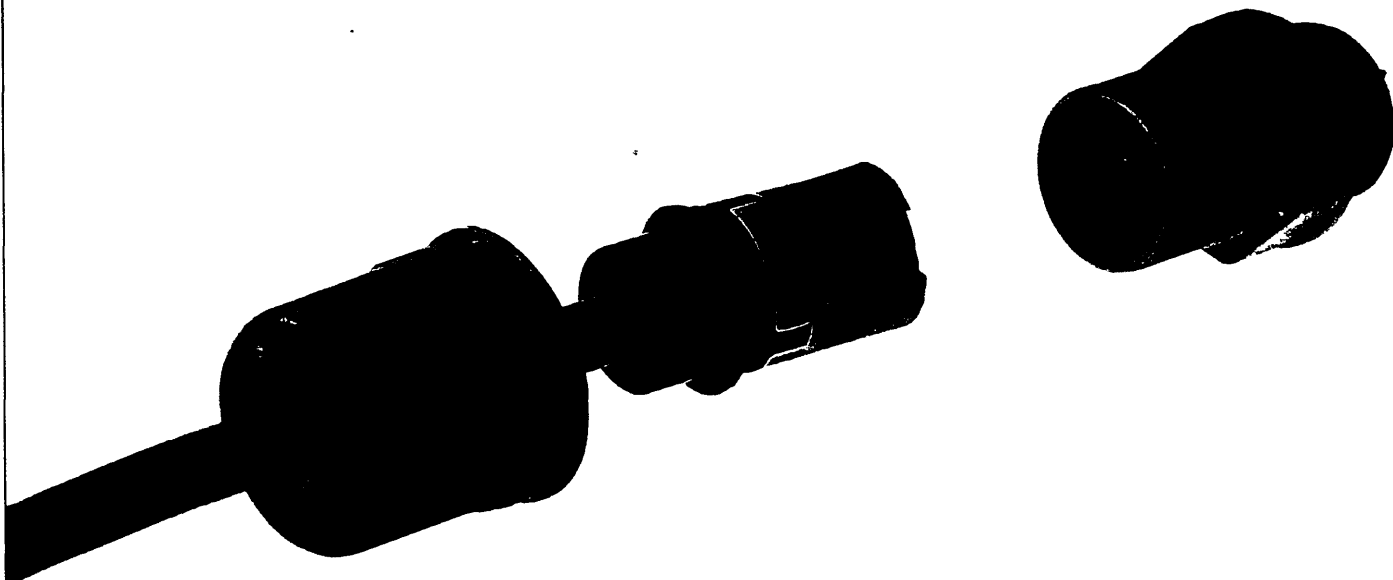


HARAX®

The universal
rapid termination system





HARAX® combines the advantages of connectors and screwed cable glands

Simpler and faster: the second generation HARAX® simplifies the installation of sensors, actuators and other system components in automation engineering.

Not only is handling simpler, but also faster due to the reduction of individual parts.

The connection consists of a contact carrier with insulation displacement contacts and the coupling ring, seal insert and multifunctional splicing ring as add-on parts.

In a few seconds the connection is perfect:

- remove cable sheath,
- attach HARAX®,
- tighten.

Mechanical engineering makes use of preassembled components.

HARAX® now offers the user this opportunity as well. When mounting, both the seal insert and the cable course are fixed in a splicing ring, so they cannot be twisted, and are thus preassembled.

A collar prevents the wrench from slipping while tightening.

HARAX®-Panel feed throughs

Pg screwed glands are used today for connections to switchboxes, equipment and components which do not have to be separated and then reconnected to the plant. Here the line must be connected by qualified staff, which is time-assuming.

With HARAX® products, this equipment can now also be delivered to the end user ready-to-connect, since the complete internal wiring incl. testing has already been done at the equipment manufacturer's.

For solving a wide variety of problems, the following HARAX® products are available to the manufacturer:

HARAX®-Sensor-/actuator-boxes

Nowadays sensors are either connected by means of preassembled cable using M12 connectors or directly connected in terminal boxes individually.

