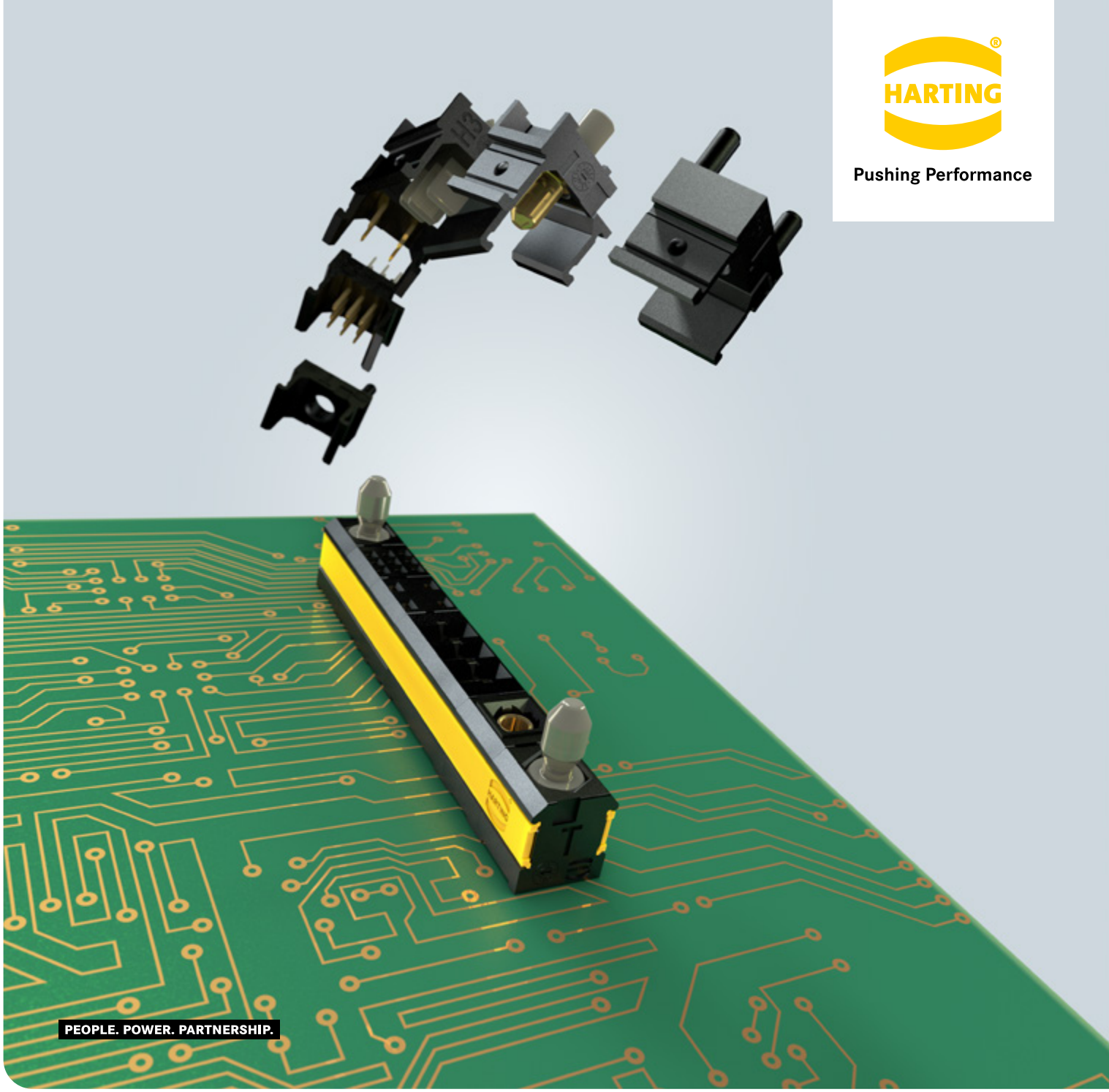
HARTING

Pushing Performance



HARTING *har*-modular®

The modular solution for your Board-to-Board application.

har-modular®

CREATE YOUR OWN

Transforming customer wishes into concrete solutions

The HARTING Technology Group is skilled in the fields of electrical, electronic and optical connection, transmission and networking technology, as well as in manufacturing, mechatronics and software creation. The Group uses these skills to develop customized solutions and products such as connectors for energy and data-transmission /data-networking applications, including, for example, mechanical engineering, rail technology, wind energy plants, factory automation and the telecommunications sector. In addition, HARTING also produces electro-magnetic components for the automobile industry and offers solutions in the field of housing technology and shop systems.
The HARTING Group currently comprises 58 sales companies and production plants worldwide employing a total of about 5,500 staff.

HARTING subsidiary HARTING representation

We aspire to top performance.
Connectors ensure functionality. As core elements of electrical and optical termination, connection and infrastructure technologies, they are essential in enabling the modular construction of devices, machines and systems across an extremely wide range of industrial applications. Their reliability is a crucial factor guaranteeing smooth functioning in the manufacturing area, telecommunications, applications in medical technology – in short, connectors are at work in virtually every conceivable application area. Thanks to the ongoing development of our technologies, our customers enjoy investment security and benefit from durable, long-term functionality.

Wherever our customers are, we're there.
Increasing industrialization is creating growing markets that are characterized by widely diverging demands and requirements. What these markets all share in common is the quest for perfection, increasingly efficient processes and reliable technologies. HARTING is providing these technologies – in Europe, the Americas and Asia. In order to implement customer requirements in the best possible manner, the HARTING professionals at our international subsidiaries engage in up-close, partnership-based interaction with our customers, right from the very early product development phase.

Our on-site staff form the interface to the centrally coordinated development and production departments. In this way, our customers can rely on consistently high, superior product quality – worldwide.

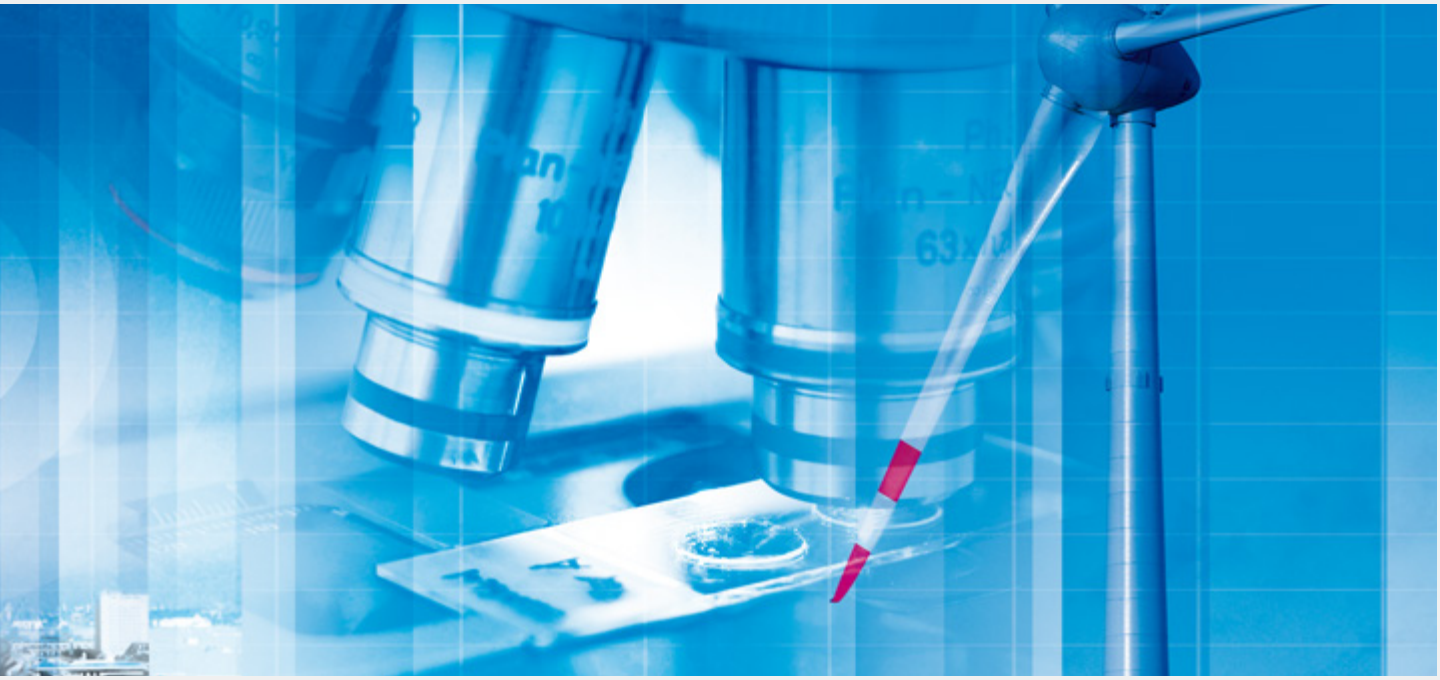
Our claim: Pushing Performance.
HARTING provides more than optimally attuned components. In order to offer our customers the best possible solutions, on request HARTING contributes a great deal more and is tightly integrated into the value-creation process. From ready-assembled cables through to control racks or ready-to-go control desks. Our aim is to generate maximum benefit for our customers – with no compromises!

Quality creates reliability – and warrants trust.
The HARTING brand stands for superior quality and reliability – worldwide. The standards we set are the result of consistent, stringent quality management that is subject to regular certifications and audits. EN ISO 9001, the EU Eco-Audit and ISO 14001:2004 are key elements here. We take a proactive stance towards new requirements, which is why HARTING is the first company worldwide to have obtained the new IRIS quality certificate for rail vehicles.

