HARTING

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HARTING Han® Pneumatic module Technical specifications and assembly manual

English

Content

1. Han® Pneumatic module

1.1 Using connector systems for transmitting compressed air

HARTING industrial connectors help to simplify the installation, dismantling, and maintenance of connecting systems used in industrial facilities. Connectors in the Han-Modular® series are particularly versatile. The modules in this series can be combined together variably to create connectors. Contacts for transmitting electrical power and/or data signals can be positioned alongside contacts for gaseous media. Ethernet, USB, FireWire, and various standards for coaxial cable networks are among the transmission types that can be implemented.

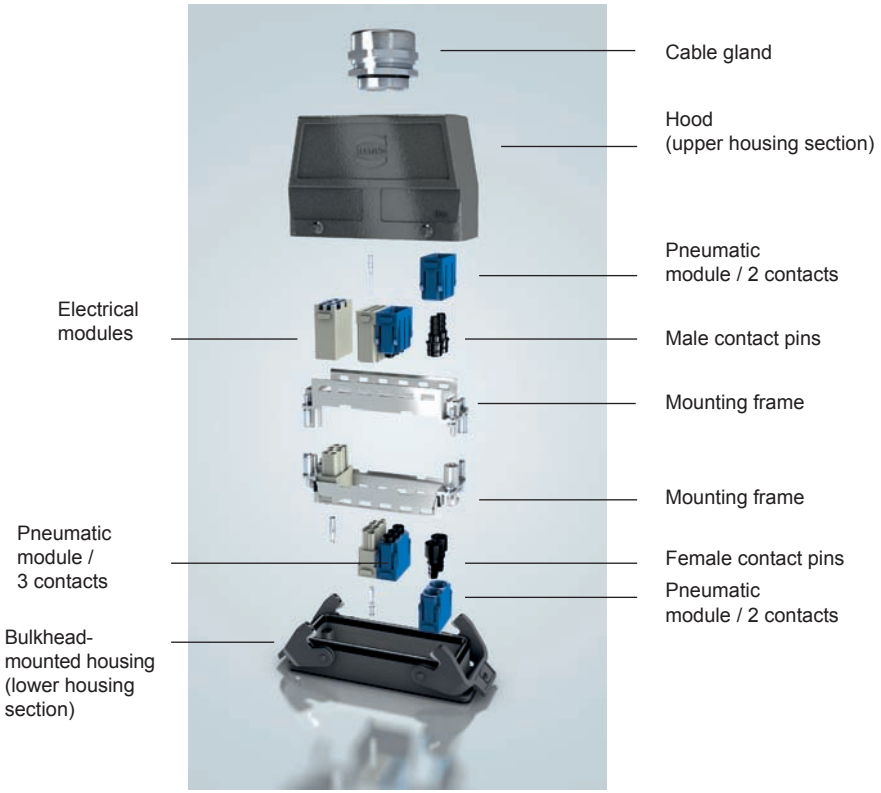


Figure 1: Assembly diagram for the Han-Modular® system: pneumatic modules are shown in blue.

English

Properly prepared compressed air can be transmitted through the connector using the Han® Pneumatic module. With its blue colouring, the pneumatic module stands out from the electrical modules. The contact pins and sockets can be used with pneumatic hoses of varying diameters, depending on your requirements. This pneumatic module can be combined with all other modules in the series. In addition to electric power and electrical signals, it can also be used to create pluggable connections that transmit fibre optic signals and gaseous media.

Refer to Table 10 on page 15 for information about the appropriate connector housings. Additional information on the modules in this series and accessories can be found in HARTING's e-Catalogue at www.harting.com or the printed catalogue HARTING Han® Industrial Connectors (especially in Chap. 6).

1.2 Included in delivery

The Han® Pneumatic module is available in in the following variants:

- With three contacts (inner diameter of tube = ID = 6 mm)
- With three contacts (ID = 1.6, 3.0 or 4.0 mm)

At least two modules are required for each plug-in connection, and in addition:

- Pneumatic male contact pins for ID = 1.6, 3.0, 4.0 or 6.0 mm (10 pieces included per pack)
- Pneumatic female contact pins for ID = 1.6, 3.0, 4.0 or 6.0 mm (10 pieces included per pack)

- The female contact pin is available in versions with or without the shut-off function.