Preassembled cables are only suitable where application presents no problems and a remaining cable loop does not get in the way.

In areas in which preassembled cable cannot be used such as application in pipes or cable dusts, lines must be connected "on site".

HARAX®-sensor-/actuator-boxes are now revolutionising the connection of sensors and actuators.

The complex assembly of M12 connectors is no longer necessary.

Mounting times are reduced to a minimum.

Designed for round cable, 3 cable cores with a 0.25 mm² to 0.5 mm² cross section can be connected without special tools.

Due to its compact design the HARAX® connection is no larger than an M12 connector.

The new passive modules are available with external distribution terminals for open assembly or with permanently connected cable providing four, six and eight HARAX®-M12 connection points.

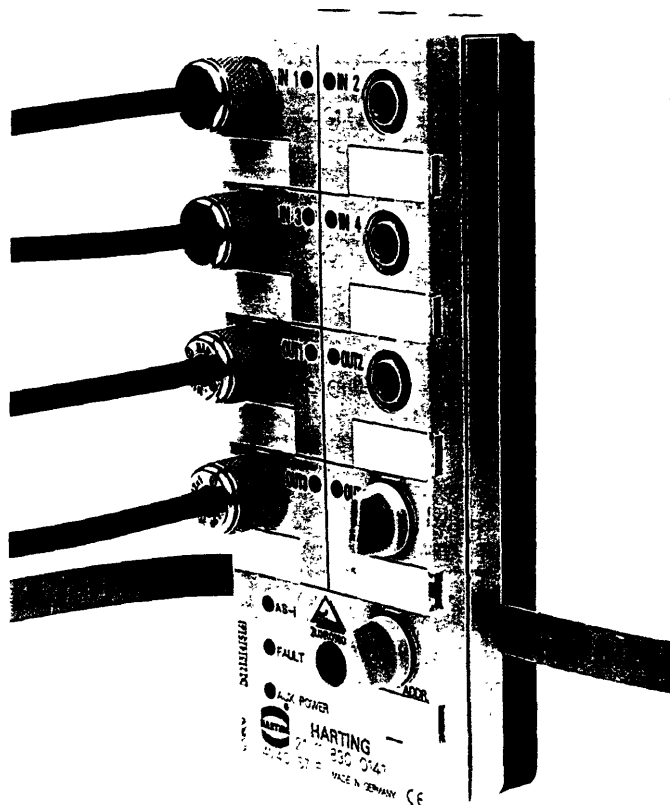
In addition to the passive modules, HARTING now offers communicating products with AS-Interface.

- HARAX®-panel feed throughs with faston contacts
- HARAX®-panel feed throughs with solder lugs
- HARAX®-panel feed throughs with preassembled stranded wires



Mounting is performed from the outside: the contact carrier is screwed into a thread or inserted through a housing bore and fastened internally with a nut.

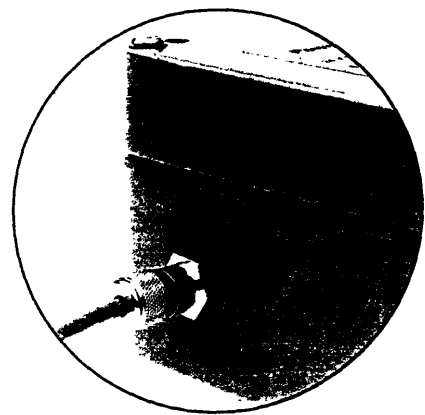
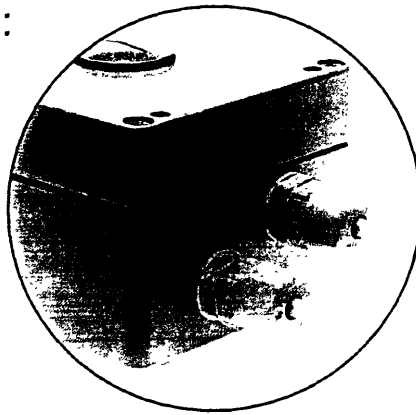
On the compact module with HARAX®-M12 connection points the system characteristics of the AS-Interface, such as simple wiring, continue through to the sensor/actuator.



