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Han® 3A RJ45 Hybrid Cat6



General information

Design	Hybrid connector for Ethernet communication and power supply
Product standard	IEC 61076-3-106 (Variant 5)
No. of contacts	8 + 4 (2x4 for Ethernet + 4x power)
Transmission rate	10 / 100 Mbit/s and 1 / 2,5 / 5 / 10 Gbit/s
Transmission performance	Category 6/6A / Class EA up to 500 MHz acc. to ISO/IEC 11801:2002, EN 50173-1
Shielding	Fully shielded, 360° shielding contact
Degree of protection	IP65/67
Mating cycles	Min. 500
UL certification	E 102079
RoHS - complainant	yes
Lead free	yes

Cable specification and termination details for the plug side

Cable diameter (plug)	6 to 12 mm
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Ethernet

IDC types (Cat. 6)

Conductor cross section	AWG 27 to AWG 22 (solid and stranded)
Conductor diameter	Max. 1,6 mm

Piercing types (Cat. 6A)

Conductor cross section	AWG 28/7 to AWG 24/7 (stranded)
Conductor diameter	Max. 1,05 mm

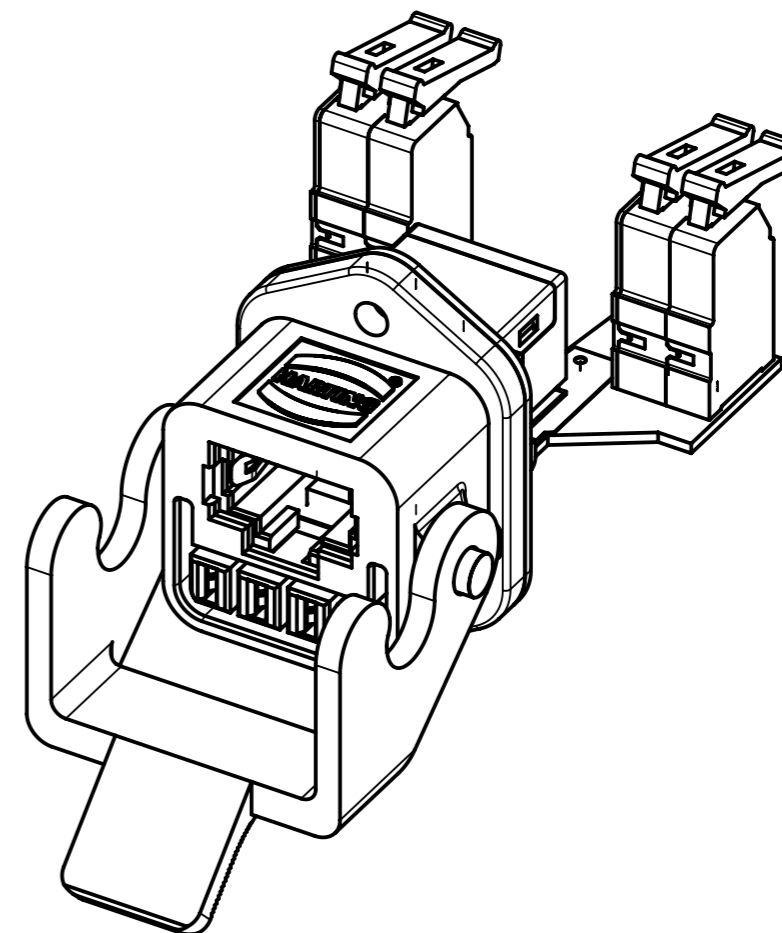
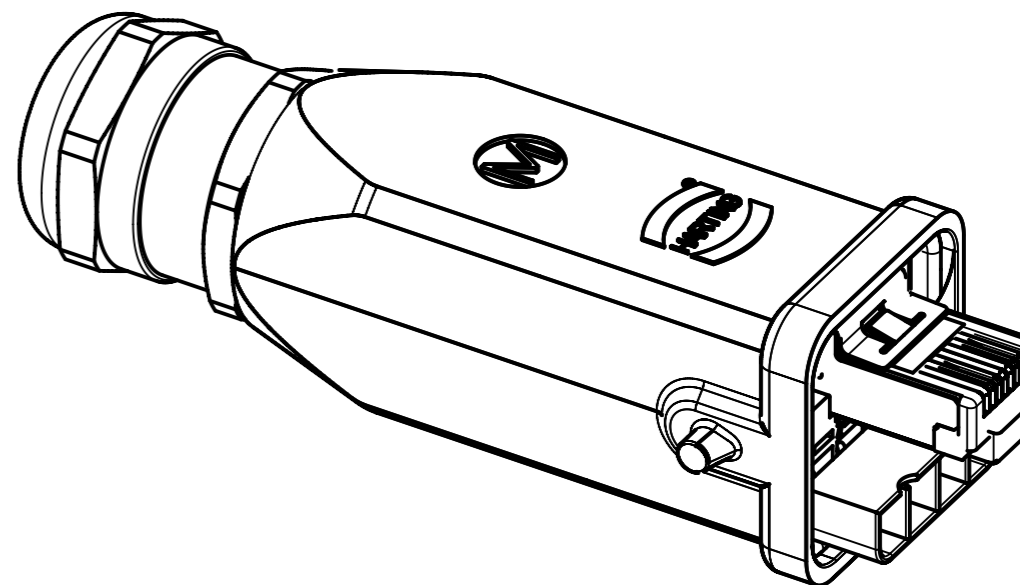
Power	IDC contacts 4x 1,5 mm ² (stranded)
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Panel feed-through