Please note the following when determining your order:

- The connection profiles of the Han® Pneumatic module contacts are designed for the internal tube diameter. A guide for selecting a compatible hose is included on page 10.
- Male and female leading guide pins are absolutely necessary when using pneumatic modules.

Users must select the appropriate versions and dimensions for the housing and mounting frame according to the requirements of their connector applications.

The components needed by users to build pluggable systems for compressed air distribution can be found in the Han® Pneumatic module and accessories table. Male and female leading guide pins must be used to ensure the long-term safety and stability of the transmission characteristics (refer to Table 1 on page 5).

Table 1: Han® Pneumatic module and accessories

Designation	M/F*	Order number	Ø**	Illustration
Han® Pneumatic module With three contacts	M/F	**09 14 003 4501**	1,6 / 3 / 4 mm	
Han® Pneumatic module With two contacts	M/F	**09 14 002 4501**	6 mm	
Contact pin Female with shut-off	M F	**09 14 000 6151** **09 14 000 6256**	1,6 mm	
Contact pin Female without shut-off	M F	**09 14 000 6151** **09 14 000 6251**	1,6 mm	
Contact pin Female with shut-off	M F	**09 14 000 6152** **09 14 000 6257**	3 mm	
Contact pin Female without shut-off	M F	**09 14 000 6152** **09 14 000 6252**	3 mm	
Contact pin Female with shut-off	M F	**09 14 000 6153** **09 14 000 6258**	4 mm	
Contact pin Female without shut-off	M F	**09 14 000 6153** **09 14 000 6253**	4 mm	
Contact pin Female with shut-off	M F	**09 14 000 6174** **09 14 000 6279**	6 mm	
Contact pin Female without shut-off	M F	**09 14 000 6174** **09 14 000 6274**	6 mm	
Han-Modular® male (M3) and female (M3) leading guide pins	M F	**09 14 000 9908** **09 14 000 9909**		
Assembly frame***		**09 14 000 9978**		
Screwdriver**** Bit (6.5 / 4.2 x 0.8 mm)		**09 99 000 0840** **09 99 000 0841**		
Seal rings (O-rings)		**09 14 000 9951** **09 14 000 9952**	1,6 / 3 / 4 mm 6 mm	

* M = male insert, F = female insert
** For hose inner diameter (= ID)
*** Assembly frame used to help attach the hoses to the pneumatic contacts
**** Includes 1/4” adapter, with torque of 0.5 Nm – for male/female leading guide pins

2. About this document

This document describes the possibilities for using the Han® Pneumatic module in HARTING modular connectors.

2.1 Target group

This document is aimed at the developers and planners of compressed air distribution systems. It is also intended for all persons responsible for assembling, installing, servicing or dismantling the pneumatic components found in HARTING industrial connectors.

2.2 Explanation of the formats and styles in use

This document uses the following special formats:

NOTICE	**NOTICE** warns of a potentially dangerous situation that could lead to property or environmental damage.

Blue font indicates references to other chapters or links to websites.

A ► marks information used for checking or feedback. Such information can help you to successfully carry out an assembly step.

3. General information

HARTING modular connectors meet the requirements for safety and testing as detailed in DIN EN 60 664-1 and DIN EN 61984. The safety of modular connectors can be first ascertained when they are actually in the application (e.g. after the individual components have been selected and assembled together). This chapter defines the proper and intended usage of Han® Pneumatic modules. It also provides general safety instructions for using the modules in the Han-Modular® connectors.

The user is responsible for determining that the HARTING industrial connectors comply with the necessary limits and safety regulations. Users refers to those persons who select, assemble, and/or operate the individual components for the Han® industrial connectors. The technical descriptions in this document specify the components; however no warranties or guarantee of specific characteristics are made.

3.1 Proper and intended usage

The Han® Pneumatic module shall be used to transmit properly prepared compressed air in the vicinity of Han-Modular® connectors. It is suitable for use in pneumatic systems which have an operating pressure no greater than 8 bar. Any other usage must be first agreed upon with HARTING.

3.2 General safety instructions

The following safety instructions must be followed during the installation, servicing and dismantling of Han-Modular® connectors (including the Han® Pneumatic module):

Requirements for installation
All work that is related to installation, servicing and dismantling of the Han-Modular® connectors must be performed by qualified, trained staff. If electrical modules are being used within the EU, this work must be carried out by qualified personnel in accordance with DIN EN 50110-1/-2 and IEC 60364. The relevant national accident prevention regulations must also be observed.