HARTING technology creates added value for customers. Technologies by HARTING are at work worldwide.
HARTING's presence stands for smoothly functioning systems powered by intelligent connectors, smart infrastructure solutions and sophisticated network systems. Over the course of many years of close, trust-based cooperation with its customers, the HARTING Technology Group has become one of the leading specialists globally for connector technology. We offer individual customers specific and innovative solutions that go beyond the basic standard functionalities. These tailored solutions deliver sustained results, ensure investment security and enable customers to achieve significant added value.

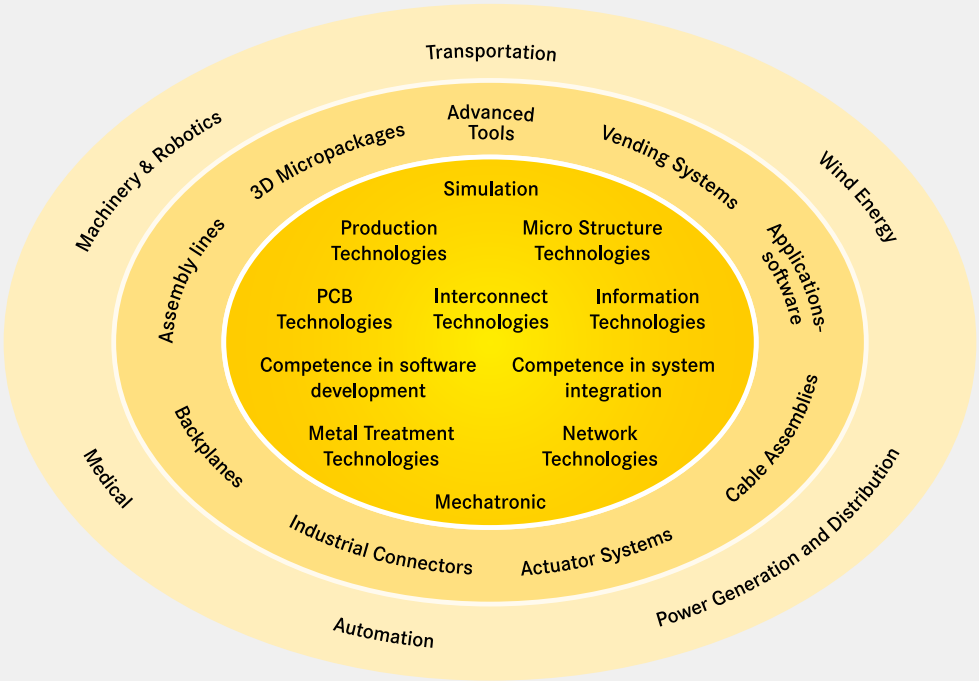
Opting for HARTING opens up an innovative, complex world of concepts and ideas.
In order to develop and produce connectivity and network solutions serving an exceptionally wide range of connector applications in a professional and cost-effective manner, HARTING not only commands the full array of conventional tools and basic technologies. Above and beyond these capabilities, HARTING is constantly harnessing and refining its broad base of knowledge and experience to create new solutions that also ensure continuity. To secure its lead in know-how, HARTING draws on a wealth of sources from its in-house research and applications.
Salient examples of these sources of innovative knowledge include micro structure technologies, 3D design and connection technology, high-temperature and ultra-high-frequency applications that are finding use in telecommunications and automation networks, in the automotive industry, or in industrial sensor and actuator applications, RFID and wireless technologies, in addition to packaging and housing made of plastics, aluminium and stainless steel.

HARTING overcomes technological limitations.
Drawing on the comprehensive resources of the group's technology pool, HARTING devises practical solutions for its customers. Whether this involves industrial networks for manufacturing automation, or hybrid interface solutions for wireless telecommunication infrastructures, 3D circuit carriers with micro structures, or cable assemblies for high-temperature applications in the automotive industry – HARTING technologies offer not only components, but comprehensive solutions attuned to individual customer requirements and preferences. The range of cost-effective solutions covers ready-to-use cable configurations, completely assembled backplanes and board system carriers, as well as fully wired and tested control panels.
In order to ensure the future-proof design of RF and EMC-compatible interface solutions, the central HARTING laboratory (certified to EN 45001) employs simulation tools, as well as experimental, testing and diagnostics facilities all the way to scanning electron microscopes. In addition to product and process suitability considerations, life cycle and environmental aspects play a key role in the selection of materials and processes.



HARTING's knowledge is practical know-how that generates synergy effects.

HARTING commands decades of experience with regard to the applications conditions involved in connections in telecommunications, computer, network and medical technologies, as well as industrial automation technologies, e.g. in the mechanical engineering and plant engineering areas, in addition to the power generation industry and the transportation sector. HARTING is highly conversant with the specific application areas in all of these technology fields. In every solution approach, the key focus is on the application. In this context, uncompromising, superior quality is our hallmark. Every new solution found invariably flows back into the HARTING technology pool, thereby enriching our resources. And every new solution we go on to create will draw on this wealth of resources in order to optimize each and every individual solution. HARTING is synergy in action.



The **HARTING eCatalogue / eShop** can be found on our homepage at **www.HARTING.com** or at the direct link **b2b.HARTING.com/ebusiness.**

The **HARTING e-Catalogue** is your platform for conveniently selecting individual products as well as configuring complete solutions. Our comprehensive product pages provide you with all necessary technical information and CAD files in various formats for downloading. You may also contact our technical sales department directly.

Find out about product innovations and news on the start page of the HARTING e-Catalogue or go directly to **www.harting.com/DE/en-gb/node/212.**

Registered users can take advantage of MyHARTING to check on availability or prices, and to place or track their orders. Here, your customized “HARTING history” provides you with a list of your inquiries, quotations and more.

Sign up now for your free MyHARTING account at **www.HARTING.com/service-account-registration!**

Product samples: Fast-track delivery to your desk, free of charge

The new free express sample service in the HARTING eCatalogue allows customers to order samples immediately, easily and completely free of charge. A broad selection is now available. If a product is unavailable, the system offers alternative products with similar features that can be requested at a mouse click.

The free samples are shipped within 24 hours at no cost to you. This service enables tremendous flexibility, especially in the design phase of projects.

Contents	Page

New products for modular PCB connectors.

HARTING *har*-modular®
The new modular solution for your Board-to-Board application.

CREATE YOUR OWN!

Developers know this. A good idea for a new product fails because of the availability of suitable components. Several lifelines of data, power and signals are to be routed from one PCB to another and no supplier has a suitable connector ready on the shelf. A special solution can be developed, but it usually takes too long and the minimum order quantity is too large for worthwhile prototyping. So in the end it becomes a stopgap solution from the best fitting connector available. So why not simply invent a connector that developers can assemble as they need it? Exactly. We call it *har*-modular® . A connector that is perfectly tailored to the individual application and can be configured online from numerous modules, offering an almost infinite number of individual solutions. From batch size 1, developers can always find the right connection using the modular principle.
Any arrangement, no matter how innovative and creative, within a device design is no longer dependent on whether there is a suitable standard strip or variant. The developer adapts the connector to his requirements. Not the other way round.

har-modular®
CREATE YOUR OWN

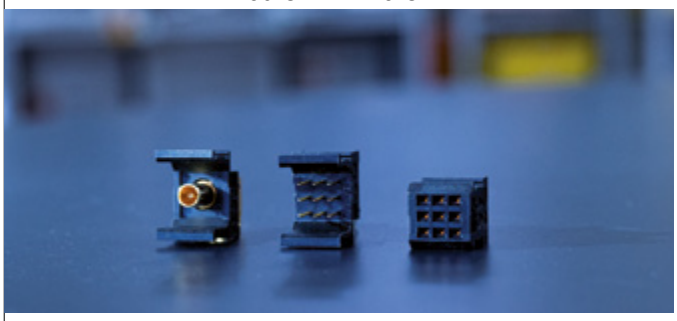
3 steps to your individual connector

With the *har*-modular® online configurator, you can now find your individual solution even more easily and quickly. Every conceivable combination can be configured here in three simple steps.

STEP 1 - *Which modules and how many?*

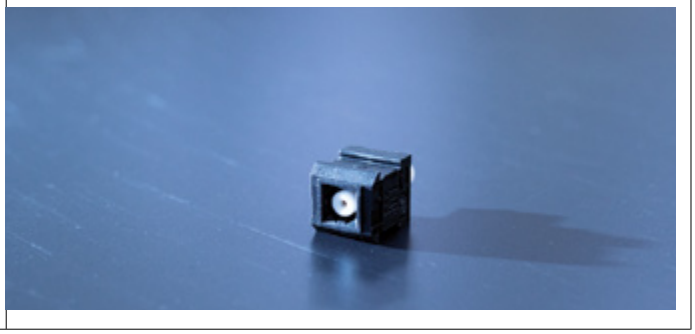
The *har*-modular® modular system offers modules for all three lifelines: power, signals and data. In the first step, you select the appropriate modules and their required number for your application.