Mating interface extern:	RJ45 acc. to IEC 60603-7 for Ethernet and 4 power contacts
Mating interface intern:	RJ45 acc. to IEC 60603-7 for Ethernet and 4 PCB terminals

Power

Conductor cross section PCB terminal	0,5 to 2,5mm ² (solid and stranded)
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	All Dimensions in mm Original Size DIN A3	Scale 1:1	Free size tol.	Ref. Sub. DS 21 03 520 10 01 / EC04876 / 13.04.2010		
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HARTING Electronics GmbH D-32339 Espelkamp		Title Han® 3A RJ45 Hybrid Cat6			Doc-Key / ECM-Nr. 100637182/UGD/000/A 500000109451	
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Electrical specification

RJ45 Ethernet connection

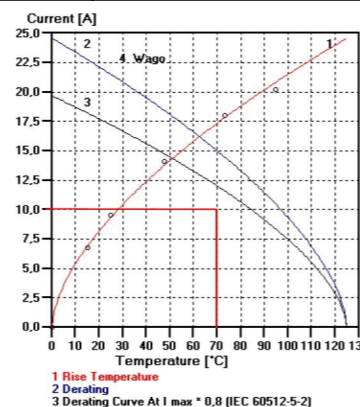
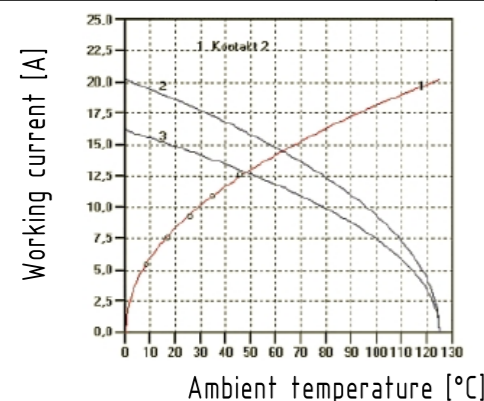
Rated current	1,5 A (all pins) values at 20°C
Rated voltage	50 V AC / 60 V DC
Contact Resistance	RJ45 Signal: $\Delta RD \leq 20 \text{ m}\Omega$ / RJ45 Shielding: $RD \leq 100 \text{ m}\Omega$ / Power: $\Delta RD \leq 4 \text{ m}\Omega$
Insulation Resistance	500 M Ω min. (500 V DC)
Voltage Proof	Contact / Contact: 1kV dc or ac peak; Contact / Test panel: 1.5kV dc or ac peak
Mechanical operation with electrical load (IEC 60512 - test 9c)	Unmating under electrical load with: 1,2 A / 50 V 50 cycles for each polarity
PoE	PoE IEEE 802.3af PoE+ IEEE 802.3at 4PPoE IEEE 802.3bt

Power connection

Rated voltage	48 V / DC
Rated current	16 A

Derating diagram acc. to IEC512 (Current carrying capacity)

Current-carrying capacity 1,76 A @ 0°C



Mechanical specification

Insertion force	30 N max
Withdrawal force	30 N max
Mechanical Operation	500 times insertions and extractions / mating speed: 10 mm/s max. / rest: 5s, min.(unmated)
Lock Strength	Min. 100 N (for the mating axis direction in state in fitted with applicable connector)
Wrenching Strength	Applying 25times of 30 N 1 s for 2 axis direction on tip of plug case in state in fitted with applicable connector