Never plug or unplug while under voltage or load
Han-Modular® plug connectors must never be plugged in or unplugged while electrical voltages or loads are applied. This prohibition does not apply if the connector contains only pneumatic modules.

Protection against electric shock
Han-Modular® connectors are designed for overvoltage category III (DIN EN 60 664-1). Users must ensure that the connector is properly installed to protect against electric shock. This protection can be ensured by using the connector housing provided by HARTING or by other measures that the user takes during the installation.

Only suitable for compressed air
The Han® Pneumatic module is only suitable for the transmission of dry properly prepared compressed air. Do not use valves or sockets from Han® Pneumatic modules for transmitting other media such as gases or liquids. Any usage that deviates from this purpose is not permissible unless it has been clarified with the relevant national associations for electrical engineering (e.g. in Germany: the VDE Association for Electrical, Electronic & Information Technologies or its regional organizations).

Permissible degree of pollution/contamination
Han-Modular® connectors are designed by default for pollution degree 3. All HARTING industrial connectors with IP54 protection or higher (IP protection classes according to DIN EN 61 984, section 6.19.2.3) comply with this pollution degree. Even connectors with a lower IP protection class are suitable for use as pollution degree 3 when they are equipped with a cap that provides them with IP54 or higher while disconnected.

Obligation for coding connectors when using multiple connectors
Connectors arranged side by side, whether they are similar or of different design, must be coded so that they cannot be plugged in improperly (refer to section 5.3, page 21).

4. Technical description

4.1 Module and contacts

The Han® Pneumatic module is used to create pluggable connections for transmitting dry properly prepared compressed air in pneumatic systems.

The female contacts are available in versions with or without the shut-off function. In the shut-off version, a spring-loaded valve closes over an O-ring when the connector is opened. This prevents compressed air from escaping. When plugged in, the male contact presses against the valve and keeps the contact open.

Table 2: Technical details

Approvals	,	,
Module		
Number of contacts	2 	3 
Colour	Blue	Blue
Material	Polycarbonate	Polycarbonate
Temperature limits	-40 °C to +80 °C	-40 °C to +80 °C
Flammability according to UL 94	V 0	V 0
Mechanical lifespan	≥ 500 plugging cycles	≥ 500 plugging cycles
Contacts		
Material	Delrin acetal	Delrin acetal
Colour	Black	Black
Hose connection		
- inner diameter (ID)	6.0 mm (1/4")	1.6 mm (1/16") 3.0 mm 4.0 mm (1/8")
Operating pressure	Up to 8 bar (116 psi)	Up to 8 bar (116 psi)
Seals		
Material	Buna-N	Buna-N
Shut-off valve		
Material	Polypropylene	Polypropylene

4.2 Matching pneumatic hoses

Tables 3 through 6 (refer to pages 10 – 11) list the pneumatic hoses which have been tested by HARTING to work with Han® Pneumatic modules. The holding forces of the tubes on the contacts were measured at different temperatures as well as before and after ageing. The listed hoses have been deemed suitable for use with the Han® Pneumatic module. This selection list is provided only to assist you in your procurement decision. Hoses from other manufacturers of comparable quality may also be suitable for use with the Han® Pneumatic module.

Table 3*: Suitable pneumatic hoses for ID 6 mm contacts

Manu-fac-turer	Material	Article number**	Outer diam. (mm)	Inner diam. (mm)	Bend radius (mm)	Temp. range (°C)
Festo	Polyurethane	9159 PU-6-BL	8.3	5.9	36	-35...+60
Festo	Polyurethane	197378/PUN-H-8x1,25NT	8	5.7	37	-35...+60
Festo	Polyamide	152 700 PAN-8x1, 25-SI	8	5.9	43	-30...+80
Legris	Polyurethane	1025 U 0801	8	5.5	20	-20...+70
Legris	Polyamide	1025P08 00	8	6	55	-20...+ 80
SMC	Polyurethane	TU 0805	8	5	20	-20...+60
SMC	Polyamide	TS 0806	8	6	23	-20...+60
Bosch/ Rexroth	Polyurethane	1820712003	8	5.7	30	-40...+60
Bosch/ Rexroth	Polyamide	1820712102	8	6	40	-40...+80