HARAX® – Functionality and mounting



Application examples:

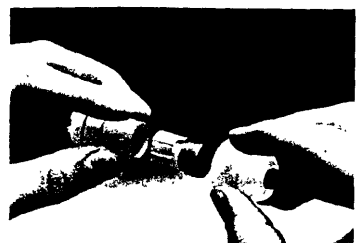


HARAX®-Function principle

- The contact of the cable cores is made automatically by screwing the coupling ring onto the contact carrier. At the same time the wires are guided through channels in the splicing ring and exactly positioned.
- Newly developed insulation displacement contacts, guided through contact channels, consequently permit reliable contact of the individual cable cores.
- Once the coupling ring is tightened, the cable is automatically strain-relieved by means of the seal element, clamped and protected against dust and splashwater (IP 67).

HARAX®-Mounting

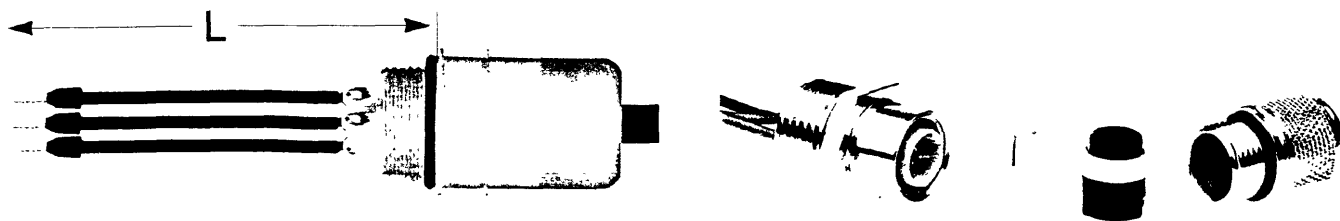
- Cut the cable to length and remove the line sheath
- Slide the coupling ring and seal insert onto the cable end
- Insert the core ends into the corresponding bushings of the splicing ring
- Join the seal insert and splicing ring and cut off projecting core ends flush with the splicing ring
- Insert the premounted splicing-seal element into the contact carrier
- Screw the screw cap to the contact carrier



HARAX®-Removal

- Loosen the screwed cable gland and remove the cable cores by pulling out of the contacts.
- Renewed connection after cutting off the contacted core ends is possible up to 10 times (assuming the same core diameters are used).

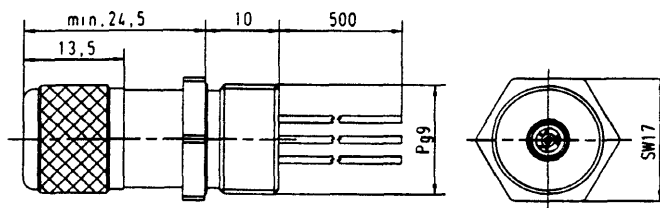
HARAX® – Panel feed throughs with preassembled stranded wires