The modules in detail:
Signal Modules
Two modules are available for the transmission of signals:
- 9 contacts with a maximum current of 2A/ contact
- 1 coax contact with 50 Ohm or 75 Ohm



Power modules
Three modules are available for the transmission of power:
- 1 contact with a maximum current of 40 A / contact
- 3 contacts with a maximum current of 15 A / contact
- 4 contacts with a maximum current of 6 A / contact

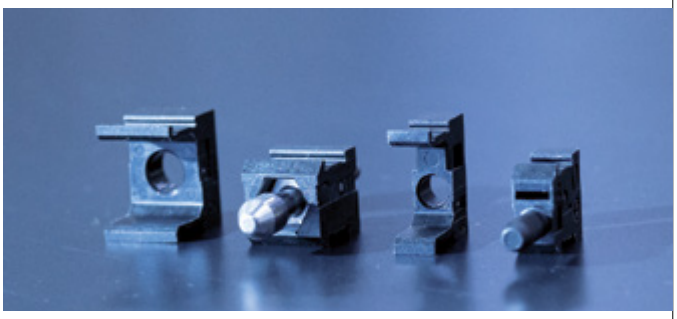
High-voltage modules
A module is available for the transmission of high voltage:
- 1 contact at a maximum of 2,800 V at 1.5 A



New products for modular PCB connectors.

***STEP 2** - The guiding pin*

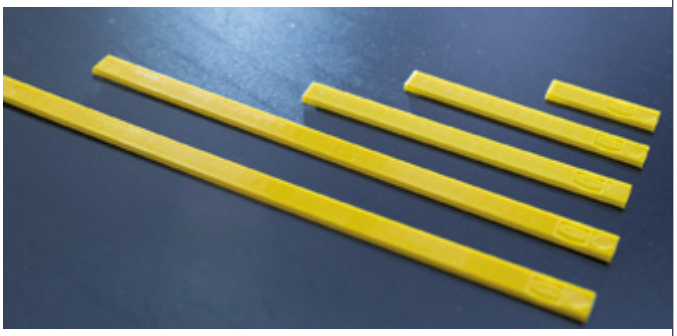
For the secure connection of all modules, each *har*-modular® connector requires two guide pins. Depending on your application, you can choose guide pins in plastic or metal. If you ask us, the best position for the guide pins is always the end of the connector. But any other position is also possible.



***STEP 3** - The connecting rail*

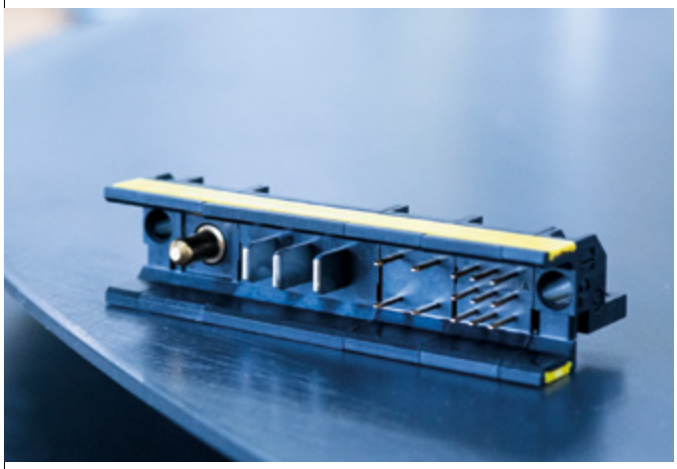
Select the appropriate yellow fastening rail for this step. It must have the same length as all the modules together. In the next step, take the mounting tool and put your modules side by side on the module. Depending on your modules, use the MALE or FEMALE side up. Now press the top edge of the mounting strip into the top slot of the module. Start this at one of the two ends and connect one module at a time. Do the same on the opposite side.

DONE!



All modules Modules can be freely combined in widths from 20 to 172 millimetres. The principle always remains the same. Select modules, select guide pins, insert connecting rails and the connector is ready. The position of the elements among each other is completely free and can be recombined again and again. In just a few steps, an absolutely customised connection solution is created for rack systems and PCB applications of all kinds.

Who needs a modular connector?



First and foremost, those users who cannot find the right solution for their application from the wide range of DIN 41612 connectors. Here, too, special solutions are possible, but not as quickly, and with *har*-modular® it is possible to respond even more specifically to every customer request. This also makes *har*-modular® the perfect solution for prototyping and small series. Here, the interface can be reconfigured quickly and developers are much freer in their design.

Good to know:

Of course, the *har*-modular® is suitable for pick&place, can be soldered on wave soldering systems as well as in the reflow process and arrives fully assembled at your premises from an order quantity of 200 pieces.

C9 module

Technical characteristics

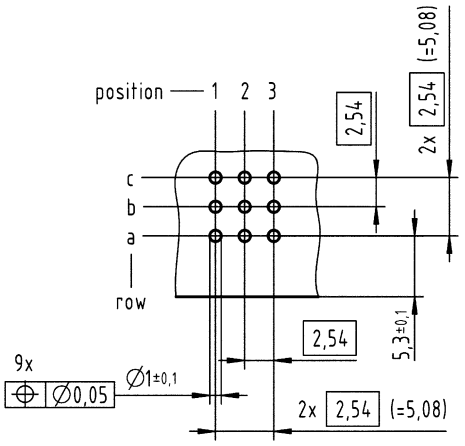
Contact spacing (mating side)	2.54 mm
Rated current	2 A
Test voltage $U_{r.m.s.}$	1 kV
Insulation resistance	$>10^{11}$ Ω
Contact resistance	≤20 mΩ
Limiting temperature	-55 ... +125 °C (during reflow soldering max. +240 °C for 15 s)
Mating cycles	≥500
Clearance distance	1 mm in the module 1.9 mm to module edge
Creepage distance	1 mm in the module 1.8 mm to module edge
Termination length	3 mm, 4.8 mm, 4.5 mm
Railway classification	F1/I2, acc. to NFF 16-101/102
Performance level	1 acc. to IEC 60603-2
Mating cycles	≥500
Material (insert)	Polyamide (PA)
Isolation group	I, (600 ≤ CTI)
Colour (insert)	Black
Material (contacts)	Copper alloy
Surface (contacts)	Noble metal over Ni, Mating side Sn over Ni, Termination side
Material flammability class acc. to UL 94	V-0
RoHS	compliant

Specifications and approvals

UL 1977 ECBT2.E102079
CSA-C22.2 No. 182.3 ECBT8.E102079

Details

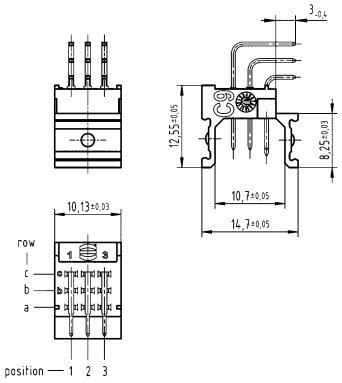
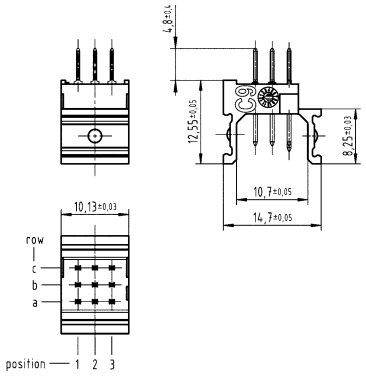
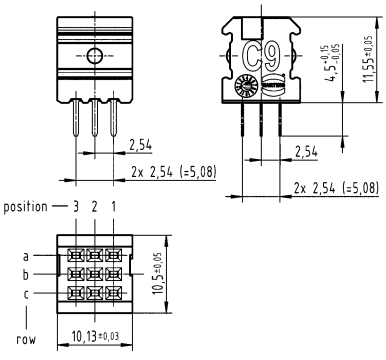
Board drillings



C9 module

Width of the module

10.16 mm

Identification	Number of contacts	Leading contact	Part number	Drawing (dimensions in mm)
har-modular®, C9 module, Male connector, Reflow soldering termination (THR), Wave soldering termination, Angled 	9 9 9	 a1 a3	02 51 909 1101 02 51 909 1102 02 51 909 1103	
har-modular®, C9 module, Male connector, Reflow soldering termination (THR), Wave soldering termination, Straight 	9 9 9	 a1 a3	02 53 909 1101 02 53 909 1102 02 53 909 1103	
har-modular®, C9 module, Female connector, Reflow soldering termination (THR), Wave soldering termination, Straight 	9		02 52 909 1101	

F4 module

har-modular

Technical characteristics

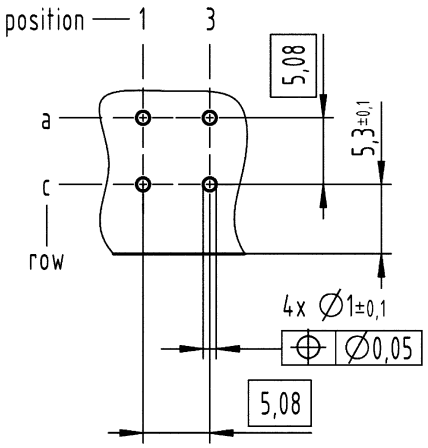
Contact spacing (mating side)	5.08 mm
Rated current	6 A
Test voltage $U_{r.m.s.}$	1.55 kV
Insulation resistance	$>10^{11}$ Ω
Contact resistance	≤15 mΩ
Limiting temperature	-55 ... +125 °C (during reflow soldering max. +240 °C for 15 s)
Mating cycles	≥500
Clearance distance	3 mm in the module 1.6 mm to module edge
Creepage distance	3 mm in the module 1.6 mm to module edge
Termination length	3 mm, 4.8 mm, 4.5 mm
Railway classification	F1/I2, acc. to NFF 16-101/102
Performance level	1 acc. to IEC 60603-2
Mating cycles	≥500
Material (insert)	Polyamide (PA)
Isolation group	I, (600 ≤ CTI)
Colour (insert)	Black
Material (contacts)	Copper alloy
Surface (contacts)	Noble metal over Ni, Mating side Sn over Ni, Termination side
Material flammability class acc. to UL 94	V-0
RoHS	compliant