** Product article number from the corresponding manufacturer; deviations are possible.

Table 4*: Suitable pneumatic hoses for ID 4 mm contacts

Manu-fac-turer	Material	Article number**	Outer diam. (mm)	Inner diam. (mm)	Bend radius (mm)	Temp. range (°C)
Festo	Polyurethane	6204 PU-4-BL	6.1	3.9	20	-35...+60
Festo	Polyurethane	197377/PUN-H-6x1NT	6	4	26	-35...+60
Festo	Polyamide	4231 PP-4-NT	6	4	27	-30...+80
Festo	Polyamide	152 699 PAN-6x1-SI	6	4	32	-30...+80
Legris	Polyamide	1025P06 00	6	4	35	-20...+ 80
SMC	Polyurethane	TU 0604	6	4	15	-20...+60
SMC	Polyamide	TS 0604	6	4	15	-20...+60
Bosch/ Rexroth	Polyurethane	1820712002	6	3.9	18	-40...+60
Bosch/ Rexroth	Polyamide	1820712101	6	4	35	-40...+80

Table 5*: Suitable pneumatic hoses for ID 3 mm contacts

Manu-facturer	Material	Article number**	Outer diam. (mm)	Inner diam. (mm)	Bend radius (mm)	Temp. range (°C)
Festo	Polyurethane	5732 PU-3-BL	4.3	2.9	14	-35...+60
Festo	Polyurethane	197376/PUN-H-4x0.75NT	4	2.6	16	-35...+60
Festo	Polyamide	4572 PP-3-NT	4.3	3	19	-30...+80
Festo	Polyamide	152 697 PAN-4x0,75-SI	4	2.9	18	-30...+80
Legris	Polyamide	1025P04 00 27	4	2.7	30	-20...+ 80
SMC	Polyurethane	TU 0425	4	2.5	10	-20...+60
SMC	Polyamide	TS 0425	4	2.5	12	-20...+60
Bosch/ Rexroth	Polyamide	R412009913	4	3	20	-40...+80
Bosch/ Rexroth	Polyurethane	1820712010	4	2.5	12	-30...+ 80

** Product article number from the corresponding manufacturer; deviations are possible.

Table 6*: Suitable pneumatic hoses for ID 1.6 mm contacts

Manu-facturer	Material	Article number**	Outer diam. (mm)	Inner diam. (mm)	Bend radius (mm)	Temp. range (°C)
Legris	Polyurethane	1025U03 01 18	3	1.8	8	-15...+70
Legris	Polyamide	1025P03 00 18	3	1.8	8	-20...+80
Legris	Polyurethane	1094U53 00	3.2	1.6	6.4	-40...+74
Bosch/ Rexroth	Polyurethane	1820712068	3	1.8	8	-30...+80
SMC	Polyurethane	TIUB01	3.2	1.985	10	-20...+60

* Note to tables 3 through 6: This overview lists only some of the available hose types, other hoses with the appropriate inner diameter may also be used even if not included within the tested list. The colour of the hose is not given, although it differs between the tested articles.

4.3 Flow rate and pressure drop across the contact

To assist designers and planners as they select and dimension their compressed air systems, HARTING has determined the maximum flow rate, the pressure drop and the flow coefficient for the contacts of the Han® Pneumatic module.

Table 7: Maximum flow rate for pneumatic contacts with/without shut-off

Hose ID (mm)	Max. flow rate (l/min)	Pressure drop at the contact – Δp (bar)
1,6	51	1,0
1,6 s*	36	1,0
3,0	45	1,0
3,0 s*	32	1,0
4,0	230	0,86
4,0 s*	117	0,86
6,0	354	1,0
6,0 s*	179	1,0

* Female contact with shut-off

Table 8: Flow coefficient (Kv/Cv)* when combining contacts

Hose ID (mm)	1,6	3,0	4,0	6,0
Female	0,37/0,43	0,37/0,43	2,36/2,74	1,57/1,82
Female s**	0,31/0,36	0,34/0,40	0,99/1,15	0,77/0,9

* Kv value in accordance with VDI/VDE 2173; Cv value (l/min) for non-metric systems (flow coefficient)

** Female contact with shut-off

4.4 Chemical compatibility

Like many of our modules in the Han-Modular® series, the Han® Pneumatic module is made from polycarbonate, the contacts are made of Delrin acetal, and the shut-off valves are made of polypropylene. Based on the chemical compatibility of the materials in use, the chemical compatibility of the module is described in Table 9. We recommend using a protective cap to cover the connector while it is not plugged in so that it is protected from chemicals. You should also select a connector with the proper protection class to fit your requirements.

