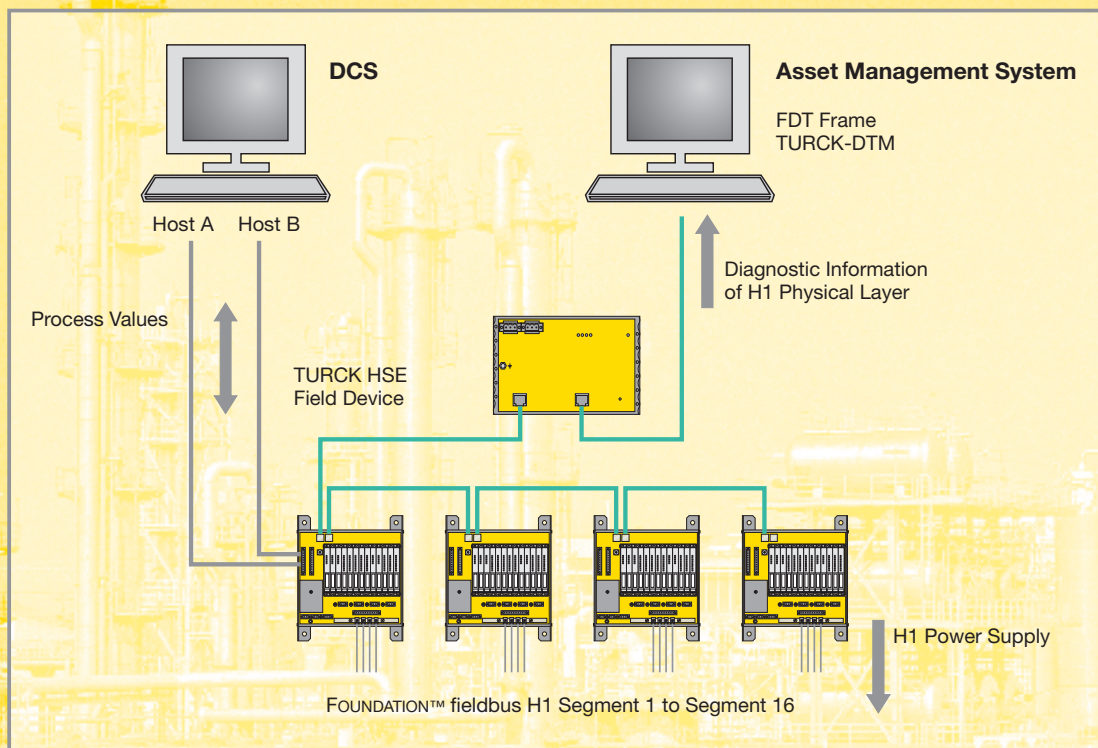
The DPC system provides complete galvanic isolation; H1 to H1, H1 to 24 VDC power, ADU/DU to H1, and HSE to H1.



Diagnostics Via DTM



DPC System Diagnostics



Fieldbus - The Dynamic Asset

Information concerning the components of the control system and field devices is typically stored and monitored by that control system. Information concerning assets that make up the communication infrastructure (physical layer components) are simply stored in an asset management system – until now.

