



stay connected

| Instruction Manual IMPACT67-P

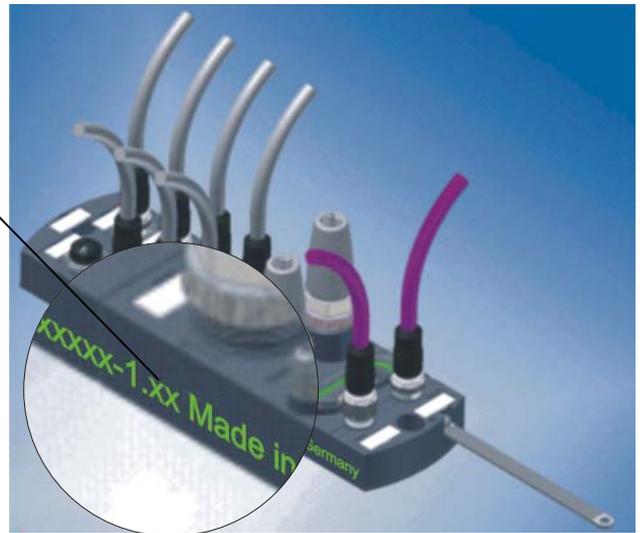


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Instruction Manual

Instruction Manual for Devices from the IMPACT67-P

For use with GSD Version 1 and HW Version 1



Article Number 55 345, IMPACT67-P DI16
Article Number 55 346, IMPACT67-P DI8/DO8
Article Number 55 347, IMPACT67-P DO8
Article Number 55 348, IMPACT67-P DO16

Publisher's Note

Instruction manual for devices from the IMPACT67-P product line, Article Number 55364

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Contents

Important Information

Typographical Conventions

This manual contains important notes that you should observe to guarantee your own safety and avoid material damage. These notes are marked in a special way as follows:



The texts of special notes refer to important information.



Danger notices refer to information that, if you fail to observe, may result in damage to equipment and other objects or, if appropriate precautions are not taken, may result in danger to the user's health or life.

Intended Purpose

Read this manual carefully before starting the equipment and keep it in a place that is accessible at all times for all users.

The products described in this manual were developed, manufactured, tested, and documented under strict compliance with safety standards. Normally, the products pose no danger to persons or property, provided the handling specifications and safety instructions contained in this manual are observed. The products meet the requirements of the European EMC Directive (89/336/EEC) and the European Machine Directive (98/37/EEC).

The products are designed for use in industrial environments. A feature of the industrial environment is that consumers are not directly connected to the public low-voltage power network. Extra precautions are required for use in residential, business, and commercial applications.

Troublefree and safe functioning of the product can only be assured through proper transportation, storage, installation, assembly, and operation with proper care and attention.

Use of the device for its intended purpose is only assured if the housing is fully mounted.



**Excellent resistance to chemicals and oils.
Before use with aggressive media, check the resistance of the materials to the application.**

The power supply must correspond to SELV¹ or PELV² standards. Power supplies as per EN 61558-2-6 (transformer), or as per EN 60950-1 (switched-mode power supply), meet this requirement.

System configuration, installation, startup, maintenance, and testing of devices may only be performed by an accredited, trained electrician familiar with automation technology safety standards.

The safety and accident prevention regulations valid for specific applications must be observed during the configuration, installation, startup, maintenance, and testing of devices.

Only cables and accessories may be installed, provided they conform to the requirements, regulations, and specifications for safety, electromagnetic compatibility, and, where applicable, telecommunications terminal equipment.

Information regarding cables and accessories approved for installation can be obtained from the Murrelektronik subsidiary in your region, and may also be found in this manual.

Qualified Personnel

The requirements for qualified personnel are based on requirements profiles defined by ZVEI and VDMA.

Only trained electricians who are familiar with the contents of the following manual may install and service the described products: "Weiterbildung in der Automatisierungstechnik" (Further Training in Automation Engineering), published by ZVEI and VDMA in the Maschinenbau-Verlag, Postfach 710864 in 60498 Frankfurt, Germany.

These are persons who are capable of assessing the work to be done and the possible dangers on account of their technical training, knowledge, experience, and knowledge of the relevant standards; or who have an identical level of knowledge equivalent to technical training since they have worked in the same area for many years.

Only Murrelektronik technical staff is allowed to make interventions in the hardware and software of our products.



Unqualified alteration of hardware or software, or failure to heed the warnings given in the manual, may result in severe personal injury or damage to property.

¹ Safety Extra Low Voltage

² Protective Extra Low Voltage

1. Configuration

1.1 Power Supply

Bus modules require a direct-voltage power supply of typically 24 VDC (SELF/PELF) which must comply with the regulations of conventional industrial power-utility companies.



In order to optimize immunity from interference, we advise you to power sensors, bus, and actuators from different sources. The power supply should be primary switched-mode or regulated power supplies.

The output of the power supply units is dependent on the number of connected electrical consumers and their output.



In any case, it must be ensured that the system voltage does not drop below 18 VDC viewed from the system power supplies and measured at the remotest slave. System response becomes unspecific if sensor and bus power supply drops below 18 VDC.



Primary switched-mode power supply units normally permit an increase in output voltage to the amount of the rated voltage in order to compensate for any power losses.

Modules with digital inputs support the direct connection of commercially available sensors. A separate power supply may be necessary for the sensors if the total power requirement is high due to the number of slaves or the sensors have a high power draw.

Recommended "MCS Power" power supply units

Primary switched-mode power supply units from the MCS Power series are specially designed to power automation systems. For this reason, we recommended them to power the modules.



→ *Please refer to our accessory information on page 36.*

Wire Cross-Sections

The wire cross-section may be max. 1.5 mm². It is limited to this maximum cross-section by the 7/8" connector.

1.2 Electromagnetic Compatibility (EMC)



This device meets the requirements of EC Directive 89/336/EEC "Electromagnetic Compatibility".



This device is Class A equipment and causes radio-frequency interference in residential areas. In this case, the operator may be required to implement adequate countermeasures.

The devices described in this manual each meet the relevant standards for electromagnetic compatibility. However, this does not mean that their electromagnetic compatibility is still guaranteed when fitted to a plant or machine.

For this reason, we urgently advise you to comply with the instructions on installation in accordance with EMC requirements below. Only then can you assume that the overall system complies with EMC requirements, provided CE-marked components are used exclusively.

Protection Against Electrostatic Discharge

The products described in this manual contain complex semiconductor components which may be destroyed or damaged by electrostatic discharge (ESD).

Damage does not necessarily lead to immediate, detectable failure, or malfunction. These states may be even delayed, or occur sporadically.

The generally accepted safety precautions for ESD sensitive devices must be observed when handling the devices. The following precautions in particular must be taken:



Never unplug or plug in connectors live.

If you are an operator, discharge any static charge you may be carrying just before you touch equipment. For example, you can touch a grounded part of the machine, or wear an ESD discharge strap permanently connected to ground.

Grounding

A short (as short as possible), low-impedance connection between the grounding point and the reference ground is essential to divert interference voltages running between the device and reference ground.

The inductance of standard FE conductors is a high impedance for high-frequency interference voltages. For this reason, the use of grounding straps is advisable. If this is not possible, a fine-wire FE conductor should be selected with the largest possible cross-section, and the connection to ground should be kept as short as possible.

Cable Routing

You can avoid EMC problems by observing elementary basic rules of cable routing:

- Route data lines as far away from power lines as possible.
- Route data lines and power lines at least 10 cm apart.
- Only intersect data and power lines at right angles.
- Route data and power lines in separate, shielded compartments.
- Remember the interference potential of other devices or lines when you route the cables.
- Place frequency converters, motor lines, and other devices and lines that emit high-frequency interference at the greatest possible distance.

Blackouts and Brownouts

Transient voltage cutoffs (<10 ms) normally pose no operational problems as the electronics are protected by capacitors integrated in the power circuits. This does not apply to the power supplies of the sensors and actuators connected to the module. Their high power requirement cannot be covered by the capacitors integrated in the device. For this reason, even transient interruptions in actuator voltage result in undesirable switching operations.

Due to the integrated input filter, a change in the input signal of less than 1 ms leads to no change in the input state signaled to the Master. Longer interruptions in sensor supply may lead to input signal changes.

Separate Power Supplies

Sensors or actuators can be powered by common power supply units. However, it is preferable to use separate power supplies in order to maximize the electromagnetic compatibility of the overall system.

Interference Suppression of Inductive Loads

The outputs of the devices described in this manual have an integrated protective circuit that provides safety against high-energy interference voltages, such as those that occur when inductive consumers are switched.

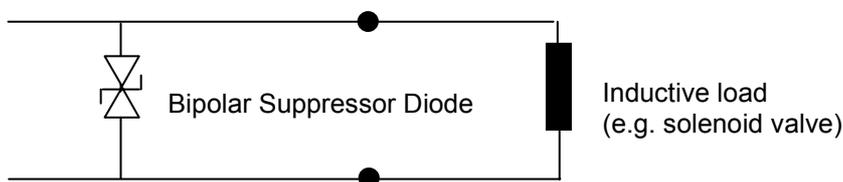


Fig. 1: Interference Suppression of Inductive Loads

A suppressor diode helps to reduce quickly the energy stored in the inductive load of a magnetic field. However, it is recommended to use commercially available protection circuits for inductive loads, especially loads in the range of the maximum current-carrying capacity of a channel at switching frequencies of > 1 Hz. These protection circuits can reduce the energy stored in the connected inductances.