If, despite this protection, the modules still make contact with chemicals, please observe the information in the following table.

Table 9: Resistance of the pneumatic module when in contact with chemicals

Chemical	Behaviour	Chemical	Behaviour
Acetone	Resistant	Jet fuel/kerosene	Resistant
Alcohol (all types)	Resistant	Vinegar	Resistant
Ammonia	Insufficient	Acetic acid (5%)	Resistant
Aniline	Limited resistance	Acetic acid (20%)	Limited resistance
Benzene	Resistant	Acetic acid (50%)	Insufficient
Bleach (10% chlorine)	Insufficient	Ethanol	Resistant
Brake fluid	Resistant	Ethyl acetate	Resistant
Butane	Resistant	Ethylene glycol	Resistant
Calcium chloride (10%)	Resistant	Ethyl ether	Resistant
Monochloroacetic acid (10%)	Insufficient	Hydrofluoric acid (10%)	Insufficient
Chlorine gas	Insufficient	Formaldehyde (37%)	Insufficient
Chlorinated water	Limited resistance	Glucose (total solubility)	Resistant
		Urea	Resistant
Chloroform	Limited resistance	Heating oil	Resistant
		Heptane	Resistant
Chromic acid	Insufficient	Hexane	Resistant
Cyclohexane	Resistant	Insecticides	Resistant
Detergent	Resistant	Isooctane	Resistant
Diesel fuel	Resistant	Potassium hydroxide (10%)	Insufficient

Chemical	Behaviour
Carbon dioxide	Resistant
Carbon monoxide	Resistant
Fuels	Resistant
Nitrous oxide (dry)	Insufficient
Air (all pressures)	Resistant
Methyl chloride	Limited resistance
Methylene chloride	Limited resistance
Methyl ethyl ketone	Limited resistance
Mineral oil	Resistant
Motor oil	Resistant
Sodium chloride (10%)	Resistant
Sodium hydroxide (10%)	Insufficient
Sodium hypochlorite (5%)	Insufficient
Fruit juice	Resistant
Oils (mineral oil)	Resistant
Oils (food-based)	Resistant
Oleic acid	Resistant

Chemical	Behaviour
Palmitic acid	Resistant
Paraffins	Resistant
Perchloric acid (10%)	Insufficient
Phosphoric acid (30%)	Insufficient
Propane (liquid gas)	Resistant
Nitric acid (10%)	Insufficient
Nitrous acid	Insufficient
Hydrochloric acid (10%)	Insufficient
Lubricating oil	Resistant
Sulphur dioxide	Insufficient
Sulphuric acid (30%)	Insufficient
Hydrogen sulphide	Insufficient
Turpentine / white alcohol	Resistant
Tetrahydrofuran	Resistant
Toluene	Resistant
Trichloroacetic acid	Insufficient
Trichloroethane (1,1,1 -)	Resistant
Hydrogen peroxide (1%)	Resistant
Hydrogen peroxide (30%)	Insufficient
Citric acid	Limited resistance

4.5 Permissible connector housing

The pneumatic module can be used in a wide range of Han® housings with metric or PG thread. In certain cases, therefore an extra mounting frame is required (e.g. Han® 10A).

Make sure that you consider the outer diameter of the hoses when selecting the cable entry, direction and diameter. When choosing the appropriate housing, you should also consider the diameter and bending radius of the pneumatic hoses. Generally, it is advisable to choose a high construction housing.

Table 10: Connector housings suitable for the pneumatic module

Housing type	Sizes	Order number*	Metric cable outlet	Number of modules
- Han® A Standard**	10A	**19 20 010 1540...** **19 20 010 0446**	1x20, 1x25	1
- Han® B Standard	6B/10B 16B/24B 32B/48B	**19 30 006 0446...** **19 30 048 0548**	1x20, 1x25, 1x32, 2x 32, 1x40, 1x50	2/3/4/6/8/12
- Han® EMV	6B/10B 16B/24B	**19 62 006 0441...** **19 62 824 0427**	1x20...1x40	2/3/4/6
- Han® M	6B/10B 16B/24B 48B	**19 37 006 0446...** **19 37 048 0548**	1x20...1x50	2/3/4/6/12
- Han® HPR	6B/10B 16B/24B	**19 40 006 0401...** **19 40 024 0811**	1x20...2x40, 1x63	2/3/4/6
- Han® SNAP	6B/10B 16B/24B	**09 33 006 0401 ...** **09 33 024 0401**	-	2/3/4/6
- Han-Modular® Compact		**19 14 001 0401...** **19 14 001 0501**	1x25, 1x32	1
- Han-Modular® Twin		**19 14 002 0402**	1x32	2