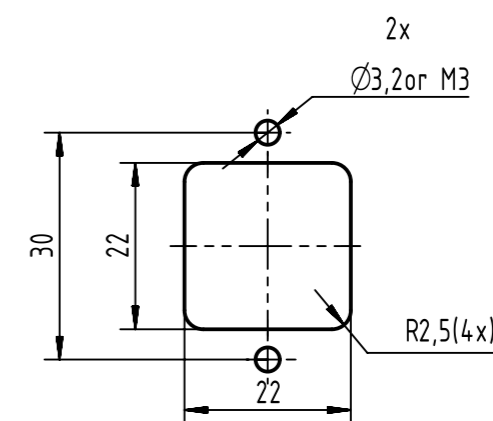
Environment specification

Storage temperature range	-40°C to +70°C (95% RH max.)
Operating temperature range	-40°C to +70°C (95% RH max.)
Rapid change of temperature (IEC 60512-11d)	10 cycles between -55°C and 85°C with 30 minutes dwell at temp. extremes and 1 minute transition between temperatures
Dry heat (IEC 60512-11i)	Temperature 70°C, duration 5d
Damp heat cyclic (IEC 60068-2-38)	25°C to 65°C; cold sub-cycle - 10°C; humidity 93 % RH 25 cycles, 1 cycle/24 h
Cold (IEC 60512-11j)	-40°C duration 2h

Flow mixed gas test (IEC 60068-2-60)	Duration 4 d, Method 4 (mated and unmated)
Corrosion salt mist	Exposed at 5 % salt water, 35 ± 2°C, duration 48 h (left under unmated condition.)
Vibration Sinusoidal (IEC 60512-test 6d)	10 - 500 Hz; 0.35 mm; 49 m/s ² / 2 h / 3 axis / No contact disturbances ≥ 1 μs
Mechanical shock (IEC 60512-test 6c)	Half sine shock 300 m/s ² , duration 11 ms / 3 shocks / both directions / 3 axis - totally 18 shocks / No contact disturbances ≥ 1 μs
Mechanical shock (DIN EN 61373 Class 1 cat b) / Additional test to fulfill DIN EN 50155 for railway equipment	Half sine shock 5 g, duration 30 ms / 5 shocks / both directions / 3 axis - totally 30 shocks / No contact disturbances ≥ 1 μs
Random vibration (DIN EN 61373 Class 1 cat b)	Class 1 cat b 5,72 m/s ²
Additional test to fulfill DIN EN 50155 for railway equipment	No contact disturbances ≥ 1 μs

Mounting specification

Recommended panel cut out



Maximal panel thickness	9 mm
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Material specification

Housing material	Depending on type zinc die cast or plastic
Isolator material	
Material	Isolation body PA / Plug hood PC
Color	Depending on type black or gray
UL classification	UL94 V-0
Contact RJ45	
Contact material	Copper alloy (0.3mm thickness alloy C5210)
Plating contact area	Gold plating (15 μm) over Ni (min. 1,27 μm)
Plating solder area	Tin plating over Ni (min. 1,27 μm)
Shielding shells	
Material	Copper alloy
Plating	Nickel plated

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Contact Power

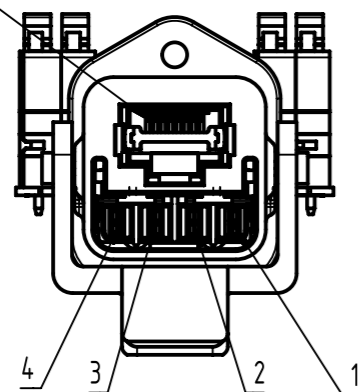
Contact material K55 R650

Plating

nickel plating: 0.5 + 0.5 µm
silver plating: 5 + 2µm on contact side
tin lead plating 5+3µm on SMT termination side

Isolating body VECTRA E 130ID-2

RJ45 mating face acc. to IEC 60603-7



Loading-Plan RJ 45

Loading-Plan 4x 16A/48V		Loading-Plan RJ 45	
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
		5	5
		6	6
		7	7
		8	8

Pin No. ix	10BASE-T 100BASE-TX	1/10GBASE-T	EIA/TIA 568A	EIA/TIA 568B	Industrial (PROFINET)
1	TX+	BI_DA+	white/green	white/orange	yellow
2	TX-	BI_DA-	green	orange	orange
3	N.C	GND	--	--	--
4	N.C	BI_DC+	blue	blue	--
5	N.C	BI_DC-	white/blue	white/blue	--
6	RX+	BI_DB+	white/orange	white/green	white
7	RX-	BI_DB-	orange	green	blue
8	N.C	GND	--	--	--
9	N.C	BI_DD+	white/brown	white/brown	--
10	N.C	BI_DD-	brown	brown	--

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