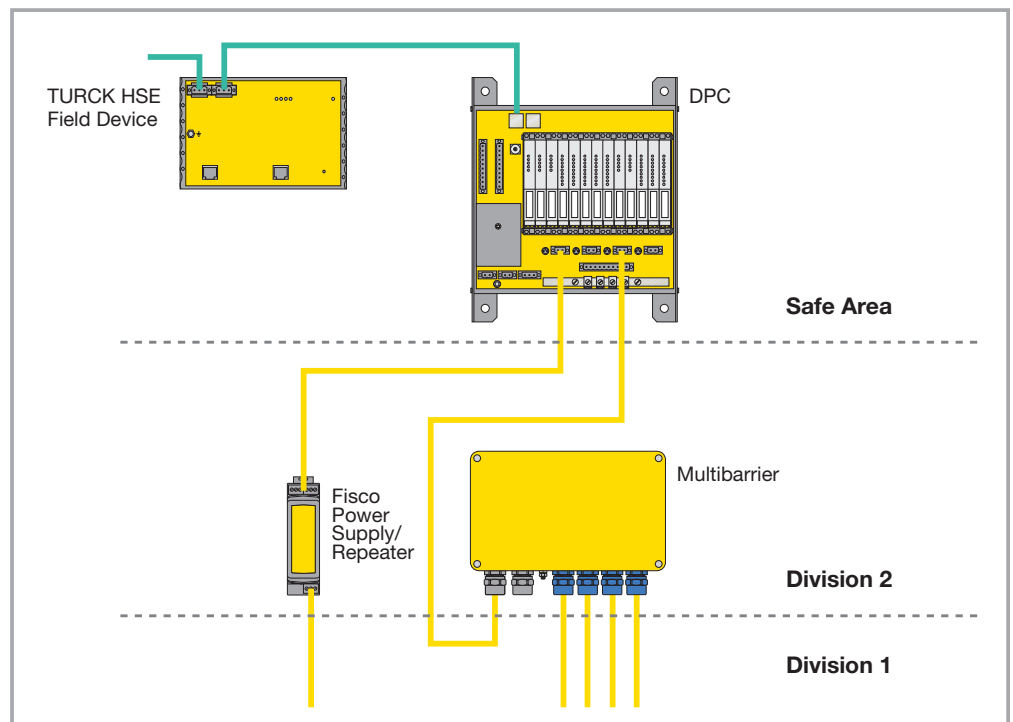
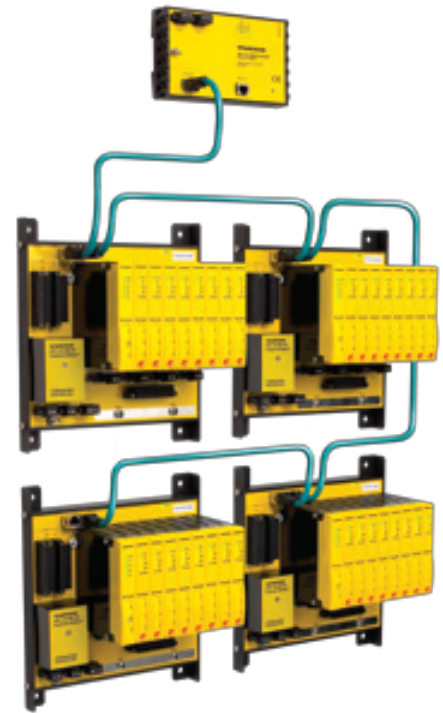
With the DPC system, the physical layer components are continuously monitored providing virtually instantaneous information regarding the quality and the status of the communication link.

This aspect of the system is the key to achieving the main objective of asset management: **to minimize maintenance and lower system operating costs.**

TURCK has made drastic improvements to existing physical layer components for use in FOUNDATION™ fieldbus applications. By continuously monitoring every physical layer component, the DPC treats the entire physical layer as an asset and manages it accordingly. The DPC system also supports the set-up of fieldbus assets by using localization of error sources, as well as documentation indicating a “good condition” of the segment structure.

The DPC system provides an option for redundant segment supplies. The system, fully loaded, can accommodate up to 16 fully redundant FOUNDATION fieldbus segments, each with an output of 800 mA and 30 VDC. Diagnostic data is available via a DTM, standard FOUNDATION fieldbus function block libraries or an embedded web server in the HSE field device.

The DPC system can also be used to supply devices in hazardous classified areas when Fisco power supplies/repeaters or multibarriers from TURCK are used.



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Diagnostic Power Conditioner System



Backplane for the DPC System: DPC-49-MB-RC



The module rack DPC-49-MB-RC consists of a backplane and the actual rack system for the power supply modules and the diagnostic unit.

The single components of the system are electrically linked via the connection terminals of the backplane from the user side. From an electrical perspective, the backplane is considered passive (no electrical components).