The high voltages that occur when inductive loads are shut down result in strong fields in the cables with consequential faults in adjacent circuits or devices.



Murrelektronik GmbH can supply you with a wide selection of interference suppression products for this purpose.



→ *Please refer to our catalog or visit www.murrelektronik.com.*

Other Measures and Limits

In some system configurations, the requirements for interference emission and immunity from interference can only be met with additional measures, or even not at all. In these cases, the EMC within the system is also dependent on the single components of other manufacturers.

- Mains filters are a suitable means of reducing line-conducted interference.
- Various manufacturers offer optical-fiber converters. This data transmission technology is basically immune to EMC interference. However, this does not apply to the electronic conversion circuits. For this reason, the use of optical fibers does not solve all EMC problems.



Our certified test center is available to answer any further queries you may have on EMC. There, you will also receive advice on guaranteeing compliance with the EMC Directive for the systems you produce.

**Murrelektronik Test Center
Grabenstrasse 27
71570 Oppenweiler
Tel. 0049 7191 47-334
Fax 0049 7191 47-323**

Pruefzentrum@murrelektronik.de

1.3 Replaceability

IMPACT67-P modules can replace the phased-out MBV-P modules. This means that modules of identical type are physically replaceable. It is no problem to replace an MBV-P module with an IMPACT67-P module. Channel assignment and diagnostic messages are identical. It is also unnecessary to load a new GSD file. IMPACT67-P modules are capable of running with MBVP3101.gsd. The MURR3101.gsd file is available for new configurations, or for adapting an existing configuration to the current article numbers of IMPACT67-P modules. The table shows the replaceability in each case.

MBV-P	Replaceable by	IMPACT67-P
DI16 (55453/55483)	✓	DI16 (55345)
DI8/DO4 2A (55452/55482)	✓	DI8/DO8 2A (55346)
DO8 2A (55451/55481) - DO8 1.6A (55484)	✓	DO8 2A (55347)

Table 1: Replaceability of the modules

2. Installation

2.1 Mounting

Modules of the IMPACT67-P product lines can be mounted directly on an installation wall or on a machine. Two mounting holes are provided for this purpose in the module.

Before mounting a module, make sure the mounting surface has no unevenness that will cause mechanical stresses in the housing.

Two bolts with a diameter of 6 mm and two DIN 433 T1/T2 washers are required to mount each module. The correct tightening torque is 3 Nm.

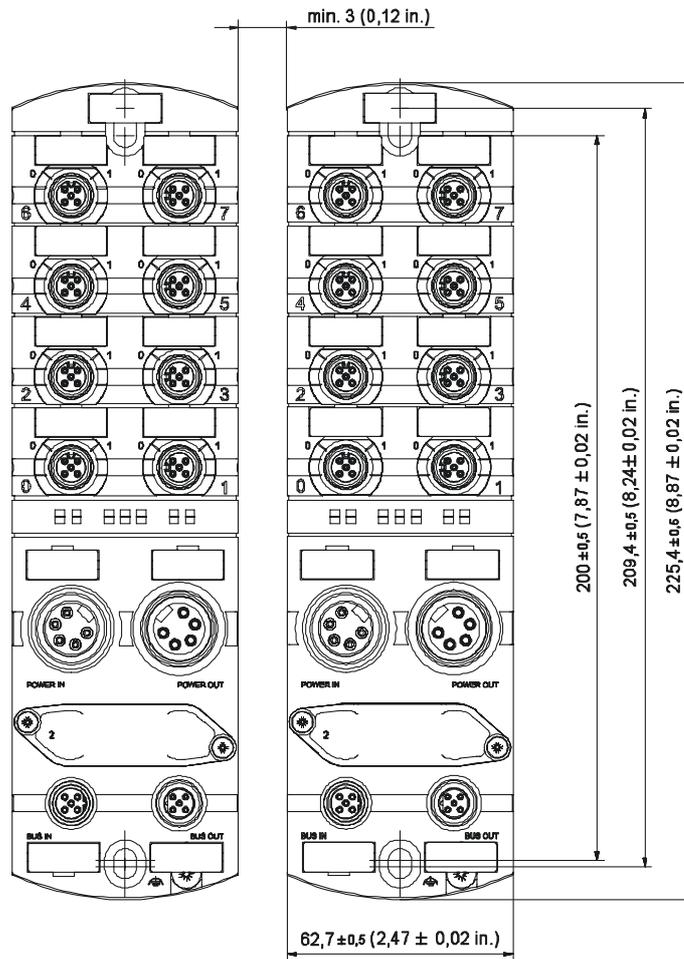


Fig. 2: Figure: Mounting dimensions



We advise you to maintain a minimum spacing of 3 mm when mounting the IMPACT67-P to guarantee professional installation and enhanced heat dissipation.

Angled plugs from Murrelektronik require a minimum spacing of 50 mm.



→ Please refer to our accessory information on page 36.

Function earth

The FE connection is located at the bottom front edge of the module. To guarantee proper functioning in compliance with the EMC regulations specified in the datasheet, we recommend the use of our grounding strap which is not supplied with the module, but can be ordered from us separately.

 → Please refer to our accessory information on page 36.



 M4 \curvearrowright $1,2^{+0,2}$ Nm
 $10,7^{+1,8}$ lb-in

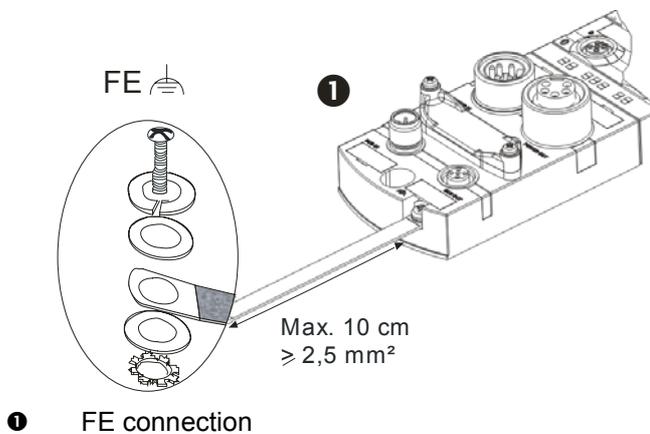


Fig. 3: Function earth



Make a low-impedance connection from the FE connection on the housing to the function ground (see instructions on the subject of EMC).

2.2 Overview of Terminals

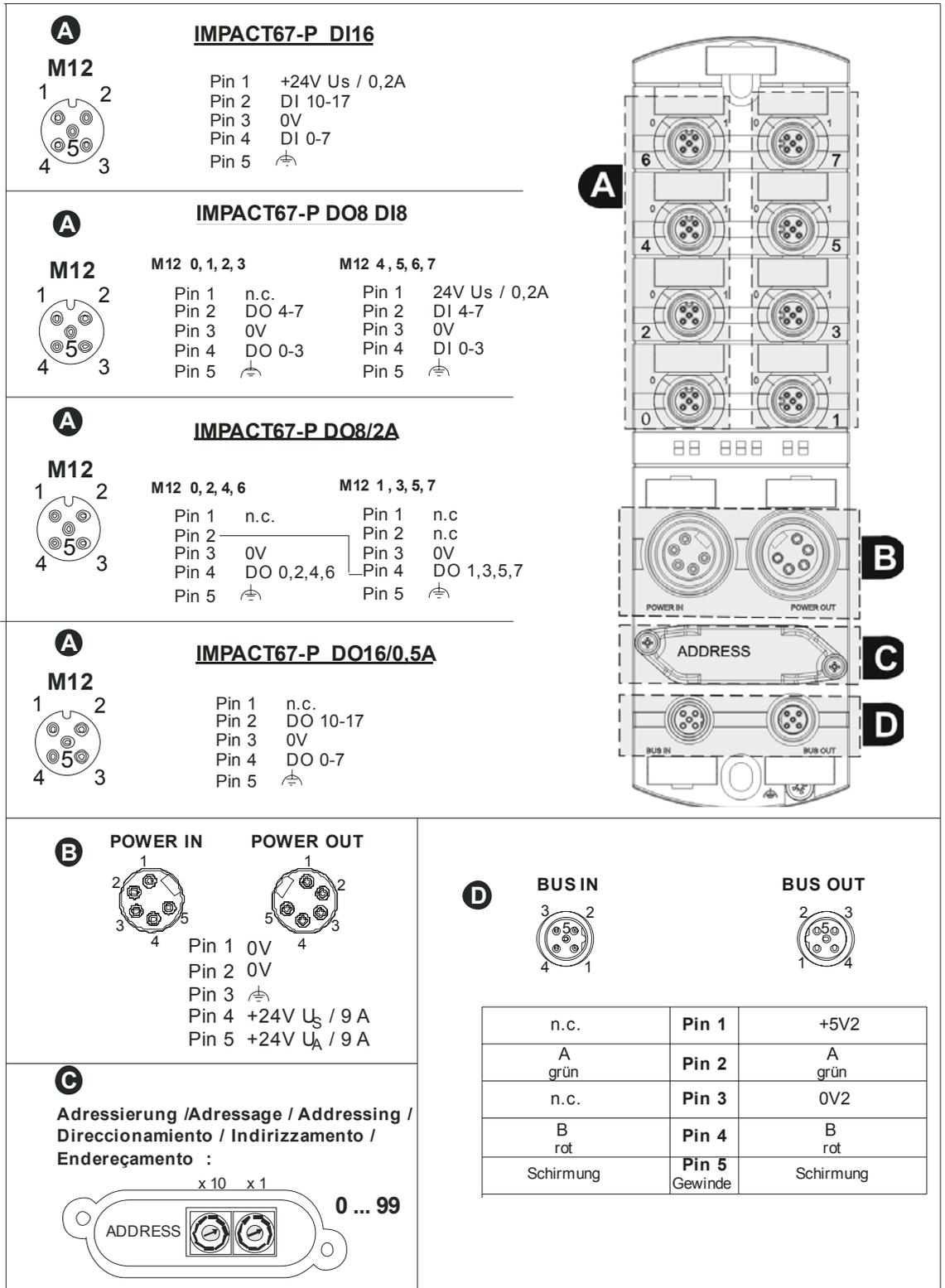
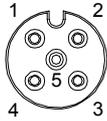


Fig. 4: Pin assignment and overview of terminals

2.2.1 Connecting Digital Sensors and Actuators



Pin 1	+ 24 V	Sensor Power Supply
Pin 2	Function channel 1x	Channel
Pin 3	0 V	Reference potential
Pin 4	Function channel 0x	Channel
Pin 5	FE	Function ground

Fig. 5: M12 socket assignment



Close unused sockets with blank plugs to guarantee IP67 protection.