* Sample order numbers for housings. Taller housing designs may be more suitable depending on your combination of modules. They will make wiring easier and allow you to maintain the maximum bending radius. For other order numbers, refer to HARTING Han® Industrial Connectors, Chapters 6, 11 and 31.

** Assumes use of Han® A adapters (order number **09 14 000 0304**) (refer to HARTING Han® Industrial Connectors, Chapter 6).

English

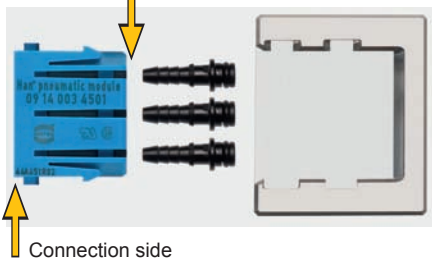
5. Assembly manual

NOTICE

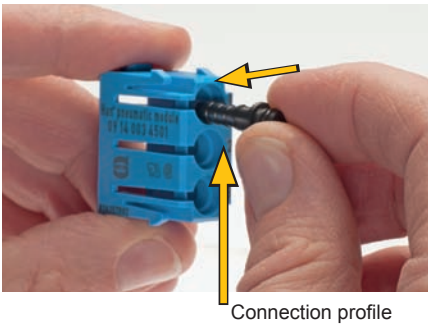
Before assembling the Han® Pneumatic module, refer to Figure 1 on page 3 to get an overview of the arrangement of the individual components within the connector.

5.1 Pre-assembly using the assembly frame

In the following, the pre-assembly process is demonstrated using the Han® Pneumatic module with three contacts. The module with two contacts is assembled in the same way. The use of the assembly frame is optional. If you will not be using this frame, go to section 5.2 on page 18.



Overview
- Han® Pneumatic module (left)
- 3 male contacts (center)
- Assembly frame (right, optional)



1. Insert the contacts (with the connection profile forwards) into the openings on the plug side of the pneumatic module. Insert until you feel some resistance. Now press on the contact firmly until it snaps into the frame.

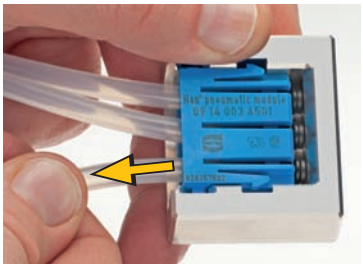
► *You will hear a click. If you rotate the module so that the plug side is facing down, the contacts will not fall out.*

2. Put the pneumatic module (with the contacts already fitted in) into the assembly frame.

► *The male and female contacts pins must be positioned directly on the assembly frame.*

3. Push the pneumatic hoses on the contacts!
A safe connection requires that the end of the tube is extending over the upper ring* of the profile (as indicated by the arrow).

* ID 6: 2 rings; ID 4: 3 rings; ID 3: 1 ring; ID 1.6: 1 ring



4. Check that they are seated firmly.

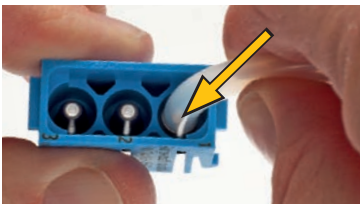
► *It should not be possible to pull off the hoses by hand.*

You can now install the module in the mounting frame.

5.2 Assembly into the connector

This section describes how to install the Han® module into the mounting frame and into the connector housing. The installation assumes that you have already routed cables and hoses into the housing (or through the frame in the electrical cabinet) and that the wires/cables are already connected to the electrical modules. When you have already installed the hoses, start the installation process at step 4.

1. Insert the contacts (with the connection profile forwards) into the openings on the plug side of the pneumatic module. Insert until it snaps into the frame.

