Pushing Performance
Since 1945



PEOPLE. POWER. PARTNERSHIP.

HARTING Han® S 450 Plus

Safe and error-free connections for energy storage systems. Up to 500 A / 2000 V, IP67 / IP69K as well as unlock protection.

HARTING Han® S 450 Plus
Solution overview and compliance to standards

In line with market trends for energy storage systems, Han® S was developed as a front-mount solution for flexible and secure high-power transmission. This single-pole connector family can operate with rated currents of up to 500 A at a voltage of 2,000 V, while ensuring safe installation through finger-safe contacts, visual control of the locking status and various connection types (screw or busbar). In addition, the product is vibration-resistant, available in different colours and includes waterproof housing. It also features a mechanical and colour coding system that prevents incorrect insertion.

Han® S complies with all relevant standards for energy storage systems

UL 1977
Standard for component connectors for use in data, signal, control and power applications

UL 4128
Outline of investigation for intercell and intertier connectors for use in electrochemical battery system applications

TÜV Rheinland
2PfG 2740/01.25
Connectors for Lithium Battery Energy Storage System – Safety requirements and tests



HARTING Han® S 450 Plus
Key features and advantages

Besides holding the UL 4128 certification for “Connectors for use in electrochemical battery systems”, Han® S offers important additional features that were previously unavailable in this segment. As a matter of fact, Han® S guarantees secure and error-free connections with a high degree of flexibility.



- High electric power transmission in a compact design: rated currents up to 500 A (at 2,000 V) are possible due to a very low contact resistance
- Safe installation through visible control of locking status, touch safe contacts, mechanical & colour coding systems as well as high shock & vibration resistance
- Easy to install, as contacts are screwed into the screw mounted housing from the front; easy to connect, as the single lever can be operated with just one hand
- High flexibility due to different mounting options and contact terminations as well as 360° positioning for the cable entry
- Complies with all relevant energy storage standards, including UL4128 and TÜV Rheinland 2PfG 2740 2,000 VDC certification
- Waterproof (IP67/IP69K)

For more information refer to our homepage:
www.HARTING.com

HARTING Han® S 450 Plus
Product overview

Hoods & housings overview

Bulkhead mounted housing / hood*	Termination technique	Contact specifications	Front coding	Rear coding	Colours	Add. features
Hood, angled (HA)	Crimp terminal (CRT)	95 mm² 4/0 AWG 120 mm² 150 mm²	C1 C2 C3 C4			
Housing, bulk-head mounted (HBM)	Screw terminal (SCT)	M10 thread (M10)	C5	Rear coding 1 (RC1) Rear coding 2 (RC2)	Black Red Orange Blue	Unlock protec-tion (UP)
	Busbar contact (B1)	- M8 thread (M8) - elongated hole (EH) - rivet nut (RN), M8 thread				
	Transfer pin (T1)					

Bulkhead mounted housings / termination type



Busbar with elongated hole



Busbar with M8 thread



Busbar with rivet nut, M8 thread



Screw terminal, M10 bolt



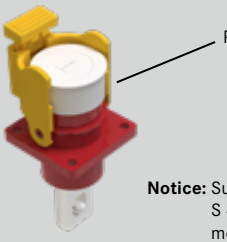
Transfer pin

HARTING Han® S 450 Plus
Product overview

Accessories







Notice: Suitable for any Han® S 450 Plus bulkhead mounted housing

Angled hoods (90°)



Orange

95/120/150 mm²
4/0 AWG



Red

95/120/150 mm²
4/0 AWG



Black

95/120/150 mm²
4/0 AWG



Blue

95/120/150 mm²
4/0 AWG

HARTING Han® S 450 Plus
Technical characteristics

Items & specfications

Overvoltage category	III
Number of contacts	1
Rated current (at 25°C)	350 A with 95 mm² / AWG 3/0 or 4/0 cable 400 A with 120 mm²/250 kcmil cable 500 A with 150 mm²/300 kcmil cable
Rated voltage	2,000 VDC
Rated impulse voltage	15 kV
Impulse test voltage	33.7 kV*
Pollution degree	3**
Insulation resistance	> 10^9 Ω (2,500 VDC)
Contact resistance	≤ 0.3 mΩ
Limiting temperatures	-40...+125 °C
Number of mating cycles	500
Degree of protection acc. to IEC / DIN EN 60529 (finger-safe contacts with rated voltages ≤ 1,500 VDC) - mated condition - bulkhead mounted housing w. protection cap	IPXXB IP67 / IP69K IP67
Cable entry	Angled, available rotation through 360° before and after mating
Coding system	Mechanical & colour
Vibration & shock resistance	IEC 61373-2010 cat. 1, class B
Locking system	- Single lever (status visible) - Connector Position Assurance (CPA) - Unlock Protection (UP) as an option

Notes:
* With grounded metal mounting panel
** With pollution degree 3, the product is suitable for use in the macro environment of IP54 applications.