Specifications and approvals

UL 1977 ECBT2.E102079
CSA-C22.2 No. 182.3 ECBT8.E102079

Details

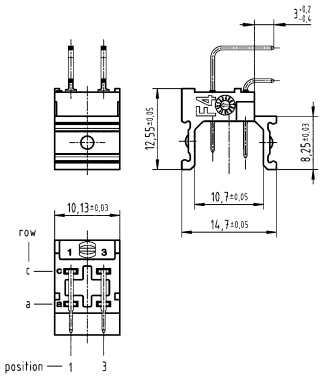
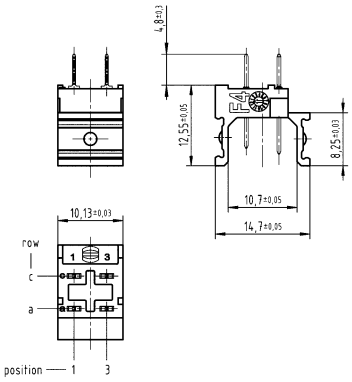
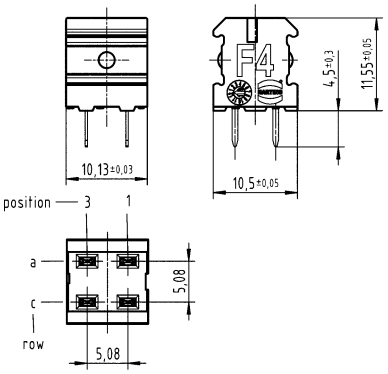
Board drillings



F4 module

Width of the module

10.16 mm

Identification	Number of contacts	Leading contact	Part number	Drawing (dimensions in mm)
har-modular®, F4 module, Male connector, Rows a and c, positions 1 and 3, Reflow soldering termination (THR), Wave soldering termination, Angled 	4 4	 a1	02 51 904 1201 02 51 904 1202	
har-modular®, F4 module, Male connector, Rows a and c, positions 1 and 3, Reflow soldering termination (THR), Wave soldering termination, Straight 	4 4	 a1	02 53 904 1201 02 53 904 1202	
har-modular®, F4 module, Female connector, Rows a and c, positions 1 and 3, Reflow soldering termination (THR), Wave soldering termination, Straight 	4		02 52 904 1201	

Technical characteristics

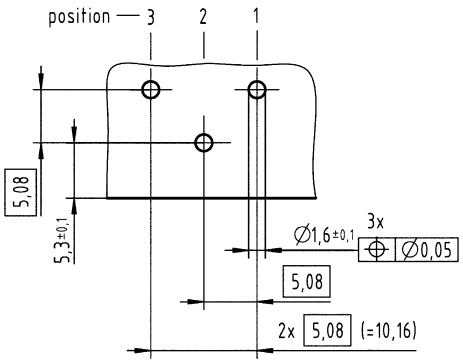
Contact spacing (mating side)	5.08 mm
Rated current	15 A
Test voltage $U_{r.m.s.}$	2.5 kV
Insulation resistance	$>10^{11}$ Ω
Contact resistance	≤8 mΩ
Limiting temperature	-55 ... +125 °C (during reflow soldering max. +240 °C for 15 s)
Mating cycles	≥500
Clearance distance	4 mm in the module 4.4 mm to module edge
Creepage distance	4.4 mm in the module 4.6 mm to module edge
Termination length	2.8 mm, 4.8 mm, 4.1 mm
Railway classification	F1/I2, acc. to NFF 16-101/102
Performance level	1 acc. to IEC 60603-2
Mating cycles	≥500
Material (insert)	Polyamide (PA)
Isolation group	I, (600 ≤ CTI)
Colour (insert)	Black
Material (contacts)	Copper alloy
Surface (contacts)	Silver plated, Mating side Sn over Ni, Termination side
Material flammability class acc. to UL 94	V-0
RoHS	compliant

Specifications and approvals

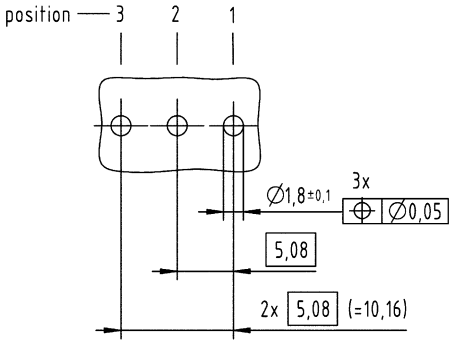
UL 1977 ECBT2.E102079
CSA-C22.2 No. 182.3 ECBT8.E102079

Details

Board drillings



for angled male connectors

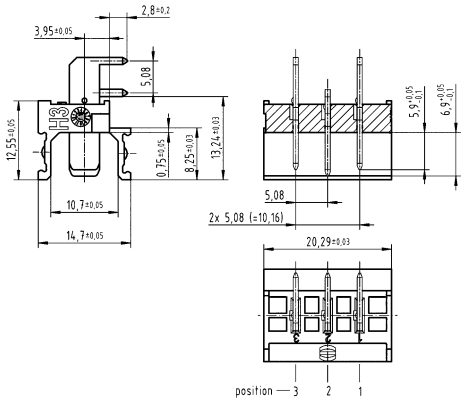
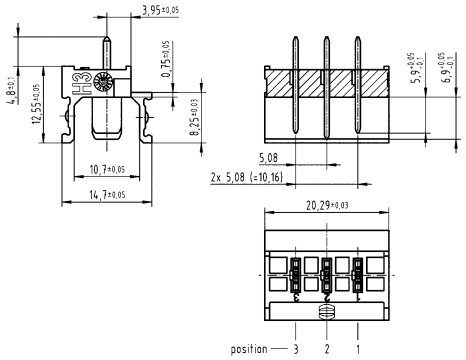
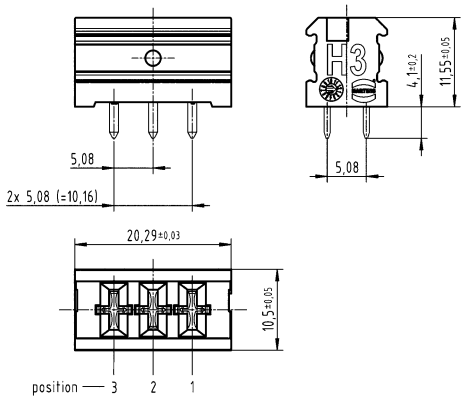


for straight male connectors

H3 module

Width of the module

20.32 mm

Identification	Number of contacts	Leading contact	Part number	Drawing (dimensions in mm)
har-modular®, H3 module, Male connector, Reflow soldering termination (THR), Wave soldering termination, Angled 	3	2	02 51 903 1301	
har-modular®, H3 module, Male connector, Reflow soldering termination (THR), Wave soldering termination, Straight 	3	2	02 53 903 1301	
har-modular®, H3 module, Female connector, Reflow soldering termination (THR), Wave soldering termination, Straight 	3		02 52 903 1301	

Technical characteristics

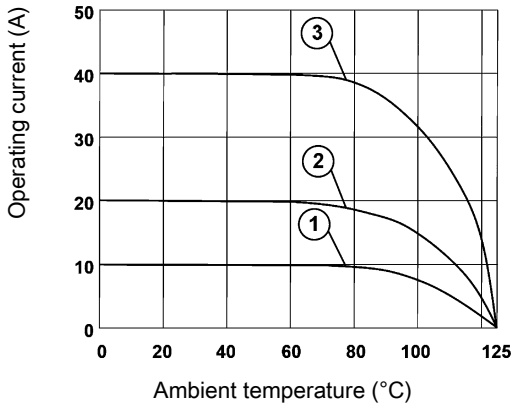
Test voltage $U_{r.m.s.}$	1.55 kV
Insulation resistance	$>10^{11}$ Ω
Limiting temperature	-55 ... +125 °C
Mating cycles	≥500
Conductor cross-section	1.5 mm² 4 mm² 10 mm²
Clearance distance	4 mm in the module 2 mm to module edge
Creepage distance	4 mm in the module 2 mm to module edge
Railway classification	F1/I2, acc. to NFF 16-101/102
Performance level	1
Mating cycles	≥500
Material (insert)	Polyamide (PA)
Isolation group	I, (600 ≤ CTI)
Colour (insert)	Black
Material (contacts)	Copper alloy
Surface (contacts)	Noble metal over Ni, Mating side Sn over Ni, Termination side
Material flammability class acc. to UL 94	V-0
RoHS	compliant compliant with exemption

Derating

Current carrying capacity

The current carrying capacity of the connectors is limited by the thermal load capability of the contact element material including the connections and the insulating parts. The derating curve is therefore valid for currents which flow constantly (non-intermittent) through each contact element of the connector evenly, without exceeding the allowed maximum temperature.