Sensor Power Supply

Sensors can be powered via Pin 1 (+24 V) and Pin 3 (0 V) of the M12 socket. The sensor power supply is protected for each M12 socket. This protection is always self-resetting. The maximum current draw for the sensor power supply is 200 mA per M12 socket. Note the derating in the drawing below:

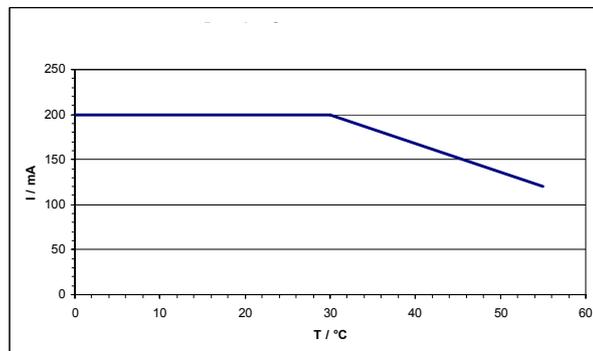


Fig. 6: Sensor supply derating

Actuators

On the DO8 and DI8/DO8 variants, every output can be loaded to a maximum of 2 A.
On the DO16 variant, every output can be loaded to a maximum of 0.5 A.

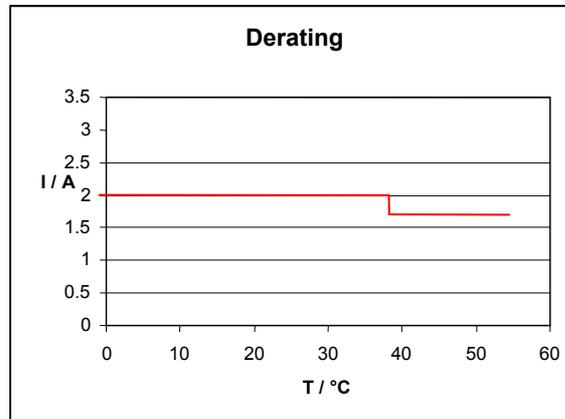


Fig. 7: Derating of the outputs



**Due to the maximum current-carrying capacity of the 7/8" power connector, the total current of 9 A should not be exceeded.
If there are further actuator power supply loops, the total current of all modules may not exceed 9 A.**

The module may sustain damage if the actuator power supply has the incorrect polarity.

Module heat output depends on load intensity.



**If an overload or short-circuit occurs at an output, the output is switched off.
After the fault is cleared, the output is switched back on.**

To achieve a faster short-circuit cutoff time, we advise you not to exceed the following lengths:
max. 15 m supply line 1.5 mm² and max. 1.5 m actuator line 0.75 mm²
max. 10 m supply line 1.5 mm² and max. 3 m actuator line 0.75 mm²

2.3 Wiring-Up

2.3.1 Wiring Up the Profibus

Cables

The bus line must be designed to EN 50170 Part 2 (line type A). To ensure the simplest and most reliable wiring possible, we recommend using our Prewired Profibus lines.



→ **Please refer to our accessory information on page 36.**

Connecting to IMPACT67-P

- ① Connect function ground with FE connection to casing.
- ② Connect incoming Profibus cables to incoming bus terminal.
- ③ Connect any continuing Profibus cables to continuing bus terminal
- ④ or screw on terminating resistor to continuing bus terminal.



Each Profibus segment must be installed with a terminating resistor at start and end.

2.3.2 Connecting the Power Supply



The module may be damaged if the power supply unit has the incorrect polarity. We therefore recommend you use our prewired 7/8 lines.

Connecting the Power Supply to the Module

Auxiliary power is required to feed the actuators and sensors. The IMPACT67-P electronics are powered by the sensor power supply.



The sensor power supply should not be switchable.



The 7/8" connector is designed for a maximum current of 9 A per pin. This must be considered if the power supply has additional loops.

3. Startup

3.1 Allocating and Setting the Profibus Address

The Profibus address is set directly on the IMPACT67-P by means of two BCD rotary switches. The permissible values range from 0 to 99. It is normal to assign address 0 to 2 to a DP master. For this reason, we advise you to start the address settings with Address 3 on IMPACT67-P.



The set address is read in once after the supply voltage is applied. Therefore, a change of address only takes effect after a module voltage reset.

It is important to ensure that an explicit and unique address is assigned to each Profibus slave.

3.2 GSD File

IMPACT67-P modules are capable of running with MBVP3101.gsd. The MURR3101.gsd file is available for new configurations, or for adapting an existing configuration to the current article numbers of IMPACT67-P modules.

The file extension denotes the language version. The GSD files are available in six languages.

Language	File ending
*.gsd	Default = English
*.gse	English
*.gsg	German
*.gss	Spanish
*.gsf	French
*.gsi	Italian
*.gsp	Portuguese

Table 2: Language versions of the GDS-File

The GSD file is available for download from the Murrelektronik website:
www.murrelektronik.de

3.3 Configuration

It is necessary to configure a Profibus DP Slave to define the I/O data quantity and to reserve addresses in the controller.

IMPACT67-P represents a physically compact device. However, it is treated as a modular system in the DP system.

Data Module Format

Header Modules	Data Width	ID
IMPACT67-P DI16, 55 345	2 bytes	00 _{hex} 11 _{hex}
IMPACT67-P DI8/DO8, 55 346	2 bytes	20 _{hex} 10 _{hex}
IMPACT67-P DO8, 55 347	1 byte	20 _{hex} 00 _{hex}
IMPACT67-P DO16, 55 348	2 bytes	21 _{hex} 00 _{hex}

Table 3: Data Module Format

Relationship between Channel Number and Pin/Socket

The channel number defines the socket and the associated pin. Example: Channel number is 12, this corresponds to Pin 2 (x=1) of socket no. 2 (Y=2).

Channel Number = XY	X	Y
X = 0	Pin 4	
X = 1	Pin 2	
Y = 0 to (number of sockets)		Number of socket

Table 4: Relationship between Channel Number and Pin/Socket

**Bit assignment for DO8 (Art.No.: 55347) / DI16 (Art.No.: 55345) /
DO16 (Art.No.: 55348)**

Bit assignment 1st byte: *relevant for DO8, DI16, DO16*



Fig. 8: Bit assignment 1st byte

Bit assignment 2nd byte: *relevant for DO16, DI16*



Fig. 9: Bit assignment 2nd byte

Bit assignment for DI8 DO8 (Art.No.: 55346)

Bit assignment 1st byte (outputs)



Fig. 10: Bit assignment 1st byte

Bit assignment 2nd byte (inputs)



Fig. 11: Bit assignment 2nd byte

3.4 Parameterization

The PROFIBUS-DP Master can transfer parameterization data to the IMPACT67-P module in the parameterization telegram. The parameterization telegram has the following format:

Bytes 1-7: For parameterization data, see IEC 61158 (Set_Parameter Telegram min. 7 bytes)
This is a default transmit telegram from your Profibus Master to the Slave.

This is followed by maximum three user-specific parameter bytes, depending on the module.
Your control software contains the following selection criteria for device-specific parameters for the 1st byte, which is identical on all IMPACT67 modules:

Diagnostic messages:

They define whether to enable global diagnostics or not.

Enabled (bit to "0") means that a diagnostic error in diagnostic bytes 7, 8, and 9 (see section 4.2) is always signaled. If global diagnostics is disabled (bit to "1"), an error in diagnostic byte 7 is only signaled if there is also an error in diagnostic bytes 8 and 9. In the default setting, global diagnostics are always enabled.

Response monitoring:

Defines the watchdog timer time base. Select between 10 ms (default) and 1 ms.