Description		Pg 13.5 panel feed through with preassembled stranded wires (installation from outside) Part number	Pg 9 panel feed through with preassembled stranded wires (installation from outside) Part number
Panel feed through, straight termination	type orange	21 01 130 0223	
Panel feed through, straight termination	type black	21 01 130 1223	
Panel feed through, straight termination	type metal		21 01 130 4241
Pack quantity	(pieces)	1	1
Number of poles		3	3
General characteristics			
Conductor cross section	(mm ²)	1.5	0.5
Wire length "L"	(mm)	500*	500*
Colour coding	1	brown	brown
	2	black	black
	3	blue	blue
Mounting hole-Ø	(mm)	20.8 – 0.3	15.5 – 0.2
Thread		Pg 13.5	Pg 9
Width across flats	(mm)	24	17
Cable characteristics			
Conductor cross section	(mm ²)	0.75 – 1.5	0.25 – 0.5
Type of strands / minimum diameter of individual strands	(mm)	VDE 0295, class 2 – 5 / 0.2	VDE 0295, class 2 – 6 / 0.1
Conductor insulation material		PVC / PE / PUR	PVC / PE / PUR
Wire diameter	(mm)	≤ 2.8	1.2 – 1.6
Cable outside diameter	(mm)	5.6 – 8.5	4 – 5.1
Environmental characteristics			
Protection rating acc. to IEC 529 / EN 60529 / DIN VDE 0470-1		IP 67	IP 67
Flammability rating acc. to UL 94		V 0	V 0
Electrical characteristics			
Current rating	(A)	17.5	3
Working voltage	(V AC)	250	32
Overvoltage category		3	3
Degree of pollution		3	2
Mechanical characteristics			
Maximum number of connections with the same wire gauge to one contact		10	10
Materials			
Contact material		Copper alloy	Copper alloy
Contact plating		Tin over nickel	Tin over nickel
Insulating material type		Polyamide (plastic type)	Brass (metal type)

Drawing

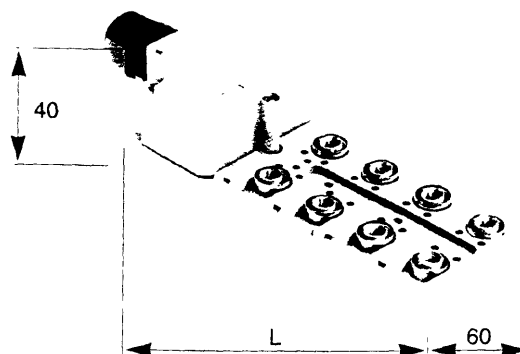
Dimensions in mm



* Other wire lengths on request

We reserve the right to modify technical features

HARAX® – Passive sensor-/actuator-boxes



Description	Sensor-/actuator-box with HARAX and preassembled cable		Sensor-/actuator-box with HARAX and terminal block
Sensor-/actuator-box, complete	Part number	Part number	Part number
4 terminals	21 01 430 0121	21 01 430 0131	21 01 430 0111
6 terminals	21 01 630 0121	21 01 630 0131	21 01 630 0111
8 terminals	21 01 830 0121	21 01 830 0131	21 01 830 0111
Cable length	5 m	10 m	without cable
Pack quantity (pieces)	1	1	1
Technical data			
Working voltage (V DC)	10 ... 30		10 ... 30
Maximum current per terminal / in total (A)	2 / 10		2 / 10
Working current of display elements (mA)	≤ 5		≤ 5
Poles per terminal	3		3
Protection rating acc. to IEC 529 / EN 60529 / DIN VDE 0470-1	IP 67		IP 67
Temperature range	- 40 ... + 75 °C		- 40 ... + 75 °C
HARAX-Termination			
Conductor cross section (mm²)	0.25 – 0.5		0.25 – 0.5
Type of strands / minimum diameter of individual strands (mm)	VDE 0295, class 2 – 6 / 0.1		VDE 0295, class 2 – 6 / 0.1
Conductor insulating materials	PVC / PE / PUR		PVC / PE / PUR
Wire diameter (mm)	1.2 – 1.6		1.2 – 1.6
Cable outside diameter (mm)	4 – 5.1		4 – 5.1
Local diagnostics			
Power supply per module (Us)	LED green		LED green
Status I/O	LED yellow		LED yellow
Preassembled cable/ terminal block			
Data cable flexible / AWG (mm²)	0.34 / 22		0.14 – 1.0 / 26 – 18
Power supply flexible/ AWG (mm²)	3 x 1.0 / 17		3 x 0.2 – 1.5 / 24 – 16
Materials			
Housing insulation material	PBT		PBT

Terminal configuration

(boxes with preassembled cable)