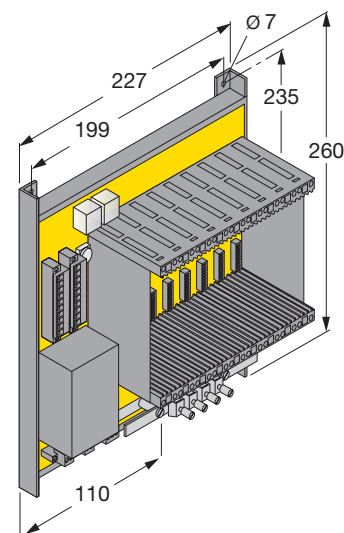
The power can be supplied via two 2-pole screw connectors. The connection to the host system is established via two system cables. Optional pre-assembled system cables are available at TURCK.

Features:

- Backplane for up to 8 power conditioner modules and 1 diagnostics module
- Exchangeable EMC filter
- Redundant host connection
- Redundant power supply
- Removable terminal blocks with screw connection
- RJ45 connector for HSE fieldbus diagnostics
- Insulated shield terminals
- Terminating resistor with segment output

Part Number ID Number	DPC-49-MB-RC M6882010
Fieldbus Standard	IEC 61158-2
Operating Voltage (Pwr) Surge/Overvoltage Suppression	18 to 32 VDC <250 mA
Connection	Removable terminal block, reverse polarity protected, screw connection RJ45 socket
Protection Degree Ambient Temperature Housing Material Housing Color Dimensions Mounting	IP 20 -20 to +60°C (-4 to +140°F) Aluminum / Plastic Black / Yellow 227 x 260 x 110 mm Flush Panel

Dimensions (mm)



Power Supplies

Part Number ID Number	IMB2-2450 M7545025
Voltage Supply Voltage Output	94-265 VAC 24 VDC / 5 A



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Diagnostic Power Conditioner System



Power Supply Module: DPC-49-IPS



The power supply module provides up to 30 VDC and 800 mA for the installation of the segment. Due to this broad segment allocation (up to 1900 m) is possible without restriction.

If two power supply modules are applied, a redundant operation of the segment is possible. Therefore the power supply modules can be plugged and unplugged during operation (hot swappable).

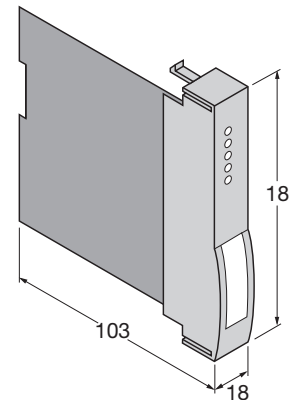
The device features a LED display for segment status.

Features:

- Supply of a FOUNDATION™ fieldbus H1 segment
- Output current: 800 mA
- Output voltage: 28 to 30 VDC
- Local diagnostics via LEDs
- Complete galvanic isolation

Part Number	DPC- 49- IPS
ID Number	M8882013
Fieldbus Standard	IEC 61158-2
Supply Voltage	Via the blackplane
Current Consumption	0.8 to 1.7 A
Galvanic Isolation	Complete galvanic isolation, test voltage 500 VAC
Output Circuits	Field
Output Current	≤800 mA
Output Voltage	>28 VDC
Short-circuit Protection	≤850 mA
Efficiency	80%
Output Circuits	HOST
Output Current	<30 mA
Output Voltage	<27 VDC
Indication	
Operational Readiness	1 x green
Output Active	1 x yellow
Output Current	1 x yellow
Short-circuit Message	1 x red
Bus Communication	1 x yellow
Protection Degree	IP 20
Ambient Temperature	-20 to +60°C (-4 to +140°F)
Housing Material	Plastic / flammability class V-0 to UL 96
Housing Color	Yellow
Dimensions	18 x 118 x 103 mm

Dimensions (mm)



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Diagnostic Power Conditioner System



HSE Field Device: DPC-49-HSEFD/24VDC



The diagnostic data from the H1 segments is transmitted via the HSE field device module DPC-49-HSEFD/24VDC to the higher level Asset Management System.

Only the diagnostic data from the DPC-49-ADU is transmitted, not the process data of the H1 field device. Each diagnostic unit monitors up to four H1 segments.