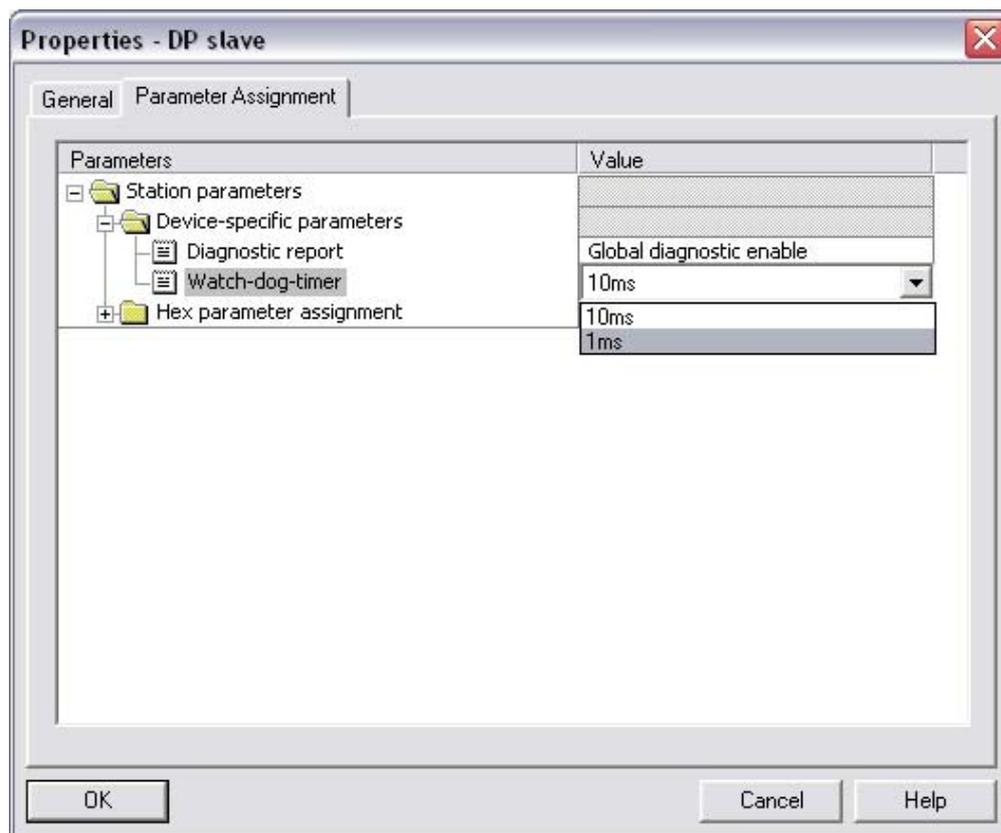


Fig. 12: Parameterization of global diagnostics and response monitoring

Depending on the module variant, two additional bytes are available to parameterize the channel diagnostic data. The figure below shows parameterization of the IMPACT67-P DO16 55348 module. All diagnostics are always signaled as default. The short-circuit message can be switched on (bit to "0") or off for each channel. Channel assignment in the diagnostic bytes is described in section 4.2.

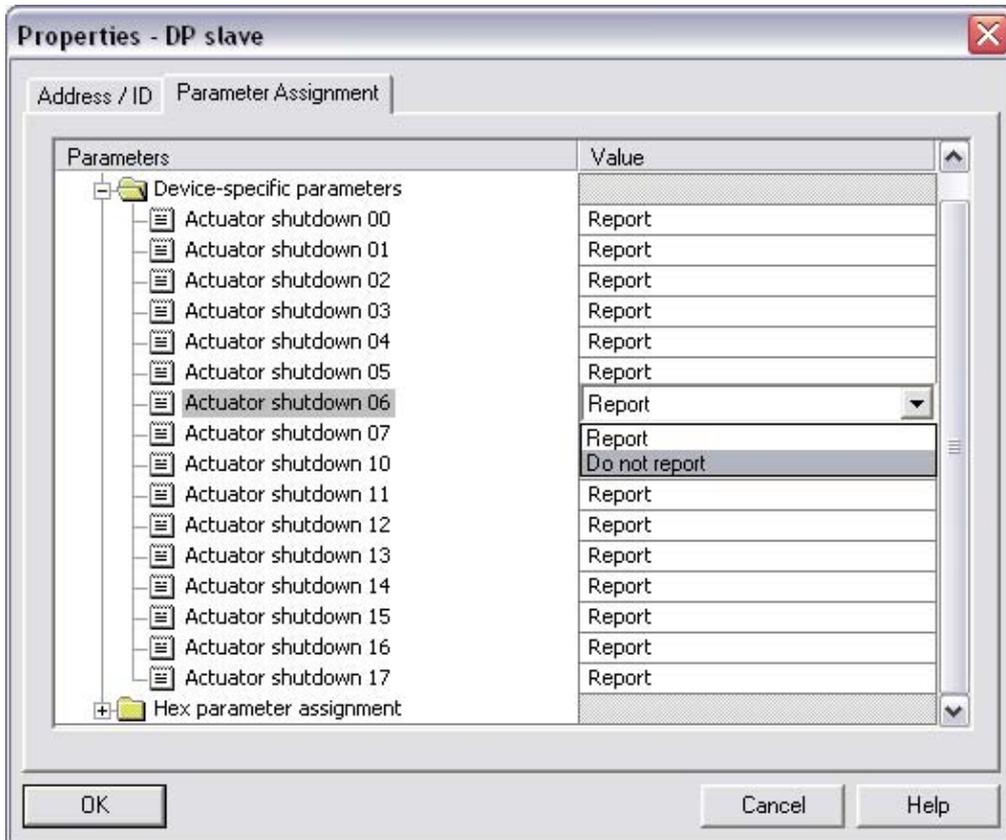


Fig. 13: Parameterization of actuator switchoff message

Example: Configuration of an IMPACT67-P with the S7 Hardware Manager

① The IMPACT67-P is under "Other Field Devices" and "I/O" in the Simatic Manager hardware catalog.

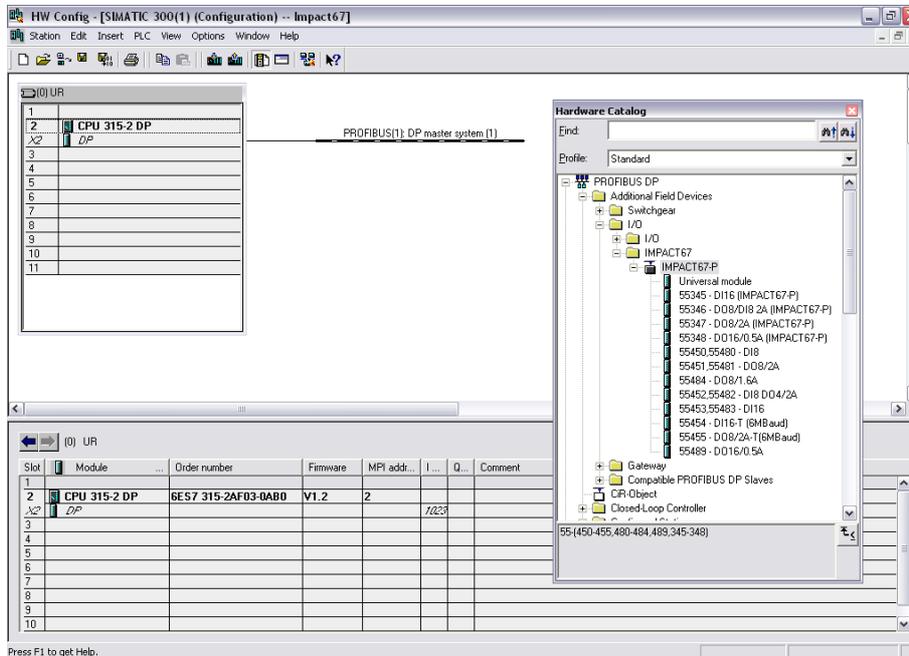


Fig. 14: 1st step: Configuration of an IMPACT67-P with the S7 Hardware Manager

② Select the "IMPACT67-P" and drag the entry while holding down the left mouse button, or double-click on the Profibus string.

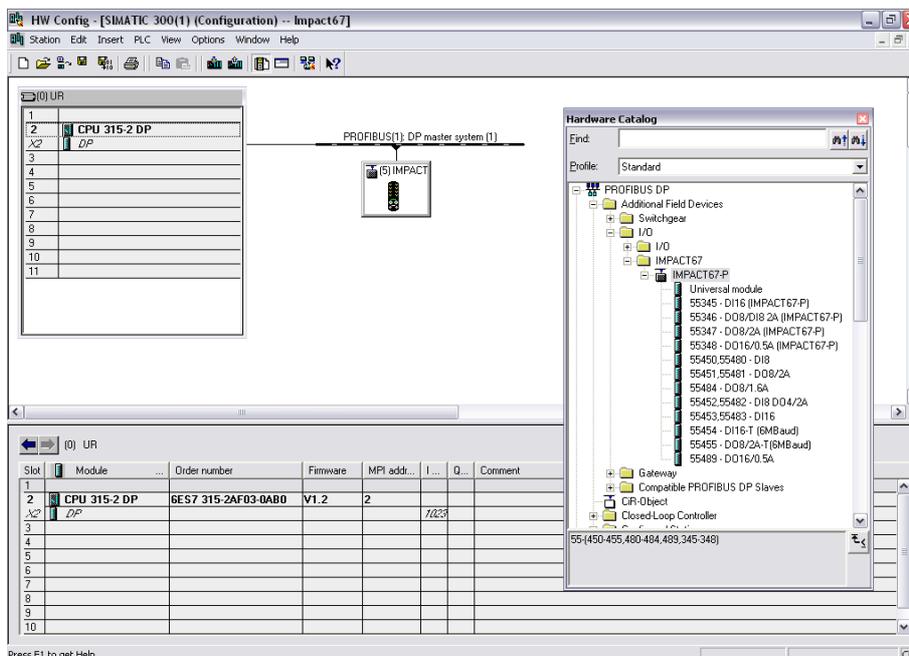


Fig. 15: 2nd step: Configuration of an IMPACT67-P with the S7 Hardware Manager

- ③ Select the right module (here: "IMPACT67-P DI16 55 345") from the hardware catalog and always paste the header module in slot 0 of the table.