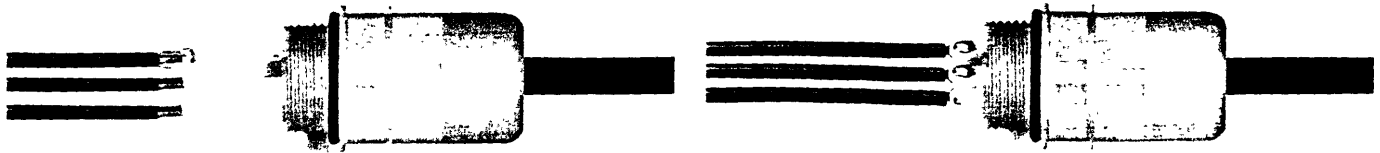
Conductor colour	Termination point/way	Potential
white	1 / 2	E / A
green	2 / 2	E / A
yellow	3 / 2	E / A
grey	4 / 2	E / A
pink	5 / 2	E / A
red	6 / 2	E / A
black	7 / 2	E / A
violet	8 / 2	E / A
brown	1–8 / 1	+ 24 V
blue	1–8 / 3	0 V
green / yellow	n. c.	PE

Dimensions

(boxes with preassembled cable / boxes with terminal block)

Number of terminals	Dimension L (mm)
4	102
6	127
8	152

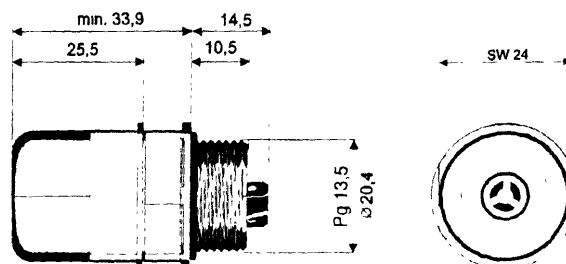
HARAX® – Panel feed throughs



Description		Panel feed through with faston contacts (installation from outside) Part number	Panel feed through with solder lugs (installation from outside) Part number
Panel feed through, straight termination	type orange	21 01 130 0013	21 01 130 0023
Panel feed through, straight termination	type black	21 01 130 1013	21 01 130 1023
Pack quantity	(pieces)	25	25
Number of poles		3	3
General characteristics			
Termination on equipment side		Faston contact	Solder lug
	(mm)	4.8 x 0.8	
Mounting hole-Ø	(mm)	20.8 – 0.3	20.8 – 0.3
Thread		Pg 13.5	Pg 13.5
Width across flats	(mm)	24	24
Cable characteristics			
Conductor cross section	(mm²)	0.75 – 1.5	
Type of strands / minimum diameter of individual strands	(mm)	VDE 0295, class 2 – 5 / 0.2	
Conductor insulating materials		PVC / PE / PUR	
Wire diameter	(mm)	≤ 2.8	
Cable outside diameter	(mm)	5.6 – 8.5	
Environmental characteristics			
Protection rating acc. to IEC 529 / EN 60 529 / DIN VDE 0470-1		IP 67	
Flammability rating acc. to UL 94		V 0	
Electrical characteristics			
Current rating	(A)	17.5	
Working voltage	(V AC)	250 ¹⁾	
Overvoltage category		3	
Degree of pollution		3	
Mechanical characteristics			
Maximum number of connections with the same wire gauge to one contact		10	
Materials			
Contact material		Copper alloy	
Contact plating		Tin over nickel	
Insulating material type		Polyamide	

Drawing

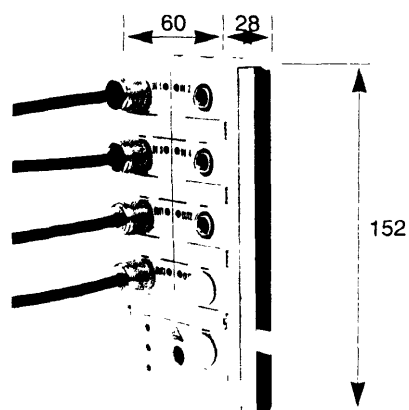
Dimensions in mm



¹⁾ Faston termination with insulation cap

We reserve the right to modify technical features

HARAX® – Compact modules for AS-Interface



Description

Compact modules for AS-Interface with HARAX termination

Compact modules with 8 terminals (4 Input / 4 Output - PNP)