Measuring and testing techniques acc. to IEC 60512-5-2



① 10 A
② 20 A
③ 40 A

Specifications and approvals

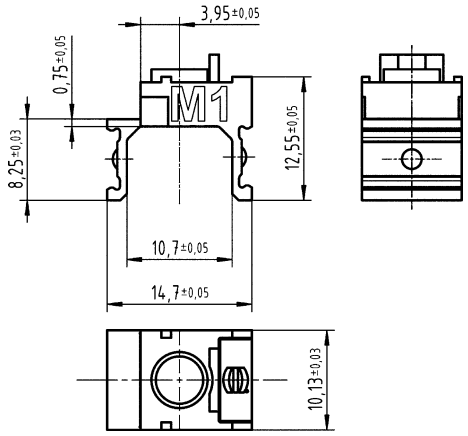
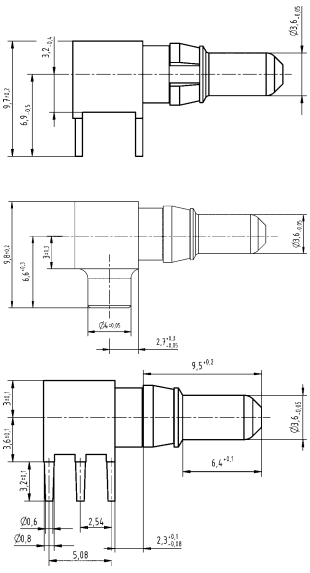
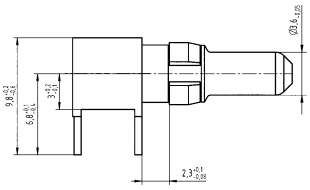
UL 1977 ECBT2.E102079
CSA-C22.2 No. 182.3 ECBT8.E102079
DIN 41626

M1 power module

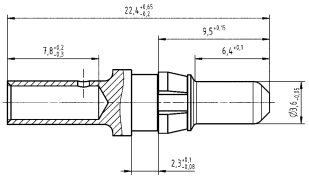
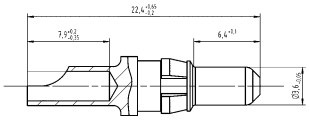
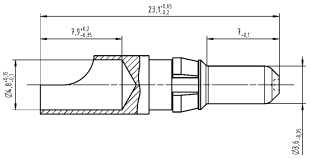
Width of the module

10.16 mm

Male connectors

Identification	Number of contacts	Conductor cross-section (mm²)	Operating current	Part number	Drawing (dimensions in mm)
har-modular®, M1 module, Male connector, Angled  Please order contacts separately.	1			02 51 901 0401	
DIN 41612, PCB solder contact, Angled, Male contact for male connectors 			≤20 A ≤40 A ≤40 A	09 03 000 6104 09 03 000 6110 09 03 000 6127	
DIN 41612, PCB solder contact, Angled, Leading contact, Male contact for male connectors 			≤40 A	09 03 000 6134	

M1 power module

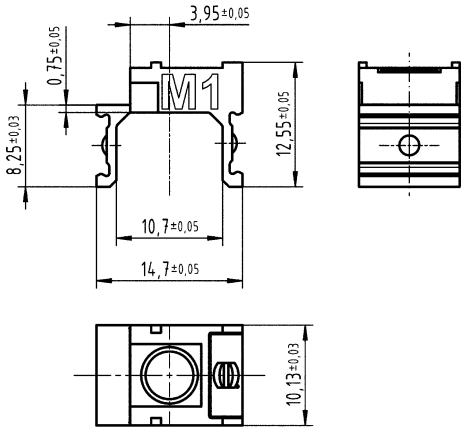
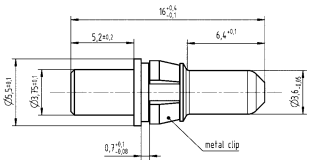
Identification	Number of contacts	Conductor cross-section (mm²)	Operating current	Part number	Drawing (dimensions in mm)
DIN 41612, Crimp contact, Male contact for male connectors 		1.5 4 10	≤10 A ≤20 A ≤40 A	09 03 000 6113 09 03 000 6114 09 03 000 6115	
DIN 41612, Solder contact, Straight, Male contact for male connectors 			≤10 A ≤20 A ≤40 A	09 03 000 6101 09 03 000 6102 09 03 000 6103	
DIN 41612, Solder contact, Straight, Leading contact, Male contact for male connectors 			≤40 A	09 03 000 6133	

M1 power module

Width of the module

10.16 mm

Male connectors Low construction type

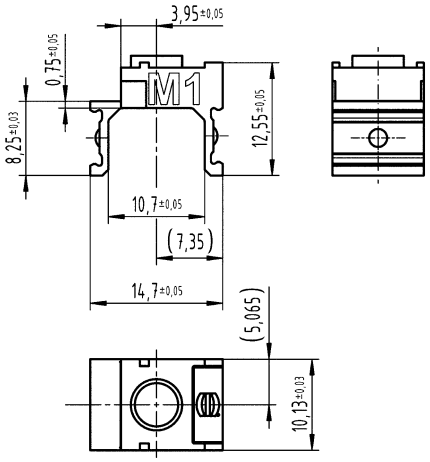
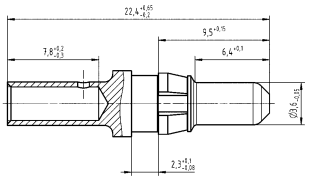
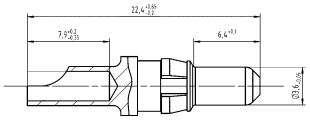
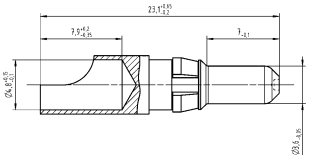
Identification	Number of contacts	Operating current	Part number	Drawing (dimensions in mm)
har-modular®, M1 module, flat, Male connector, Straight  Please order contacts separately.	1		02 53 901 0451	
DIN 41612, PCB solder contact, Straight, Male contact for male connectors 		≤40 A	09 03 000 6136	

M1 power module

Width of the module

10.16 mm

Male connectors

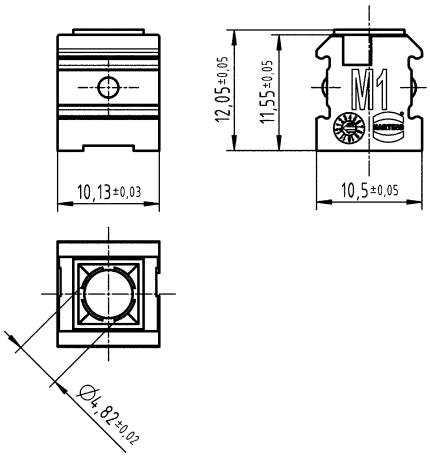
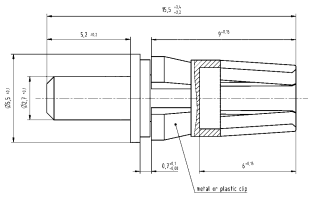
Identification	Number of contacts	Conductor cross-section (mm²)	Operating current	Part number	Drawing (dimensions in mm)
har-modular®, M1 module, Male connector, Straight  Please order contacts separately.	1			02 53 901 0401	
DIN 41612, Crimp contact, Male contact for male connectors 		1.5 4 10	≤10 A ≤20 A ≤40 A	09 03 000 6113 09 03 000 6114 09 03 000 6115	
DIN 41612, Solder contact, Straight, Male contact for male connectors 			≤10 A ≤20 A ≤40 A	09 03 000 6101 09 03 000 6102 09 03 000 6103	
DIN 41612, Solder contact, Straight, Leading contact, Male contact for male connectors 			≤40 A	09 03 000 6133	

M1 power module

Width of the module

10.16 mm

Female connectors Low construction type

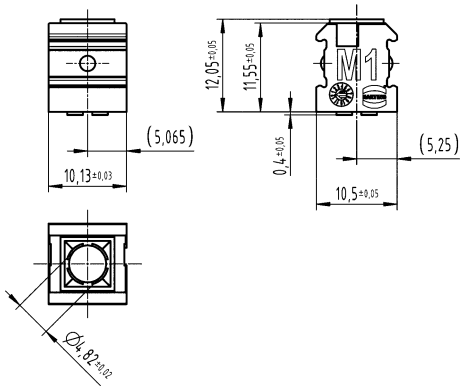
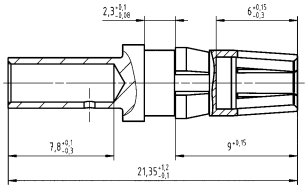
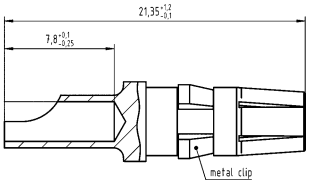
Identification	Number of contacts	Operating current	Part number	Drawing (dimensions in mm)
har-modular®, M1 module, flat, Female connector, Straight  Please order contacts separately.	1		02 52 901 0451	
DIN 41612, PCB solder contact, Straight, Female contact for female connectors 		≤40 A	09 03 000 6225	

M1 power module

Width of the module

10.16 mm

Female connectors

Identification	Number of contacts	Conductor cross-section (mm²)	Operating current	Part number	Drawing (dimensions in mm)
har-modular®, M1 module, Female connector, Straight  Please order contacts separately.	1			02 52 901 0401	
DIN 41612, Crimp contact, Straight, Female contact for female connectors 		1.5 4 10	≤10 A ≤20 A ≤40 A	09 03 000 6213 09 03 000 6214 09 03 000 6215	
DIN 41612, Solder contact, Straight, Female contact for female connectors 			≤10 A ≤20 A ≤40 A	09 03 000 6201 09 03 000 6202 09 03 000 6203	

M1 coax module

Technical characteristics

Rated voltage	250 V
Test voltage $U_{r.m.s.}$	1.55 kV 0.75 kV
Insulation resistance	$>10^{11}$ Ω $>10^{9}$ Ω
Contact resistance	≤10 mΩ for inner contact die ≤3 mΩ for outer ferrule
Impedance	50 Ω, 75 Ω
Limiting temperature	-55 ... +125 °C
Mating cycles	≥500
Clearance distance	4 mm in the module 2 mm to module edge
Creepage distance	4 mm in the module 2 mm to module edge
Frequency	4 GHz 2 GHz 1 GHz 10 GHz
Railway classification	F1/I2, acc. to NFF 16-101/102
Performance level	1