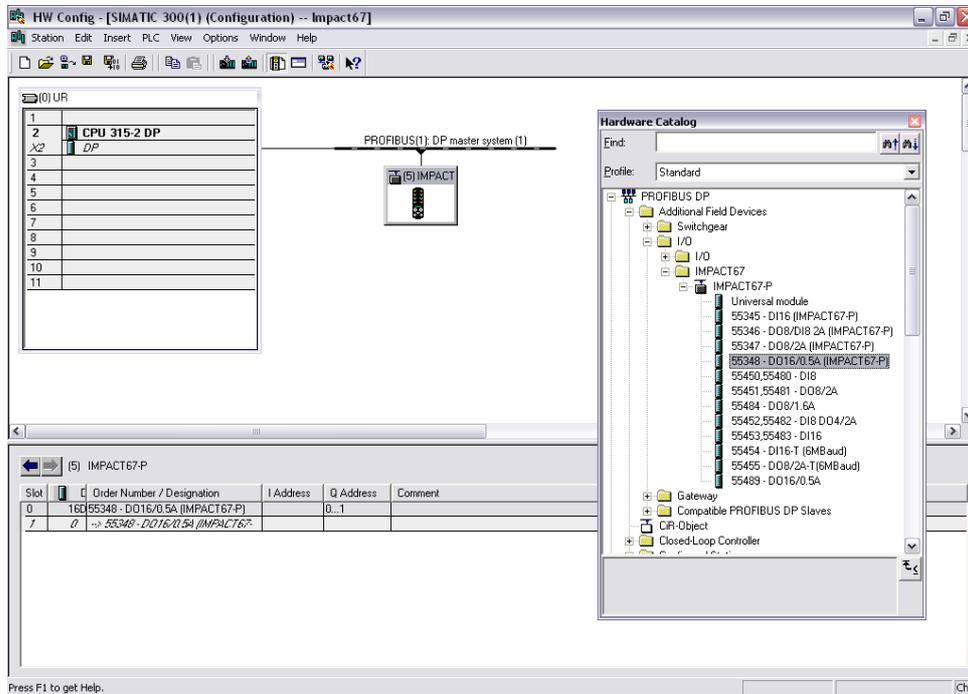


Fig. 16: 3rd step: Configuration of an IMPACT67-P with the S7 Hardware Manager

- ④ Double-click on the header module to obtain a list box containing the parameter settings. Select the necessary settings.

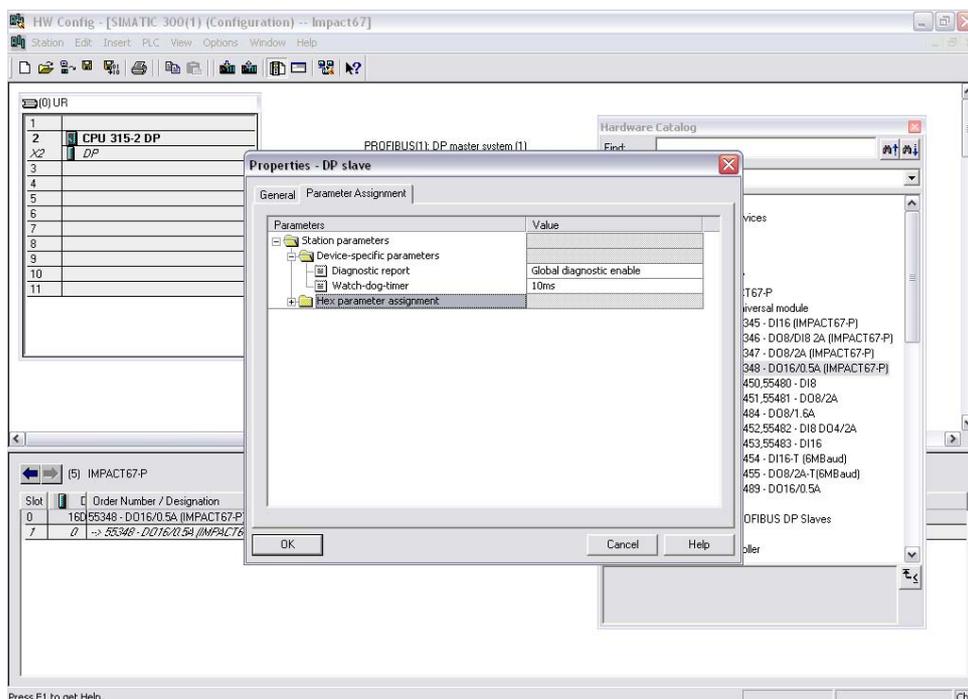


Fig. 17: 4th step: Configuration of an IMPACT67-P with the S7 Hardware Manager

4. Diagnostics

4.1 LED Display

Channel-related diagnostics are displayed by the LED assigned to the channel on the M12 socket. On the right next to the BUS LED, there are four LEDs that display the power supply status. The tables below indicated the relationship between the fault cause and the LED display.

BUS LED

LED	Display	Description
Bus Run	Green fixed light	Bus runs OK
Bus Run	OFF	Bus not initialized, bus not OK

Table 5: BUS-LED

IMPACT67-P DI16, Art.No. 55345

Error	LED at M12 socket		LED Designation	
	Socket no. x		U _s	U _s
	Channel 0x	Channel 1x	Error	POWER
Module power supply undervoltage			Red	>18 V green
Short-circuit (sensor power supply)	both red			

Table 6: LED Display of the IMPACT67-P DI16

IMPACT67-P DI8 DO8, Art.No. 55346

Error	LED at M12 socket		LED Designation			
	Socket no. x		U _A	U _s	U _A	U _s
	Channel 0x	Channel 1x	Error		POWER	
Module power supply undervoltage				Red	OFF	OFF
I/O power supply undervoltage			Red		OFF	OFF
No actuator supply			OFF		OFF	
Actuator shutdown	Red	Red				
Short-circuit (sensor power supply)	both red					

Table 7: LED Display of the IMPACT67-P DI8 DO8

IMPACT67-P, DO8, Art. 55347

Error	LED at M12 socket		LED Designation			
	Socket no. x		U _A	U _S	U _A	U _S
	Channel 0x	Channel 1x	Error		POWER	
Module power supply undervoltage				Red		OFF
I/O power supply undervoltage			Red		OFF	OFF
No actuator supply			OFF		OFF	
Actuator shutdown	Red					

Table 8: LED Display of the IMPACT67-P DO8

IMPACT67 DO16, Art.No. 55348

Error	LED at M12 socket		LED Designation			
	Socket no. x		U _A	U _S	U _A	U _S
	Channel 0x	Channel 1x	Error		POWER	
Module power supply undervoltage				Red		OFF
I/O power supply undervoltage			Red		OFF	OFF
No actuator supply			OFF		OFF	
Actuator shutdown	Red	Red				

Table 9: LED Display of the IMPACT67-P DO16

4.2 Diagnostic Telegram Format

Diagnostic information consists of standard diagnostic information (6 bytes) and manufacturer-specific diagnostic information.

