



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



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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 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 mm ² 4/0 AWG 120 mm ² 150 mm ²	C1 C2 C3 C4			
Housing, bulkhead mounted (HBM)	Screw terminal (SCT)	M10 thread (M10)	C5	Rear coding 1 (RC1) Rear coding 2 (RC2)	Black Red Orange Blue	Unlock protection (UP)
	Busbar contact (B1)	- M8 thread (M8) - elongated hole (EH) - rivet nut (RN), M8 thread				
	Transfer pin (T1)					

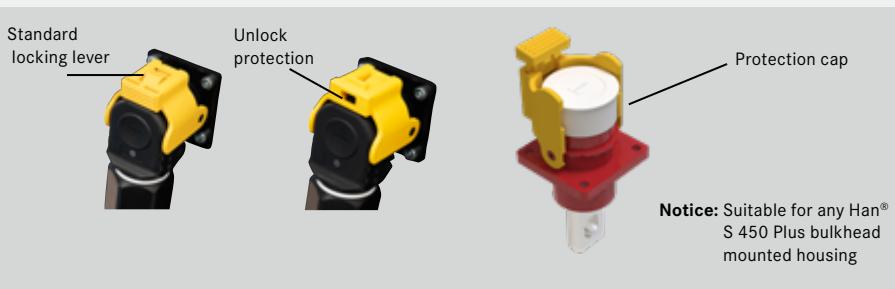
Bulkhead mounted housings / termination type



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Product overview

Accessories



Angled hoods (90°)



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Technical characteristics

Items & specifications

Overvoltage category	III
Number of contacts	1
Rated current (at 25°C)	350A with 95 mm ² / AWG 3/0 or 4/0 cable 400A with 120 mm ² /250 kcmil cable 500A with 150 mm ² /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

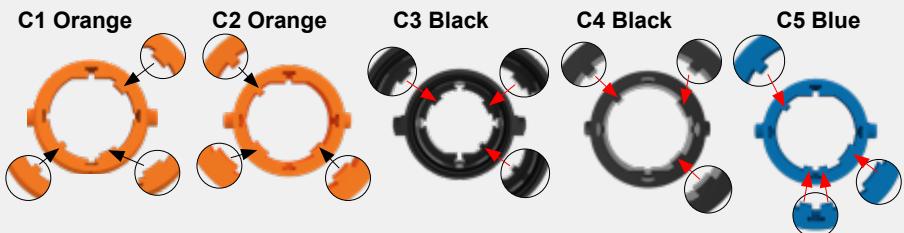
Items & specifications

Cable outer diameter	15.4-23.5 mm
Cable gland - recommended tightening torque	Wrench size 34 (A/F 34) 5 Nm
Contact termination (hood)	Crimp (conductor cross-section 95 mm ² ... 150 mm ²)
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 Nm
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

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Coding options

Front coding options

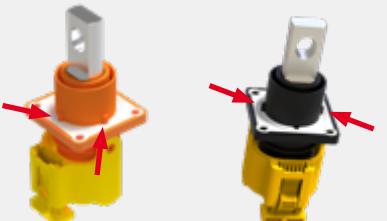


Front codings in
the mating faces of
bulkhead mounted
housing & hood

*** 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

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Ease of use

Handling of standard locking lever

Opening process (with one hand)



①



②



③



④



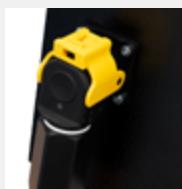
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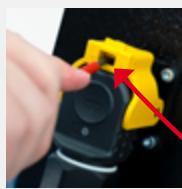
⑥

Handling of UP locking lever

Opening process (using a flat head screwdriver)



①



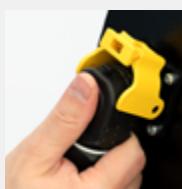
②



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 mm ² 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 mm ² or 250 kcmil	Han® S 450 Plus RS 20.4 - 21.6 mm
150 mm ² 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 separately.



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