Technical characteristics

Mating cycles	≥500
Material (insert)	Polyamide (PA)
Isolation group	I, (600 ≤ CTI)
Colour (insert)	Black
Material (locking)	Copper alloy Thermoplastic
Material (contacts)	Copper alloy
Surface (contacts)	Noble metal over Ni, Mating side
Material flammability class acc. to UL 94	V-0
RoHS	compliant compliant with exemption

Specifications and approvals

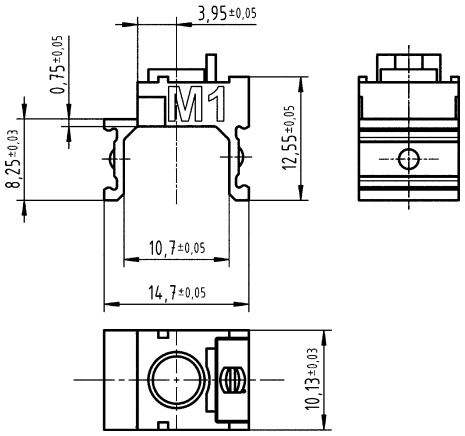
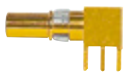
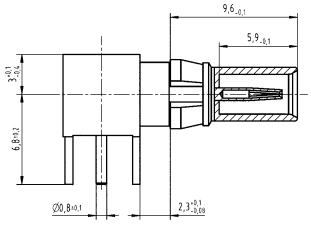
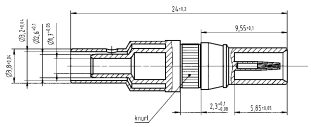
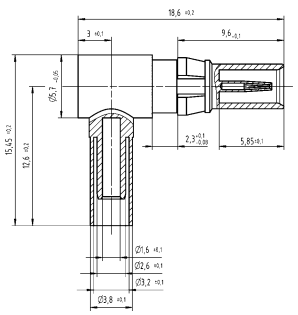
UL 1977 ECBT2.E102079
CSA-C22.2 No. 182.3 ECBT8.E102079
DIN 41626

M1 coax module

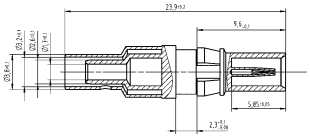
Width of the module

10.16 mm

Male connectors

Identification	Number of contacts	Operating current	Impedance	Part number	Drawing (dimensions in mm)
har-modular®, M1 module, Male connector, Angled  Please order contacts separately.	1			02 51 901 0401	
DIN 41612, Coaxial contact, PCB solder termination, Angled, Female contact for male connectors 		≤1.5 A ≤1.5 A	50 Ω 75 Ω	09 03 000 6262 09 03 000 6269	
DIN 41612, Coaxial contact, Solder/crimp termination, Straight, With knurled area, Female contact for male connectors 		≤1.4 A	50 Ω	09 03 000 6274	
DIN 41612, Coaxial contact, Solder/crimp termination, Angled, Female contact for male connectors 		≤1.4 A	50 Ω	09 03 000 6261	

M1 coax module

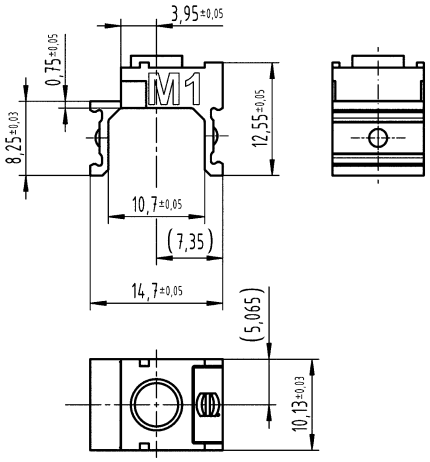
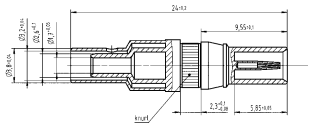
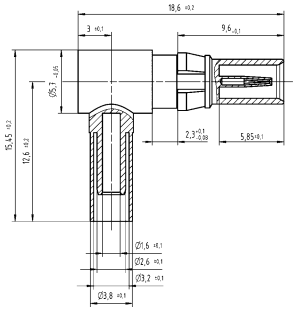
Identification	Number of contacts	Operating current	Impedance	Part number	Drawing (dimensions in mm)
DIN 41612, Coaxial contact, Solder/crimp termination, Straight, Female contact for male connectors 		≤0.4 A ≤1.4 A	75 Ω 50 Ω	09 14 000 6221 09 03 000 6260	

M1 coax module

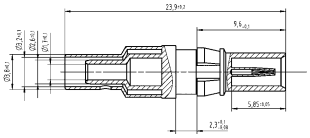
Width of the module

10.16 mm

Male connectors

Identification	Number of contacts	Operating current	Impedance	Part number	Drawing (dimensions in mm)
har-modular®, M1 module, Male connector, Straight  Please order contacts separately.	1			02 53 901 0401	
DIN 41612, Coaxial contact, Solder/crimp termination, Straight, With knurled area, Female contact for male connectors 		≤1.4 A	50 Ω	09 03 000 6274	
DIN 41612, Coaxial contact, Solder/crimp termination, Angled, Female contact for male connectors 		≤1.4 A	50 Ω	09 03 000 6261	

M1 coax module

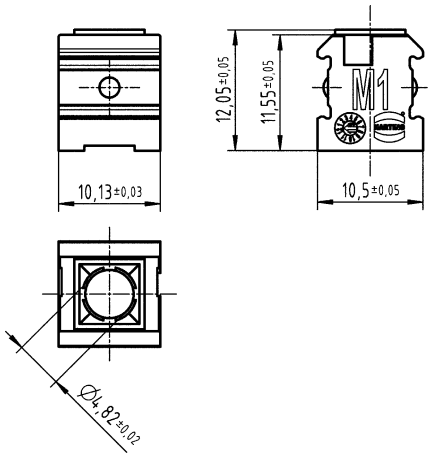
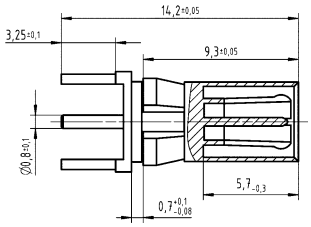
Identification	Number of contacts	Operating current	Impedance	Part number	Drawing (dimensions in mm)
DIN 41612, Coaxial contact, Solder/crimp termination, Straight, Female contact for male connectors 		≤0.4 A ≤1.4 A	75 Ω 50 Ω	09 14 000 6221 09 03 000 6260	

M1 coax module

Width of the module

10.16 mm

Female connectors Low construction type

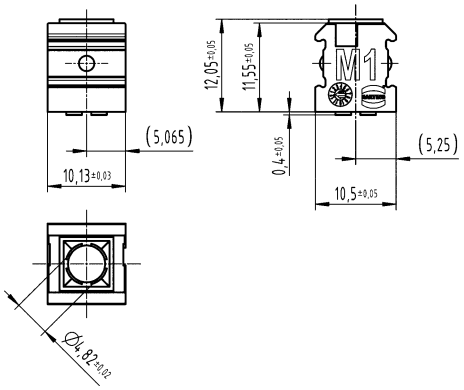
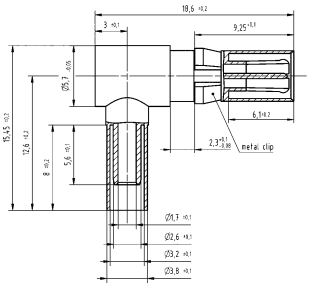
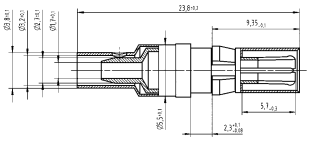
Identification	Number of contacts	Operating current	Impedance	Part number	Drawing (dimensions in mm)
har-modular®, M1 module, flat, Female connector, Straight  Please order contacts separately.	1			02 52 901 0451	
DIN 41612, Coaxial contact, PCB solder termination, Straight, Male contact for female connectors 		≤1.5 A	50 Ω	09 03 000 6182	

M1 coax module

Width of the module

10.16 mm

Female connectors

Identification	Number of contacts	Operating current	Impedance	Part number	Drawing (dimensions in mm)
har-modular®, M1 module, Female connector, Straight  Please order contacts separately.	1			02 52 901 0401	
DIN 41612, Coaxial contact, Solder/crimp termination, Angled, Male contact for female connectors 		≤1.4 A	50 Ω	09 03 000 6161	
DIN 41612, Coaxial contact, Solder/crimp termination, Straight, Male contact for female connectors 		≤0.4 A ≤1.4 A	75 Ω 50 Ω	09 03 000 6181 09 03 000 6160	

M1 high-voltage module

Technical characteristics

Rated voltage	2800 V
Test voltage $U_{r.m.s.}$	1.55 kV
Insulation resistance	$>10^{11}$ Ω
Limiting temperature	-55 ... +125 °C
Mating cycles	≥500
Clearance distance	4 mm in the module 2 mm to module edge
Creepage distance	4 mm in the module 2 mm to module edge
Railway classification	F1/I2, acc. to NFF 16-101/102
Performance level	1
Mating cycles	≥500
Material (insert)	Polyamide (PA)
Isolation group	I, (600 ≤ CTI)
Colour (insert)	Black