Bytes 0 to 5: Standard diagnostic information

Byte 0

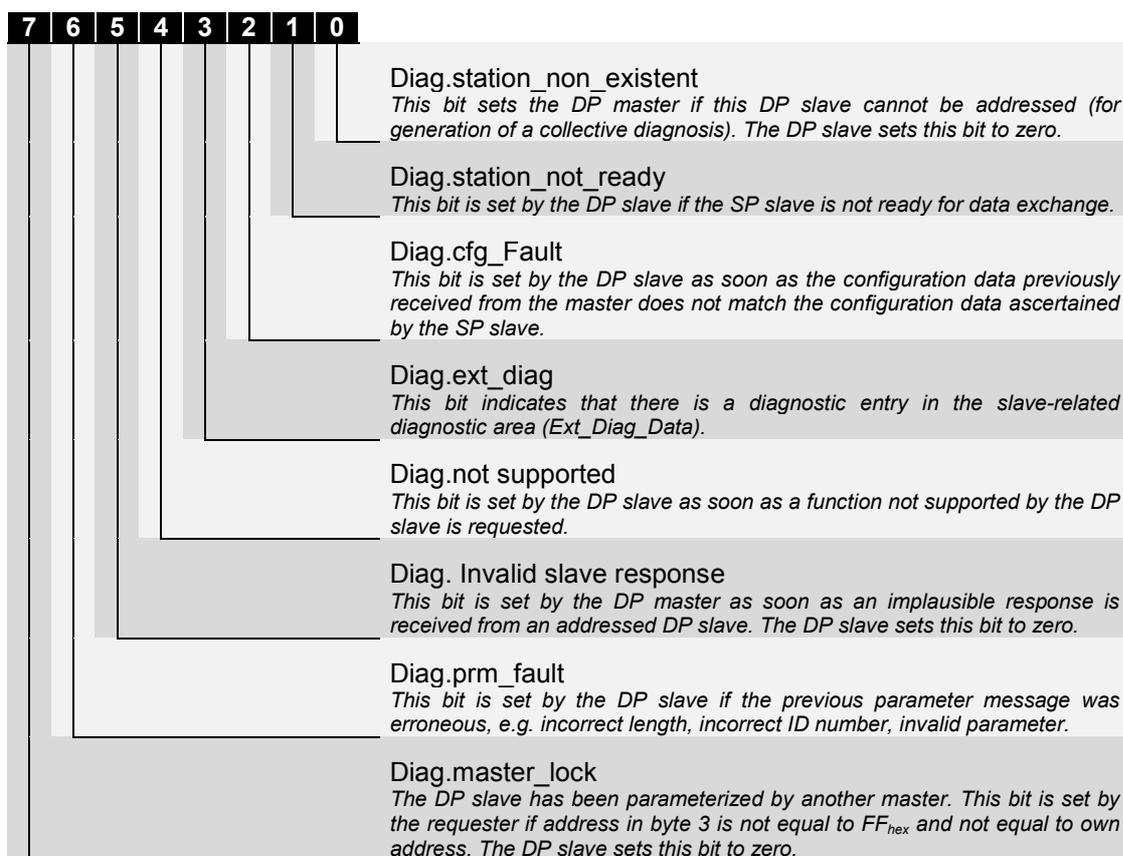


Fig. 18: Standard diagnostic information Byte 0

Byte 1

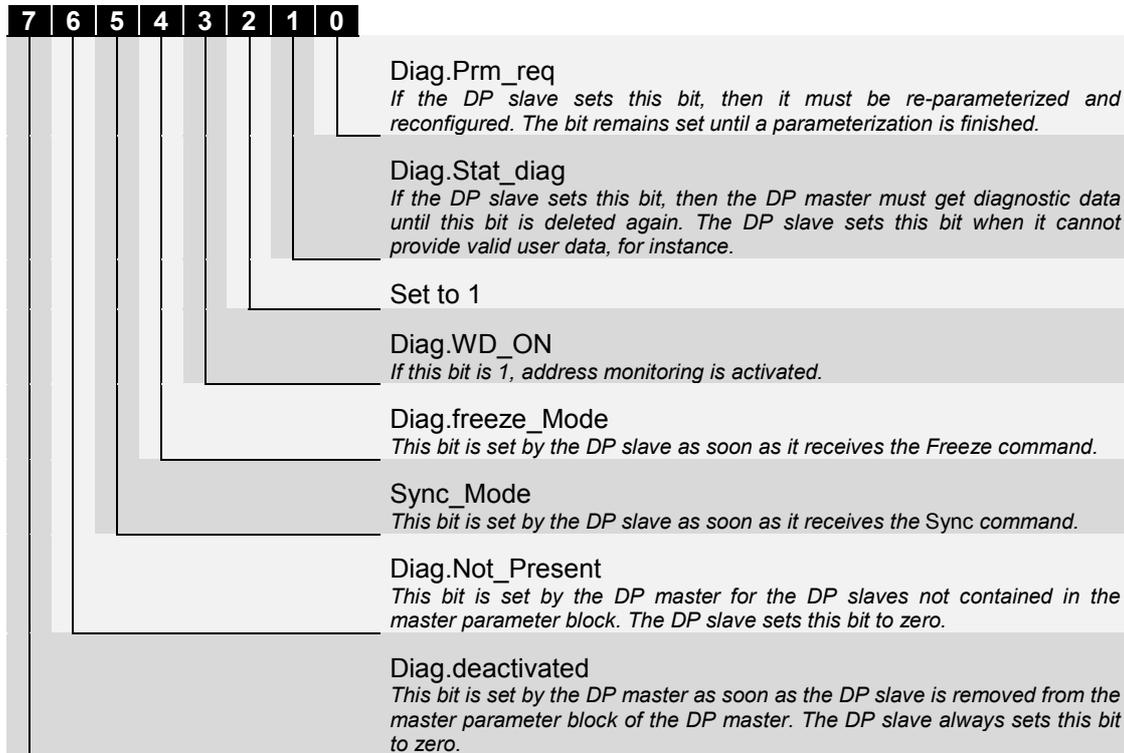


Fig. 19: Standard diagnostic information Byte 1

Byte 2

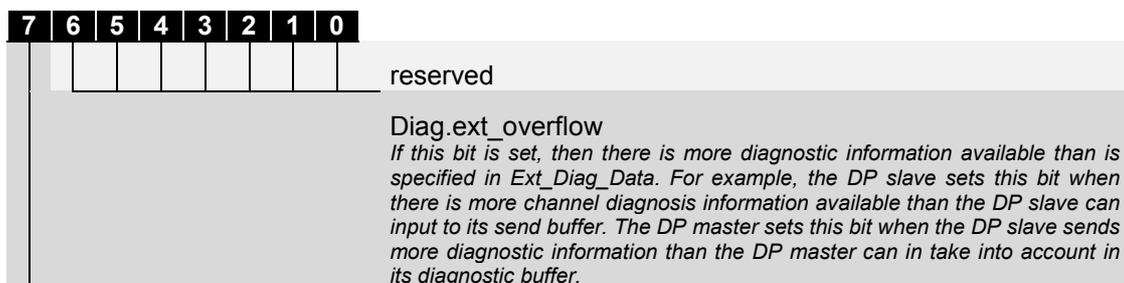


Fig. 20: Standard diagnostic information Byte 2

Byte 3

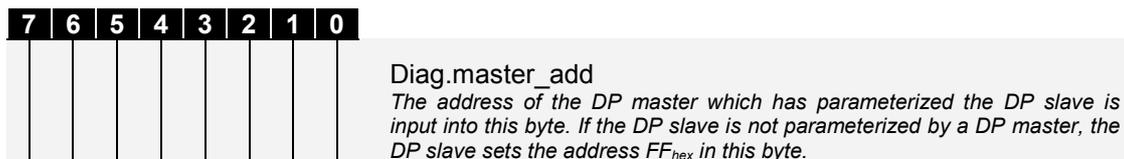


Fig. 21: Standard diagnostic information Byte 3

Byte 4

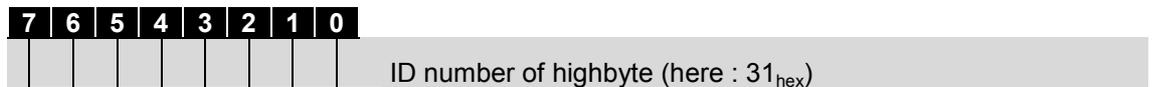


Fig. 22: Standard diagnostic information Byte 4

Byte 5

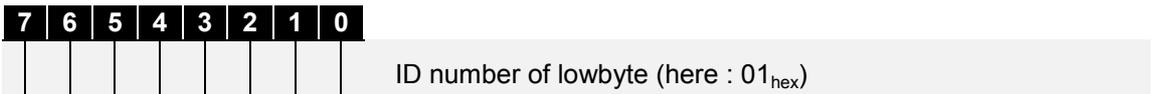


Fig. 23: Standard diagnostic information Byte 5

Bytes 6 to 7: Device-related diagnostic

Byte 6 Device-related diagnosis - header byte

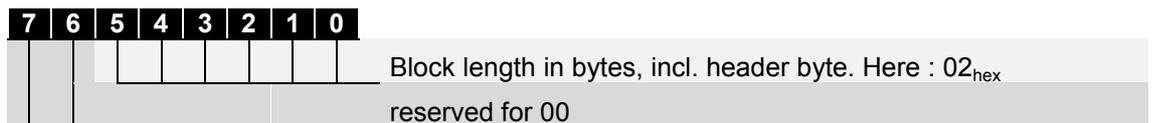


Fig. 24: Device-related diagnostic Byte 6

Byte 7 Device-related diagnostic

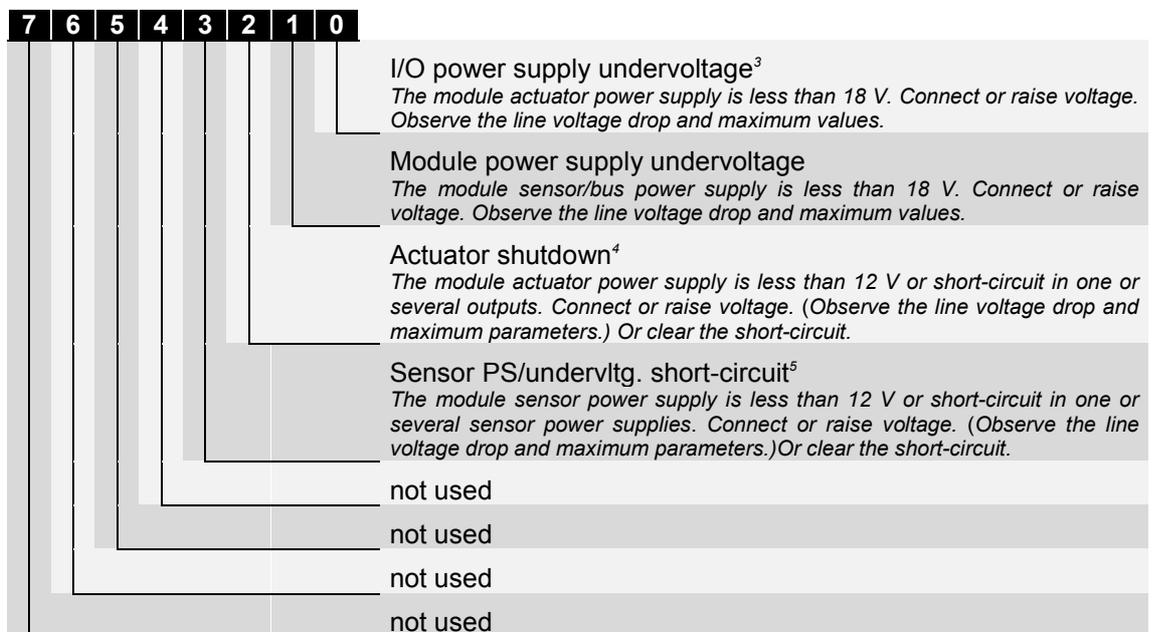


Fig. 25: Device-related diagnostic Byte 7

³ This diagnostic does not exist on the input module IMPACT67-P DI16 Art.No. 55 345.