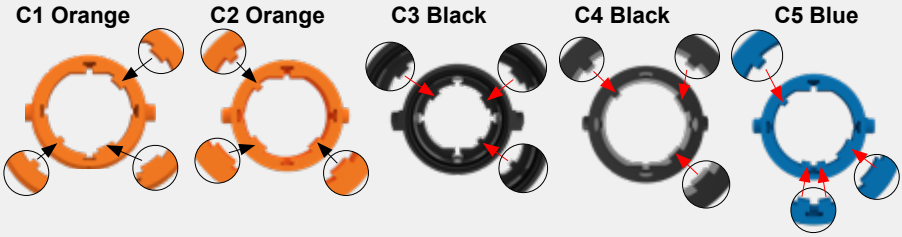
HARTING Han® S 450 Plus
Technical characteristics

Items & specfications

Cable outer diameter	15.4-23.5 mm
Cable gland - recommended tightening torque	Wrench size 34 (A/F 34) 5 N m
Contact termination (hood)	Crimp (conductor cross-section 95 mm² … 150 mm²)
Contact termination (housing) - recommended tightening torque	Bolt / busbar / busbar with rivet nut Bolt M10x1.5, torque: 7.5~8.0 Nm Busbar M8x1.25, torque: 5.0~5.5 Nm - with rivet nut: 5.0~5.5 Nm - with elongated hole: 7.5~8.0 Nm
Fixing screws (housing) - recommended tightening torque	M4, 6-12 mm long (suggested), DIN EN ISO 4762 screw head 1.5±0.1 N m
Colours (hood, housing – RAL)	RAL 9005 (black) RAL 3001 (red) RAL 5015 (blue) RAL 2003 (orange)
Material (contacts)	Pure copper (T1)
Material flammability class acc. to UL 94	V-0
Railway standard	EN 45545-2:2020 + A1:2023 R22/R23 (HL1/HL2/HL3)
UL	UL 4128 UL 1977
TÜV Rheinland	2PfG 2740/01.25

HARTING Han® S 450 Plus
Coding options

Front coding options





Front codings in the mating faces of bulkhead mounted housing & hood

*** Notice:**
For explanation of the Cx abbreviations please refer to the “Available connectors and components” table, next page.
HARTING could supply the front codings in customer-specific colours.

Rear coding options



90°
RC* 1, always with C1 & C2



180°
RC* 2, always with C3 & C4



No rear coding

* RC = Rear coding

HARTING Han® S 450 Plus
Products & part numbers

Available connectors & components

Product codes	Part number
Han S 450+_CC_Cover Plastic	97000002040
Han S 450+_CC_Flange Gasket_f.HBM	97000002064
Han S 450+_CC_RS_16.4-17.6mm	97000002065
Han S 450+_CC_RS_17.4-18.6mm	97000002067
Han S 450+_CC_RS_18.4-19.6mm	97000002066
Han S 450+_CC_RS_19.4 -20.6mm	97000002070
Han S 450+_CC_RS_20.4-21.6mm	97000002068
Han S 450+_CC_RS_21.4 -22.2mm	97000002071
Han S 450+_CC_RS_22.0-22.8mm	97000002115
Han S 450+_CC_RS_22.6-23.0mm	97000002069
Han S 450+_CC_HA_CRT_95mm²_C1_Red	97000002072
Han S 450+_CC_HA_CRT_120mm²_C2_Red	97000002078
Han S 450+_CC_HA_CRT_150mm²_C1_Red	97000002079
Han S 450+_CC_HA_CRT_95mm²_C2_Orange	97000002080
Han S 450+_CC_HA_CRT_120mm²_C1_Orange	97000002081
Han S 450+_CC_HA_CRT_150mm²_C2_Orange	97000002082
Han S 450+_CC_HA_CRT_95mm²_C3_Black	97000002083
Han S 450+_CC_HA_CRT_120mm²_C4_Black	97000002084
Han S 450+_CC_HA_CRT_150mm²_C3_Black	97000002085
Han S 450+_CC_HA_CRT_95mm²_C5_Blue	97000002086
Han S 450+_CC_HBM_B1_EH_C1_RC1_Red	97000002087
Han S 450+_CC_HBM_B1_EH_C2_RC1_Red	97000002088
Han S 450+_CC_HBM_B1_M8_C1_RC1_Red	97000002089
Han S 450+_CC_HBM_B1_M8_C2_RC1_Red	97000002090