Technical characteristics

Material (contacts)	Copper alloy
Surface (contacts)	Noble metal over Ni, Mating side
Material flammability class acc. to UL 94	V-0
RoHS	compliant compliant with exemption

Specifications and approvals

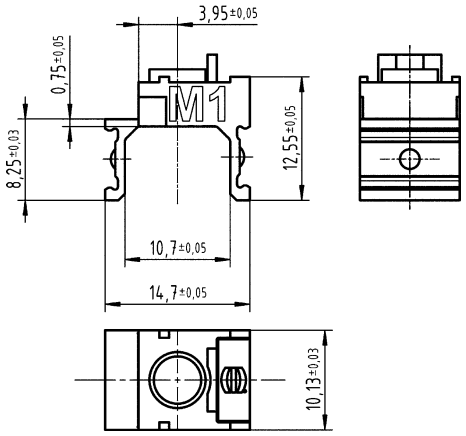
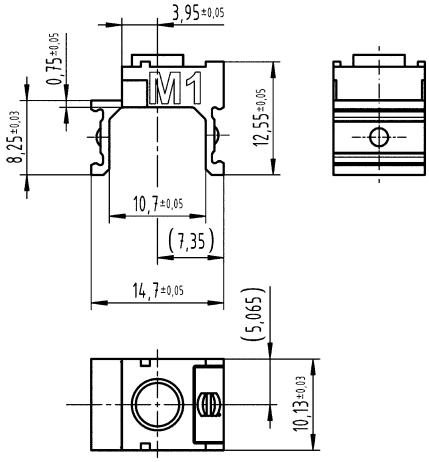
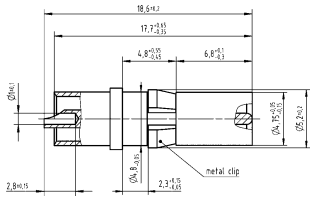
UL 1977 ECBT2.E102079
CSA-C22.2 No. 182.3 ECBT8.E102079
DIN 41626

M1 high-voltage module

Width of the module

10.16 mm

Male connectors

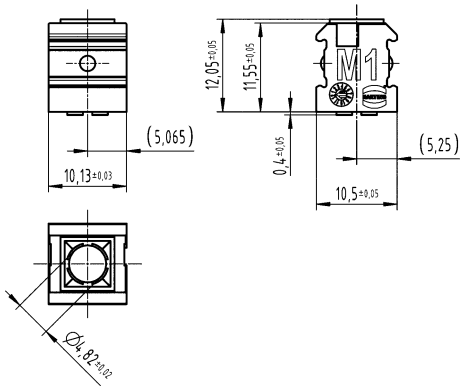
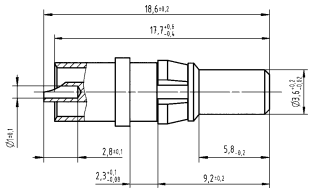
Identification	Num-ber of contacts	Part number	Drawing (dimensions in mm)
har-modular®, M1 module, Male connector, Angled  Please order contacts separately.	1	02 51 901 0401	
har-modular®, M1 module, Male connector, Straight  Please order contacts separately.	1	02 53 901 0401	
DIN 41612, Solder contact, Straight, Male contact for male connectors 		09 03 000 6140	

M1 high-voltage module

Width of the module

10.16 mm

Female connectors

Identification	Num-ber of contacts	Part number	Drawing (dimensions in mm)
har-modular®, M1 module, Female connector, Straight  Please order contacts separately.	1	02 52 901 0401	
DIN 41612, Solder contact, Straight, Female contact for female connectors 		09 03 000 6240	

Technical characteristics

Test voltage $U_{r.m.s.}$	1.55 kV
Insulation resistance	$>10^{11}$ Ω
Limiting temperature	-55 ... +125 °C
Mating cycles	≥500
Clearance distance	4 mm in the module 2 mm to module edge
Creepage distance	4 mm in the module 2 mm to module edge
Railway classification	F1/I2, acc. to NFF 16-101/102
Mating cycles	≥500
Material (insert)	Polyamide (PA)
Isolation group	I, (600 ≤ CTI)

Technical characteristics

Colour (insert)	Black
Material flammability class acc. to UL 94	V-0
RoHS	compliant compliant with exemption

Specifications and approvals

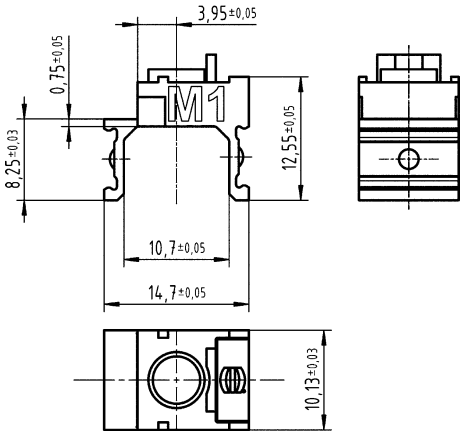
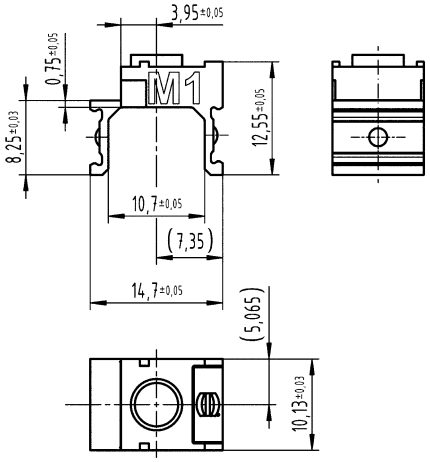
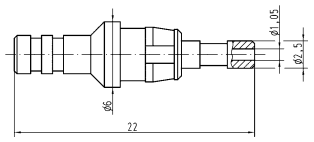
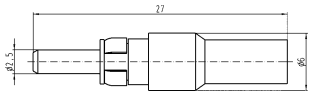
UL 1977 ECBT2.E102079
CSA-C22.2 No. 182.3 ECBT8.E102079

M1 FO module

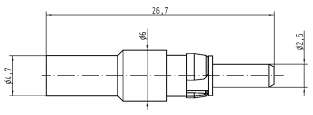
Width of the module

10.16 mm

Male connectors

Identification	Number of contacts	Part number	Drawing (dimensions in mm)
har-modular®, M1 module, Male connector, Angled  Please order contacts separately.	1	02 51 901 0401	
har-modular®, M1 module, Male connector, Straight  Please order contacts separately.	1	02 53 901 0401	
DIN 41612, FO contact, for 1 mm plastic fibre, Male contact for male connectors 		20 10 001 4211	
DIN 41612, FO contact, for GI fibre 50/125 µm, for ceramic ferrule 62.5/125 µm, Male contact for male connectors		20 10 125 4212	

M1 FO module

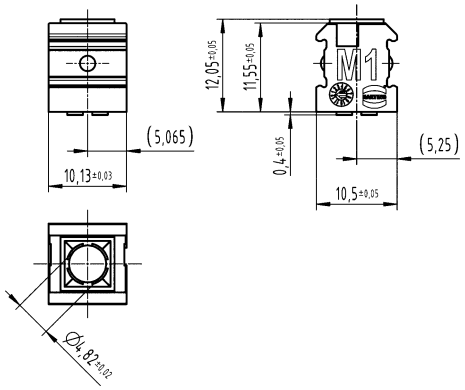
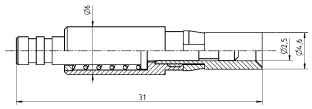
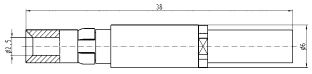
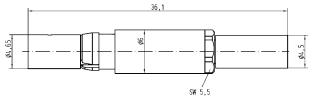
Identification	Num- ber of contacts	Part number	Drawing (dimensions in mm)
DIN 41612, FO contact, for SI fibre (HCS®) 200/230 µm, Male contact for male connectors		20 10 230 4211	

M1 FO module

Width of the module

10.16 mm

Female connectors

Identification	Num-ber of contacts	Part number	Drawing (dimensions in mm)
har-modular®, M1 module, Female connector, Straight  Please order contacts separately.	1	02 52 901 0401	
DIN 41612, FO contact, for 1 mm plastic fibre, Female contact for female connectors 		20 10 001 4221	
DIN 41612, FO contact, for GI fibre 50/125 µm, for ceramic ferrule 62.5/125 µm, Female contact for female connectors		20 10 125 4222	
DIN 41612, FO contact, for SI fibre (HCS®) 200/230 µm, Female contact for female connectors		20 10 230 4221	

P module

Width of the module

5.08 mm

Technical characteristics

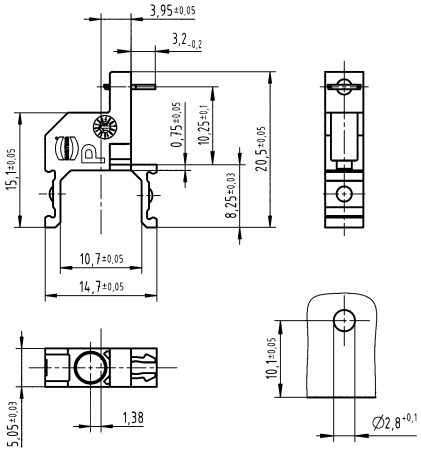
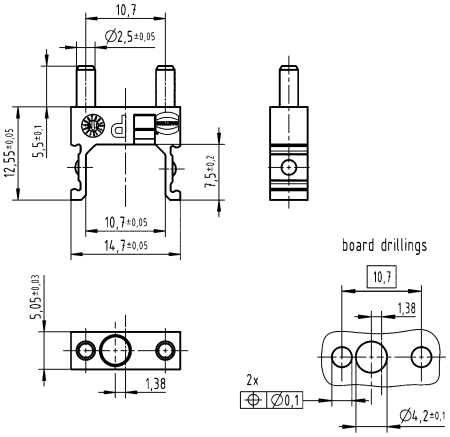
Insulation resistance	>10^{11} Ω
Limiting temperature	-55 ... +125 °C
Mating cycles	≥500
Railway classification	F1/I2, acc. to NFF 16-101/102
Mating cycles	≥500
Material (insert)	Polyamide (PA)
Isolation group	I, (600 ≤ CTI)
Colour (insert)	Black
Colour (accessories)	Metallic