⁴ This diagnostic does not exist on the input module IMPACT67-P DI16 Art.No. 55 345.

⁵ This diagnostic does not exist on the output modules IMPACT67-P DO8 and DO 16, Art.Nos. 55 347 and 55 348.

Byte 8 ID-related diagnostic

Byte 8 ID-related diagnosis - header byte

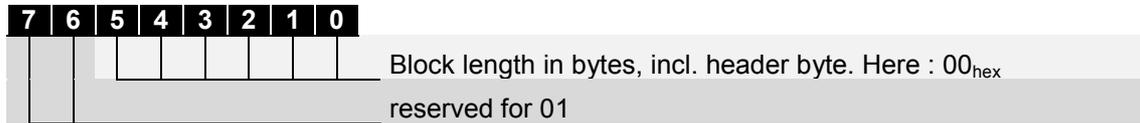


Fig. 26: ID-related diagnostic Byte 8

Bytes 9 to 10: Channel-related diagnostic

(Varies depending on the module)

IMPACT67-P DI16, Art.No. 55345

Bytes 9 and 10 : Channel-related diagnostic



Fig. 27: IMPACT67-P DI16 Channel-related diagnostic Byte 9 and 10

IMPACT67-P DI8 DO8, Art.No. 55346

Byte 9 Channel-related diagnostic

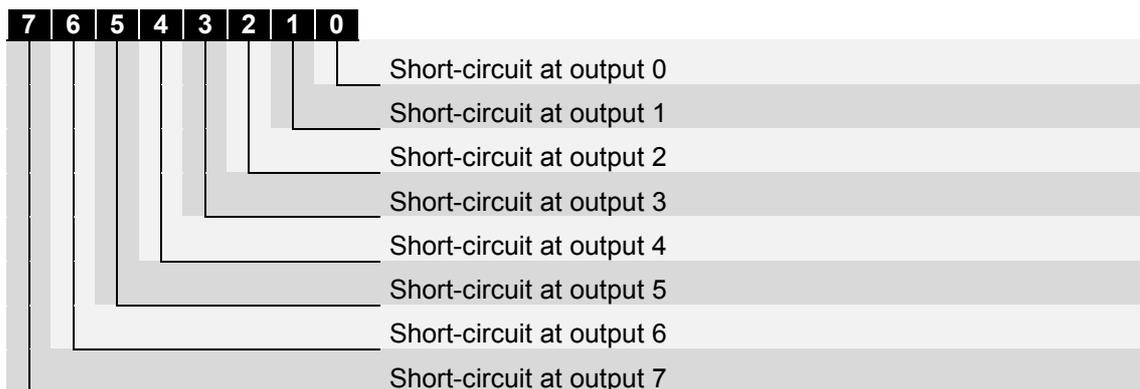


Fig. 28: IMPACT67-P DI8 DO8 Channel-related diagnostic Byte 9

Byte 10 Channel-related diagnostic



Fig. 29: IMPACT67-P DI8 DO8 Channel-related diagnostic Byte 10

IMPACT67-P DO8, Art.No. 55347

see DI8 DO8, Art.No. 55346

IMPACT67-P DO16, Art.No 55348

Byte 9 Channel-related diagnostic

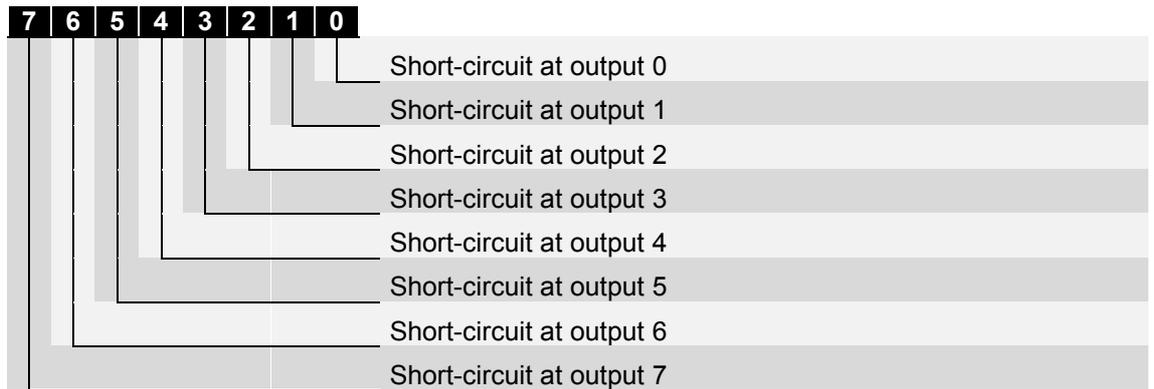


Fig. 30: IMPACT67-P DO16 Channel-related diagnostic Byte 9

Byte 10 Channel-related diagnostic

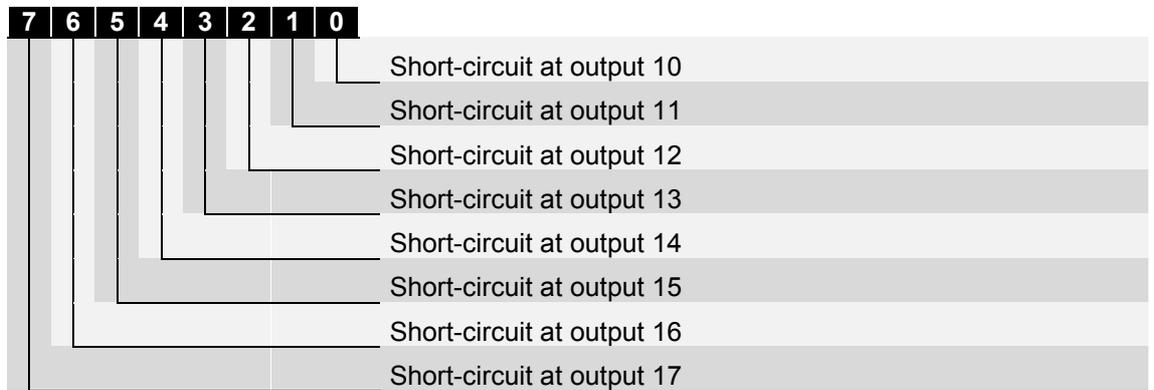


Fig. 31: IMPACT67-P DO16 Channel-related diagnostic Byte 10

5. Technical Data

EMC

EN 61131-2

EN 61000-4-2 ESD	Contact ± 4 kV, air ± 8 kV
E EN 61000-4-3 RF field + GSM	10 V/m
EN 61000-4-4 Burst	± 2 kV
EN 61000-4-5 Surge	unsym./sym. ± 500 V (DC network input)
.....	unsym. ± 1 kV (signal connections)
EN 61000-4-6 HF asymmetrical	10 V
EN 61000-4-8 Magnetic field 50 Hz	30 A/m
EN 50081-1 Interference field strength	QP 40 dBµV/m (30 - 230 MHz)
.....	QP 47 dBµV/m (230 - 1000 MHz) Class A

Ambient Conditions

Operating temperature	0°C to 55°C
Storage temperature	-25°C to 70°C

Materials

Housing	Ultramid B3WM 602 (black)
Contact	Cu, Sn
Optical fiber	PC (UL 94 V0)

Mechanical data

Mating cycles / contact	≤ 50
Protection degree EN 60629	IP 67
Vibration, sine EN 60068-2-6	5 g
Shock, half-sine EN 60068-2-27	15 g / 11 ms

Processing Notes

Weight	IMPACT67-P DI16	420 g
.....	IMPACT67-P DI8/DO8	420 g
.....	IMPACT67-P DO8	420 g
.....	IMPACT67-P DO 16	420 g
Fixing	Screws	

Connectivity

System link Profibus	M12, 5-pole with shield B-coded
Power connector	7/8", 5-pole
I/O lines	M12 5-pole, no shield

Dimensions

Dimensions (h x w x d)	225 x 63 x 38.5
------------------------------	-----------------

5.1 IMPACT67-P DI 16

Technical data

No. of inputs	16
Operating voltage of sensor power supply	24 V ± 25% (18 V to 30.2 V) DC
Power supply (module electronics)	via sensor power supply

Incorrect Polarity Protection

System interface.....	yes
Digital input.....	yes
Sensor power supply US.....	yes

Inputs

Quantity	16
Polarity.....	PNP
Input characteristic and switch threshold	EN 61131-2
Voltage	24 VDC

Sensor supply

Max. total current 9 A (defined by 7/8“)	
Supply for sensors.....	max. 200 mA for each sensor
Short-circuit protection for sensors.....	Multifuse
.....	up to 100 mA load automatic start-up
.....	from 100 mA load reset required