Termination element HARAX M12 (screw cap, splice ring, sealing)

Addressing cable

Sealing for unused HARAX M12 terminals

Part number

Pack quantity (pieces)

21 11 830 0141

1

21 01 010 0001

1

21 19 900 0001

1

21 19 900 0002

10

Technical data

IO-Code / ID-Code

Internal current consumption

Total current consumption

Working voltage acc. to AS-Interface specification

Polarisation

7 / 0

≤ 45 mA

≤ 270 mA

26.5 ... 31.6 V DC

integrated

Inputs: Sensor supply via AS-Interface

Voltage range

Maximum current (all sensors in total)

Inputs with short circuit protection

Switching level "High"-signal

Current consumption High Low

20 ... 30 V DC

200 mA ($T_U \leq 40^\circ\text{C}$); 120 mA ($T_U \leq 85^\circ\text{C}$)

yes

≥ 10 V

≥ 6 / ≤ 1.5 mA

Outputs:

Maximum current per terminal

Maximum current of all terminals in total

External power supply

Switching frequency resistive loads / inductive loads

Short circuit protection

Inductive protection

2.0 A

≤ 3 A ($T_U \leq 40^\circ\text{C}$); ≤ 2 A ($T_U \leq 85^\circ\text{C}$)

24 V DC via flat cable

200 Hz / 2 Hz

integrated

integrated (diode)

HARAX-Termination

Number of poles per terminal

Maximum number of connections with the same wire gauge to one contact

Conductor cross section

Type of strands / minimum diameter of individual strands

Conductor insulating materials

Wire diameter

Cable outside diameter

3

10

0.25 – 0.5 mm²

VDE 0295, class 2 – 6 / 0.1 mm

PVC / PE / PUR

1.2 – 1.6 mm

4 – 5.1 mm

Environmental characteristics

Protection rating acc. to IEC 529 / EN 60 529 / DIN VDE 0470-1 (with mounting plate, and unused terminals covered with sealing)

IP 67

Temperature range

Environment

Stock

– 25 °C ... + 85 °C

– 40 °C ... + 85 °C

Local diagnostics

LED-colours AS-Interface: green / red
AUX. Power: green
In-/Outputs: yellow

AS-Interface-status

green

red

status

on

off

ok

off

on

no data transmission

flashing

on

address zero

off

flashing

overload

Addressing

The mounted modules may be addressed remotely via a DC-power-connector (outer/inner diameter: 3.5 / 1.3 mm) using an addressing device (terminal "ADDR").

Note: Addresses may be assigned up to 15 times maximum.

Logical relation

IN 1: Databit d0

OUT 1: Databit d0

IN 2: Databit d1

OUT 2: Databit d1

IN 3: Databit d2

OUT 3: Databit d2

IN 4: Databit d3

OUT 4: Databit d3

Dimensions in mm



Description	Part number	Pack quantity (pieces)
Socket wrench For easy mounting of Pg 13.5 panel feed throughs Width across flats 24 mm	21 01 000 0001	1
Nut (plastic) for mounting of contact carriers Pg 13.5 / width across flats 24 mm	21 01 000 0007	50
Termination element HARAX M12 (Screw cap, splice ring, sealing) suitable for: – Panel feed through Pg 9 – Sensor-/Aktuator-boxes (active / passive)	21 01 010 0001	1
Nut (metal) for mounting of contact carriers Pg 9 / width across flats 17 mm	21 01 000 0008	50
Addressing cable For manual addressing of compact modules for AS-Interface	21 19 900 0001	1
Sealing for unused HARAX M12 terminals suitable for: – Panel feed through Pg 9 – Sensor-/Aktuator-boxes (active / passive)	21 19 900 0002	10