Technical characteristics

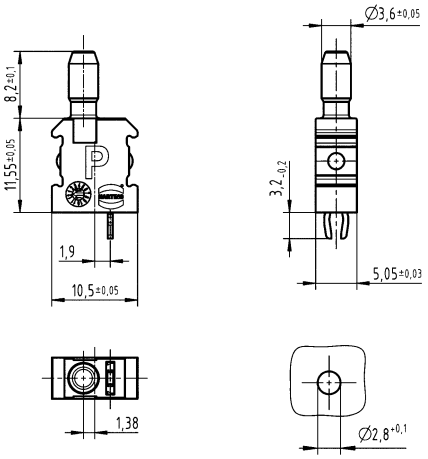
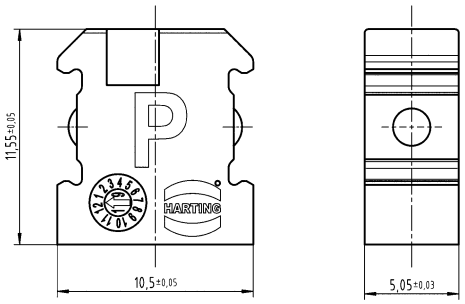
Material flammability class acc. to UL 94	V-0
RoHS	compliant

Specifications and approvals

UL 1977 ECBT2.E102079
CSA-C22.2 No. 182.3 ECBT8.E102079

Identification		Part number	Drawing (dimensions in mm)
har-modular®, P module, P spacer, Male connector, Angled 	With board locks	02 51 900 0002 02 51 900 0004	
har-modular®, P module, P spacer, Male connector, Straight 	With fixing pin With guiding	02 53 900 0002 02 53 900 0005 02 53 900 0006	

P module

Identification		Part number	Drawing (dimensions in mm)
har-modular®, P module, Female connector, Straight 	With board locks	02 52 900 0001 02 52 900 0002	
har-modular®, P spacer, Female connector, Straight, Empty module  Pluggable with male connector	With board locks	02 52 900 0004 02 52 900 0005	
DIN 41612, Screw, M2.2 x 8, for shell housing D 20/2, for shell housing D 20/4, for shell housing 2C, 3C, *har*-modular® P module, *har*-modular® T module - male connector 		09 06 001 9979	

T module

Width of the module

10.16 mm

Technical characteristics

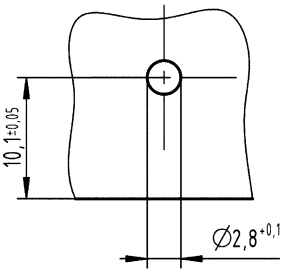
Insulation resistance	>10^{11} Ω
Limiting temperature	-55 ... +125 °C
Mating cycles	≥500
Railway classification	F1/I2, acc. to NFF 16-101/102
Mating cycles	≥500
Material (insert)	Polyamide (PA)
Isolation group	I, (600 ≤ CTI)
Colour (insert)	Black
Colour (accessories)	Metallic
Material flammability class acc. to UL 94	V-0
RoHS	compliant

Specifications and approvals

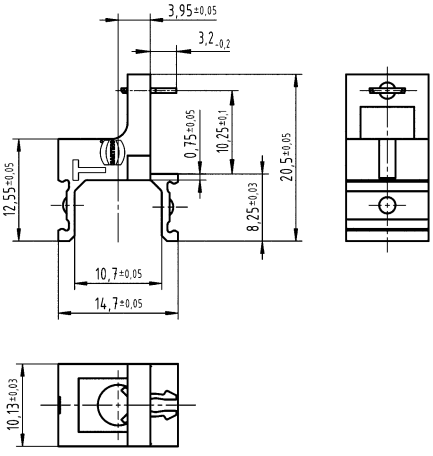
UL 1977 ECBT2.E102079
CSA-C22.2 No. 182.3 ECBT8.E102079

Details

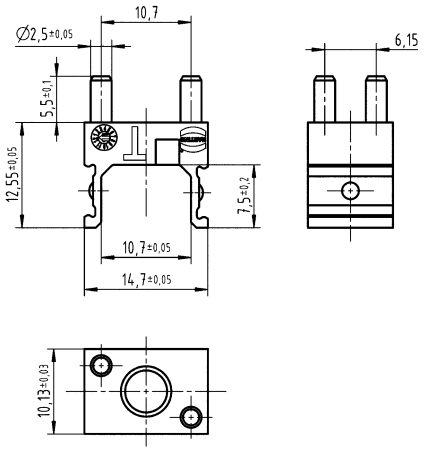
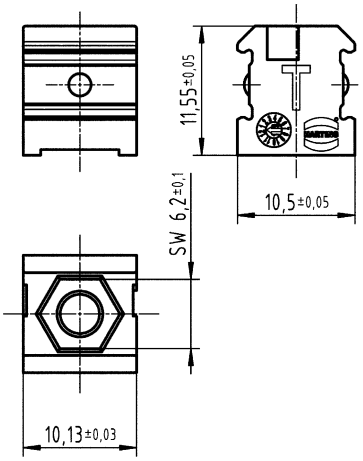
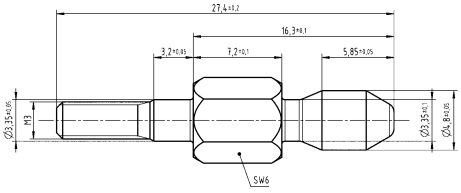
Board drillings



Identification		Part number	Drawing (dimensions in mm)
har-modular®, T module, T spacer, Male connector, Angled	With board locks	02 51 900 0001 02 51 900 0003	



T module

Identification		Part number	Drawing (dimensions in mm)
har-modular®, T module, T spacer, Male connector, Straight 	With fixing pin With guiding	02 53 900 0001 02 53 900 0003 02 53 900 0004	
har-modular®, T module, T spacer, Female connector, Straight 		02 52 900 0003	
DIN 41612, Screw, M2.2 x 8, for shell housing D 20/2, for shell housing D 20/4, for shell housing 2C, 3C, *har*-modular® P module, *har*-modular® T module - male connector 		09 06 001 9979	
har-modular®, T module, Coding pin, for female connectors, with selflocking nut 		02 09 500 0004	

Fixing rails

Technical characteristics

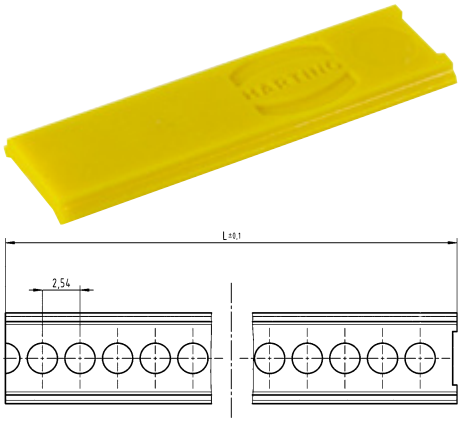
Isolation group	I, (600 ≤ CTI)
Colour (accessories)	Yellow
RoHS	compliant

Specifications and approvals

UL 1977 ECBT2.E102079
CSA-C22.2 No. 182.3 ECBT8.E102079

Details

The fixing rail must be 0.1 mm shorter than the module widths added together.

Identification	Length (L)	Part number	Drawing (dimensions in mm)
har-modular®, Fixing rail	20.22 mm	02 09 500 1004	
	25.3 mm	02 09 500 1005	
	30.38 mm	02 09 500 1006	
	35.46 mm	02 09 500 1007	
	40.54 mm	02 09 500 1008	
	45.62 mm	02 09 500 1009	
	50.7 mm	02 09 500 1010	
	55.78 mm	02 09 500 1011	
	60.86 mm	02 09 500 1012	
	65.94 mm	02 09 500 1013	
	71.02 mm	02 09 500 1014	
	76.1 mm	02 09 500 1015	
	81.18 mm	02 09 500 1016	
	86.26 mm	02 09 500 1017	
	91.34 mm	02 09 500 1018	
	96.42 mm	02 09 500 1019	
	101.5 mm	02 09 500 1020	
	106.58 mm	02 09 500 1021	
	111.66 mm	02 09 500 1022	
	116.74 mm	02 09 500 1023	
	121.82 mm	02 09 500 1024	
	126.9 mm	02 09 500 1025	
	131.98 mm	02 09 500 1026	
	137.06 mm	02 09 500 1027	
	142.14 mm	02 09 500 1028	
	147.22 mm	02 09 500 1029	
	152.3 mm	02 09 500 1030	
	157.38 mm	02 09 500 1031	
	162.46 mm	02 09 500 1032	
	167.54 mm	02 09 500 1033	
	172.62 mm	02 09 500 1034	

Pushing Performance

HARTING.com
the gateway to your local website.

HARTING Technology Group
info@HARTING.com
www.HARTING.com

pdf| 2022-01 | 1.0 | only available as pdf