Profibus

Baud rates	9.6 Kbaud to 12 Mbaud
.....	31.25 Kbaud is not supported
Protocol	Profibus DP to IEC 61158/61784
Operating modes	Sync Mode and Freeze Mode are supported
ID number.....	3101 h
Profibus address.....	0-99 set by rotary switches
Galvanic isolation	Between bus and module electronics

5.2 IMPACT67-P DI8 DO8

Technical data

Number of inputs / outputs.....	8
Operating voltage of actuator power supply	24 V ± 25% (18 V to 30.2 V) DC
Operating voltage of sensor power supply	24 V ± 25% (18 V to 30.2 V) DC
Power supply (module electronics).....	Via sensor power supply

Incorrect Polarity Protection

System interface	yes
Digital input	yes
Digital output	yes
Actuator.....	power supply UA yes
Sensor.....	power supply US yes

Outputs

Quantity.....	8
Polarity.....	PNP
Voltage	24 VDC
Nominal current	2 A per channel
Overvoltage protection	Yes (diode)
Max. switching frequency at ohmic load	50 Hz
Max. switching frequency at inductive load	10 Hz
Short-circuit protection	Auto. Reset after short-circuit clearance

Inputs

Quantity.....	8
Polarity.....	PNP
Input characteristic and switch threshold.....	EN 61131-2

Sensor Power Supply

Max. total current	9 A (defined by 7/8")
Supply for sensors	max. 200 mA for each sensor
Short-circuit protection for sensors	Multifuse
.....	up to 100 mA load automatic start-up
.....	from 100 mA load reset required

Actuator supply

Max. total current	9 A (defined by 7/8")
Short-circuit protection	Reverse-connect protection

Profibus

Baud rates	9.6 KBaud to 12 MBaud
.....	31.25 KBaud is not supported
Protocol	Profibus DP to IEC 61158/61784
Operating modes	Sync Mode and Freeze Mode are supported
ID number.....	3101 h
Profibus address.....	0-99 set by rotary switches
Galvanic isolation	Between bus and module electronics

5.3 IMPACT67-P DO8

Technical data

Number of outputs	8
Operating voltage of actuator power supply	24 V ± 25% (18 V to 30.2 V) DC
Operating voltage of sensor power supply	24 V ± 25% (18 V to 30.2 V) DC
Power supply (module electronics).....	Via sensor power supply

Incorrect Polarity Protection

System interface	yes
Digital output	yes
Actuator	power supply UA yes
Sensor	power supply US yes

Outputs

Quantity.....	8
Polarity.....	PNP
Voltage	24 VDC
Nominal current	2 A per channel
Overvoltage protection	Yes (diode)
Max. switching frequency at ohmic load	50 Hz
Max. switching frequency at inductive load	10 Hz
Short-circuit protection	Auto. Reset after short-circuit clearance

Actuator supply

Max. total current	9 A (defined by 7/8")
Short-circuit protection	Reverse-connect protection

Profibus

Baud rates.....	9.6 KBaud to 12 MBaud
.....	31.25 KBaud is not supported
Protocol.....	Profibus DP to IEC 61158/61784
Operating modes	Sync Mode and Freeze Mode are supported
ID number	3101 h
Profibus address	0-99 set by rotary switches
Galvanic isolation	Between bus and module electronics

5.4 IMPACT67 DO16

Technical data

Number of outputs	16
Operating voltage of actuator power supply	24 V \pm 25% (18 V to 30.2 V) DC
Operating voltage of sensor power supply	24 V \pm 25% (18 V to 30.2 V) DC
Power supply (module electronics)	Via sensor power supply

Incorrect Polarity Protection

System interface.....	yes
Digital output	yes
Actuator	power supply UA yes
Sensor power supply US.....	yes

Outputs

Quantity	16
Polarity.....	PNP
Voltage	24 VDC
Nominal current	0.5 A per channel
Overvoltage protection	Yes (diode)
Max. switching frequency at ohmic load	50 Hz
Max. switching frequency at inductive load.....	10 Hz
Short-circuit protection	Auto. Reset after short-circuit clearance

Actuator supply

Max. total current.....	9 A (defined by 7/8")
Short-circuit protection	Reverse-connect protection

Profibus

Baud rates	9.6 Kbaud to 12 Mbaud
.....	31.25 Kbaud is not supported
Protocol	Profibus DP to IEC 61158/61784
Operating modes	Sync Mode and Freeze Mode are supported
ID number.....	3101 h
Profibus address.....	0-99 set by rotary switches
Galvanic isolation	Between bus and module electronics

Accessories

Art. No.	Designation
7000-14005-0000000	M12 connector B-coded, 2 poles for PROFIBUS, straight (shielded)
7000-14025-0000000	M12 socket B-coded, 2 poles for PROFIBUS, straight (shielded)
7000-78081-0000000	7/8" connector straight
7000-78201-0000000	7/8" socket straight
7000-14041-0000000	Terminating resistor connector
55468	M12 dummy connector, black (4 pcs.)
55390	Blank plug 7/8" (male thread)
55318	Labels 20x8 mm
7000-00000-8409999	Profibus bus cable (sold by the meter), solid cable
7000-44001-8400030	Prewired bus cable, straight, variant with 0.3 m length (PUR)
7000-44001-8400060	Prewired bus cable, straight, variant with 0.6 m length (PUR)
7000-44001-8400100	Prewired bus cable, straight, variant with 1.0 m length (PUR)
7000-44001-8400200	Prewired bus cable, straight, variant with 2.0 m length (PUR)
7000-44001-8400300	Prewired bus cable, straight, variant with 3.0 m length (PUR)
7000-44001-8400500	Prewired bus cable, straight, variant with 5.0 m length (PUR)
7000-44021-8400030	Prewired bus cable, angled, variant with 0.3 m length (PUR)
7000-44021-8400060	Prewired bus cable, angled, variant with 0.6 m length (PUR)
7000-44021-8400100	Prewired bus cable, angled, variant with 1.0 m length (PUR)
7000-44021-8400200	Prewired bus cable, angled, variant with 2.0 m length (PUR)
7000-44021-8400300	Prewired bus cable, angled, variant with 3.0 m length (PUR)
7000-44021-8400500	Prewired bus cable, angled, variant with 5.0 m length (PUR)
7000-50021-9610030	Prewired power cable, straight, variant with 0.3 m length (PUR)
7000-50021-9610060	Prewired power cable, straight, variant with 0.6 m length (PUR)
7000-50021-9610100	Prewired power cable, straight, variant with 1.0 m length (PUR)
7000-50021-9610200	Prewired power cable, straight, variant with 2.0 m length (PUR)
7000-78021-9610300	Prewired power cable, socket, straight, open other end, variant with 3.0 m length (PUR)
7000-78021-9610500	Prewired power cable, socket, straight, open other end, variant with 5.0 m length (PUR)
7000-78021-9611000	Prewired power cable, socket, straight, open other end, variant with 10 m length (PUR)
55364	IMPACT67-P manual



For information about further system accessories, contact Murrelektronik on telephone number +49 7191 47-0.

Glossary

General Information About Profibus

Bus segment	The electrical specification of the RS-485 interface limits the number of users on an RS485 network to 32. If there are more than 32 Profibus users, divide the network into segments using repeaters.
DP	D ecentral P eriphery, Profibus protocol for rapid cyclical data exchange.
Freeze mode	The Input data of the slave are "frozen".
GAP factor	The number of bus passes after which a DP Master searches for additional active users to include them in the token ring. This factor can be modified to optimize the speed of a DP network.
GAP area	The address area in which an active user searches for additional active users. This area is always between the own address and the address of the next active user already in the Token Ring. The area from the highest address up to 127 does not belong to the GAP area.
GSD	The devices master file describes the technical features of a Profibus product. This file is required to configure a Profibus system, and is provided by the device's manufacturer.
ID number	A 16-bit number which clearly identifies a Profibus product. It is a reference to the GSD file. Other devices may have the same ID number, provided they can be configured in a common GSD file. This number is allocated by Profibus Nutzerorganisation e.V..
IEC 61158	Globally recognized standard for Profibus DP and FMS Successor of the international standard EN 50170, Volume 2.
Byte	Term defined by IEC 61158. 1 byte corresponds to 8 bits.
PNO	P rofibus N utzerorganisation e.V (German Profibus user organization).
Repeater	Coupling element for signal conditioning between Profibus segments.
SPC	Stored Program Controller
Sync Mode	The output data of the Slave are "frozen".
Token	The active user (master) in possession of the token can carry out data exchange with the slaves which it has parameterized and configured. On completion of the data cycle, the active user passes the token on to the next active user.

IMPACT67-P specific

- Sensor short-circuit** Short circuit or overload at Pin 1 of the M12 socket causes the self-resetting fuse to trip. Each M12 socket is separately fused. A red LED indicates the fault at the associated M12 socket. This error is signaled via the DP diagnostics. The sensor power supply is automatically reset after the fault is rectified.
- Actuator shutdown** Short-circuit or overload at an output causes the output to be disabled. This error is signaled via the DP diagnostics. A red LED indicates the fault at the associated M12 socket. This is followed by an automatic restart of the output.
- Undervoltage** The voltages of the sensor power supply and actuator power supply are detected separately. If 18 VDC is undershot, this error is signaled via the DP diagnostics. If the sensor power supply suffers from undervoltage, the LED labeled "US Error" lights up red. If the actuator power supply suffers from undervoltage, the LED labeled "UA Error" lights up red.

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