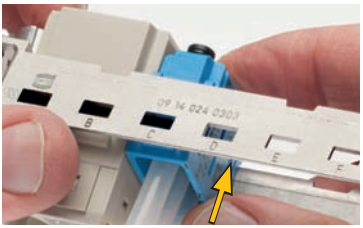


2. Push the pneumatic hoses on the contacts.

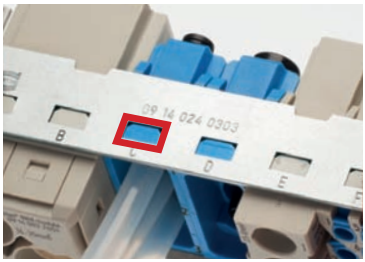
3. Check that they are seated firmly. A safe connection requires that the end of the tube is extending over the upper ring* of the profile (as indicated by the arrow).

► *It should not be possible to pull off the hose by hand.*

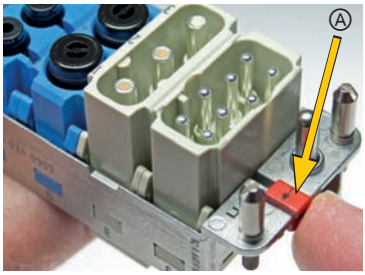
* ID 6: 2 rings; ID 4: 3 rings; ID 3: 1 ring; ID 1.6: 1 ring



4. Open the mounting frame in order to install the modules. Insert the modules into the mounting frame so that the grooves fit into the recesses of the lower mounting arm.



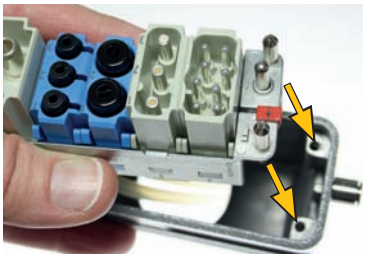
5. Close the mounting frame after it has been completely assembled. The grooves of the modules must fit exactly into the recesses on both sides of the mounting frame (as indicated by the red frame).



6. You can protect the mounting frame so that it cannot be opened accidentally: Slide the locking mechanism in the gap between the two parts of the mounting frame.

► *The small black arrow on the top of the locking mechanism Ⓐ must point towards the mounting frame label.*

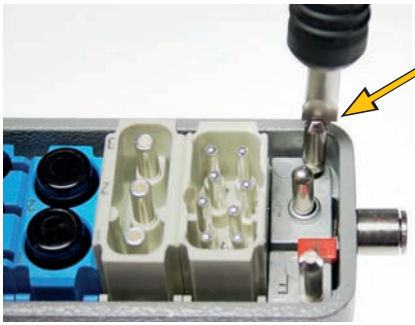
If you will be using plug coding, go to section 5.3 on page 21.



7. Slide the mounting frame into the housing. Pull the cables and hoses back through the cable outlet.

NOTICE

In order to be prepared in the future for any swapping out of components, it makes sense to install extra tubing (with an extra length at least as long as the pneumatic contact) when you are initially assembling the connector.



8. Secure the mounting frame together with the male and female leading guide pins in the housing (refer to section 5.3 on page 21).

Coding for the Han-Modular® series

Figure 2: Connector with one mounting frame

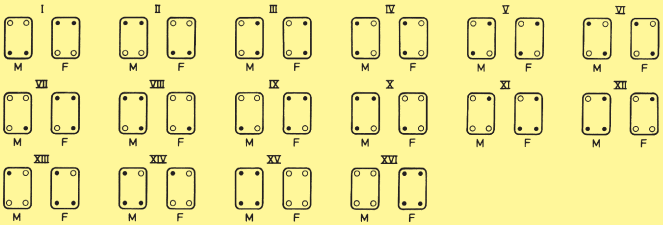
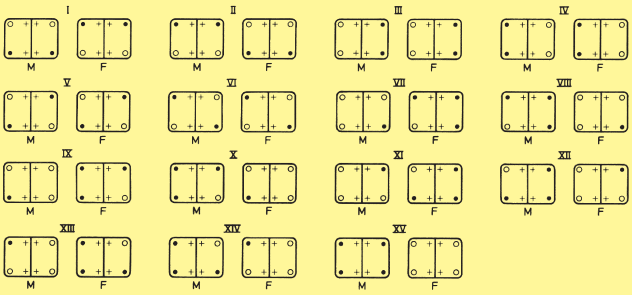