Product codes	Part number
Han S 450+_CC_HBM_SCT_M10_C1_RC1_Red	97000002091
Han S 450+_CC_HBM_B1_EH_C1_RC1_Orange	97000002098
Han S 450+_CC_HBM_B1_EH_C2_RC1_Orange	97000002100
Han S 450+_CC_HBM_B1_M8_C1_RC1_Orange	97000002101
Han S 450+_CC_HBM_B1_M8_C2_RC1_Orange	97000002102
Han S 450+_CC_HBM_SCT_M10_C2_RC1_Orange	97000002103
Han S 450+_CC_HBM_B1_RN_C2_RC1_Orange	97000002104
Han S 450+_CC_HBM_B1_EH_C3_RC2_Black	97000002105
Han S 450+_CC_HBM_B1_EH_C4_RC2_Black	97000002106
Han S 450+_CC_HBM_B1_M8_C3_RC2_Black	97000002107
Han S 450+_CC_HBM_B1_M8_C4_RC2_Black	97000002108
Han S 450+_CC_HBM_SCT_M10_C4_RC2_Black	97000002109
Han S 450+_CC_HBM_B1_RN_C3_RC2_Black	97000002110
Han S 450+_CC_HBM_B1_M8_C5_Blue	97000002111
Han S 450+_CC_HBM_B1_EH_C1_RC1_Red_UP	97000002112
Han S 450+_CC_HBM_B1_EH_C2_RC1_Orange_UP	97000002113
Han S 450+_CC_HBM_B1_EH_C3_RC2_Black_UP	97000002114

HARTING Han® S 450 Plus
Ease of use

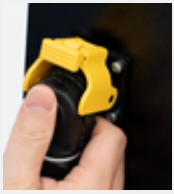
Handling of standard locking lever

Opening process (with one hand)


①


②


③


④


⑤


⑥

Handling of UP locking lever

Opening process (using a flat head screwdriver)


①


②


③

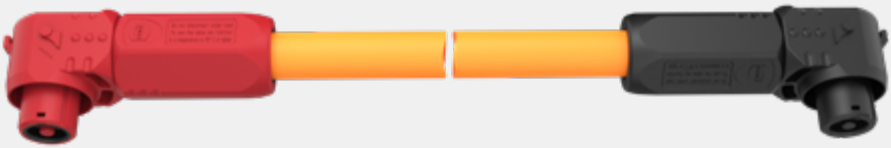

④


⑤


⑥

HARTING Han® S 450 Plus
High-precision pre-assembly

Cable harnesses



Features / Benefits

- High power transmission, rated current up to 500 A / 2,000 V.
- Safe installation due to vision control of locking status and finger safe design.
- Fast installation and setup times even for big batch sizes.
- Cable resistant against heat, cold, oil, ozone, acid and alkali.
- Lower total cost of ownership as no tools or stock are required and labour costs are reduced.

Cables – technical specifications

Cable: HV 125°C 1500V XLPE orange cable
Loading plan: 1:1
Protection level: IP67
Temperature range: -40°C ~ +125°C

Conductor cross-section	Rubber sleeve packed with plug
95 mm² or 3/0 AWG	Han® S 450 Plus RS 17.4 - 18.6 mm
4/0 AWG	Han® S 450 Plus RS 18.4 - 19.6 mm
120 mm² or 250 kcmil	Han® S 450 Plus RS 20.4 - 21.6 mm
150 mm² or 300 kcmil	Han® S 450 Plus RS 22.6 - 23.5 mm
Notice: If the customer uses a cable with different outer diameter, the suitable rubber sleeve must be ordered seperately.	

Pushing Performance
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