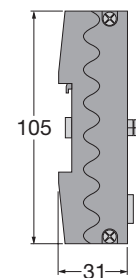
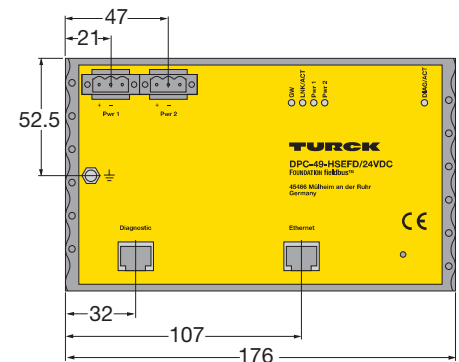
The HSE interface module is a FOUNDATION™ fieldbus field device that contains one resource and one transducer block and various standard function blocks. On the basis of these standard function blocks, suitable applications for the analysis of the diagnostics data can be programmed in the control system.

Features:

- HSE interface module for the transmission of diagnostic data
- FOUNDATION™ fieldbus function blocks for remote diagnostics
- Local diagnostics via LEDs
- Continuous diagnostics for sixteen H1 segments
- Complete galvanic isolation

Part Number ID Number	DPC-49-HSEFD/24VDC M6882014
Fieldbus Standard	IEC 61158-2
Supply Voltage Current Consumption Galvanic Isolation	Two power terminals - PWR1 & PWR2 <100 mA Complete galvanic isolation, test voltage 500 VAC
Indication Operational Readiness State / Fault Bus Communication Int. Communication (CAN)	2 x green 1 x yellow / red 1 x green / yellow 1 x yellow / red
Protection Degree Ambient Temperature Housing Material Housing Color Dimensions Connection Mode	IP 20 -20 to +60°C (-4 to +140°F) Aluminum / Plastic Black / Yellow 176 x 105 x 31 mm Snap-on DIN rail (DIN 50022)

Dimensions (mm)



Cordset Accessories

Part Number	RJ45S RJ45S 841- *M
TURCK offers RJ45 cables for connections between the backplane, HSEFD and Ethernet network.	



* Cable Length in Meters.

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Diagnostic Power Conditioner System



Advanced Diagnostic Unit: DPC-49-ADU



The diagnostic unit DPC-49-ADU is used as a communication and diagnostic interface between the H1 segments and the power supply module. The diagnostic unit monitors the electrical and communication parameters of the H1 segments. Operation without a diagnostic unit is possible.

The diagnostic information transmitted via the HSE field device to the higher fieldbus level (e.g. to the host) as diagnostic and alarm data. The diagnostic unit can be plugged and unplugged during operation (hot swappable).

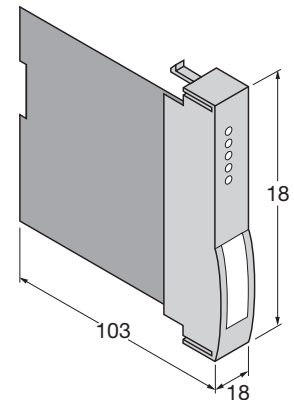
The device features a LED display which indicates the operating status of the H1 segments. Alarm signals can also be transmitted via a relay contact.

Features:

- Continuous diagnostics for 4 H1 segments
- Local diagnostics via LEDs
- Alarm signal via relay contact
- Complete galvanic isolation

Part Number ID Number	DPC- 49- ADU M6882012
Fieldbus Standard	IEC 61158-2
Supply Voltage Current Consumption Galvanic Isolation	Via the backplane <100 mA Complete galvanic isolation, test voltage 500 VAC
Diagnosis Switching Current Switching Voltage	1 x relay ≤1 A ≤30 VDC galvanically isolated against other electronic parts
Operational Readiness Alarm	1 x green / red 4 x yellow / red
Protection Degree Ambient Temperature Housing Material Housing Color Dimensions	IP 20 -20 to +60°C (-4 to +140°F) Plastic Yellow 18 x 118 x 103 mm

Dimensions (mm)



DPC Accessories

Part Number ID Number Description	DPC- 49- BM DPC M6882015 Optional blank module for unused slots on motherboard
Part Number ID Number Description	DPC- 49- SB4 M6882017 Optional shield bar for motherboard



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