Figure 3: Connector with two mounting frames



Legend:

- ● Male leading guide pin
- ○ Female leading guide pin

M = Male

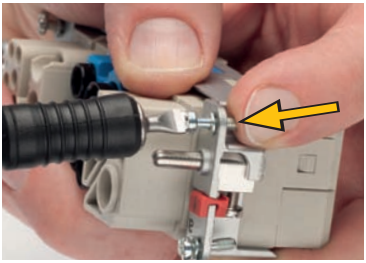
F = Female

\+ Retaining screw

5.3 Male and female leading guide pins

Male and female leading guide pins are used to prevent the connector from being plugged in or pulled out at an improper angle. Always use the pneumatic modules together with Han-Modular® guide pins (male: **09 14 000 9908**) (female: **09 14 000 9909**). Their usage will ensure a maximum angled position, in accordance with DIN EN 175301-801, of ±5° in the lengthwise direction (refer to Table 1: Han® Pneumatic module and accessories, on page 5).

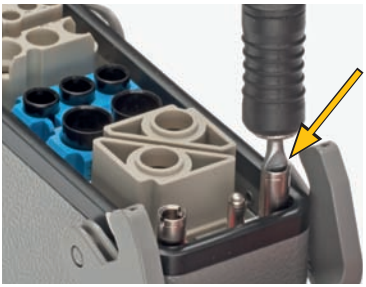
Install the mounting frame in place at all four positions. Use the fastening screw along with the male and/or female leading guide pins (refer to the templates shown in Figures 2 and 3, page 20). A coding pin can also be used for coding purposes (order numbers: **09 33 000 9954** – Han E® / **09 33 000 9915** – Han D®) together with crimp inserts from the Han E®, Han® EE, Han D® or Han DD® series.



1. Remove the retaining screws from the corners of the mounting frame in order to access the guide/coding.

NOTICE

You can assembly the male and female guide pins before you attach the mounting frame in the housing.

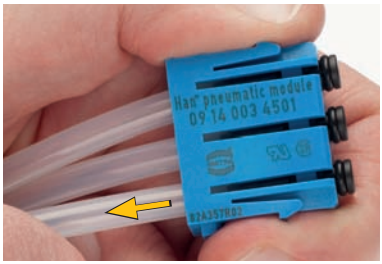


2. Place the mounting frame (which is already holding the modules) into the housing as described in section 5.2, step 7, on page 19. Attach the male and female leading guide pins.

5.4 Dismantling

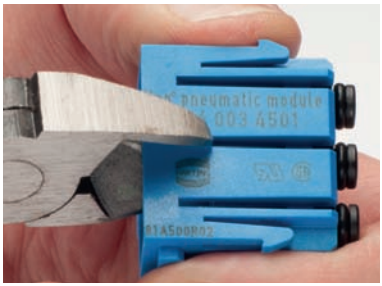
This section describes how the pneumatic hoses can be removed without placing undue stress on any materials. You can also continue to use the pneumatic contacts, if this is absolutely necessary.

1. In order to remove the hoses from the contacts, cut the hose ends lengthwise through the slots of the pneumatic module.



2. Pull the hoses from the contacts and dispose of the used pneumatic module.

In an emergency, there is an option to remove and reuse the contacts. Note that the module will be destroyed in the process.



1. Use diagonal pliers to carefully disconnect the plastic wall of the pneumatic module. Then remove the contacts for further use.

6. Preventing malfunctions

Compressed air systems can become contaminated with solid particles, such as metal fragments, water, oils or grease. Such impurities can cause the pressure in the distribution system to drop. Leaks from hoses, contacts or valves can also cause pressure drops. Follow the operating and safety instructions for the compressed air processing/distribution equipment closely (and also for the silencing equipment, where applicable). Also follow the safety instructions from the manufacturers of hoses, valves, and other coupling elements.

NOTICE

If electrical modules are also mounted in the Han® industrial connector, then you must always make sure before any maintenance or repair that the connector is not live (that no voltage is applied).
A qualified electrician or trained technician must determine that no voltage is applied.

When troubleshooting Han® Pneumatic modules, please note the following:

- The contacts should always be protected against external influences, even when they are unplugged (e.g. use protective caps).
- Check the condition of the pneumatic contacts.
- We recommend using highly resistant heavy-duty compressed air tubing for applications that are exposed to harsh conditions.

Pushing Performance

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