





## HDT2/48B

- Designed for the protection of data and communication lines against longitudinal and transverse surge effects.
- Pluggable version.
- No interruption of communication bus when the module is removed.
- One pair or two pairs lines.

- Contains both 1st and 2nd stage of protection.
- The HDT\*/\*C range, in addition, contains a gas discharge tube between the PE and SH (shield) terminals for their galvanic isolation.
- Suitable for use in industrial applications, especially in low-voltage ESS, FDAS systems and also in measurement and control systems.

Number of pairs2Connector typeScrew terminalsRated operating DC voltageU, $0.48V$ Maximum continuous operating voltage DCUc $57.6V$ Maximum continuous operating voltage DCUc $57.6V$ Rated load currentL $0.5A$ C1 Voltage protection level at I, (line/PE)U, $< 450V$ C1 Voltage protection level at I, (line/PE)U, $< 600V$ C2 Voltage protection level at I, (line/PE)U, $< 600V$ C2 Voltage protection level at I, (line/line)U, $< 600V$ C2 Voltage protection level at I, (line/line)U, $< 600V$ C2 Voltage protection level at I, (line/line)U, $< 600V$ C2 Voltage protection level at I, (line/line)U, $< 120V$ C2 Voltage protection level at I, (line/line)U, $< 30V$ C3 Voltage protection level at I kV/µs (line/PE)U, $< 85V$ C3 Voltage protection level at I kV/µs (line/line)U, $< 70V$ D1 Inclui impulse discharge current (10/350) ine/PE $I_{mp}$ $2.5 kA$ D1 Total impulse discharge current (10/350) ine/PE $I_{mp}$ $1.8Q$ Data rateI Mbit/sB $0 \div 1 MHz$ Series impedance per lineI Noit/s $1.8Q$ Parasitic capacitance $V$ $V-2$ Liphtning protection zoneI P22 1.2Housing materialPolyamid PA6, UL94 V-0Degree of protection $I_{12}$ Operating temperature $9$ $0.2 \pm 1.5 mn^2$ C1 Gam fastening range (solid conductor) <t< th=""><th>Туре</th><th></th><th>HDT2/48B</th></t<>	Туре		HDT2/48B
Connector typeScrew terminalsRated operating DC voltageUN $0 \div 48 V$ Maximum continuous operating voltage DCUc $57.6 V$ Rated load currentIL $0.5 A$ C1 Voltage protection level at In (line/PE)Up $< 450 V$ C1 Voltage protection level at In (line/Ine)Up $< 600 V$ C1 Voltage protection level at In (line/Ine)Up $< 600 V$ C2 Voltage protection level at In (line/Ine)Up $< 600 V$ C2 Voltage protection level at In (line/Ine)Up $< 600 V$ C2 Voltage protection level at In (line/Ine)Up $< 600 V$ C3 Voltage protection level at In (line/Ine)Up $< 600 V$ C3 Voltage protection level at In (Vine/Ine)Up $< 600 V$ C3 Voltage protection level at In (Vine/Ine)Up $< 600 V$ C3 Voltage protection level at In (Vine/Ine)Up $< 70 V$ C3 Voltage protection level at In (Vine/Ine)Up $< 70 V$ C3 Voltage protection level at In (Vine/Ine)Up $< 70 V$ D1 Total impulse discharge current (10/350) line/PEImp $E_1$ D1 Total impulse discharge current (10/350) line/PEImp $E_1$ D1 Total impulse discharge current (10/350) line/PEImp $E_1$ D1 Total impulse discharge current (10/350)Imp $E_1$ D2 paratitic capacitanceC $< 1.5 nF$ Lightning protection zoneImp $IEZ 2.3$ Housing materialPolyamid PA6, UL94 V-0Degree of protection $0$ $IP22 3$ Operating tempe	Testing category according to IEC 61643-21:2000 and EN 61643-21:2001		C1, C2, C3, D1
Rated operating DC voltageUN0 + 48 VMaximum continuous operating voltage DCUc57.6 VRated load currentIt0.5 AC1 Voltage protection level at I, (line/PE)Up<450 V	Number of pairs		2
Maximum continuous operating voltage DCUc57.6 VRated load currentIL0.5 AC1 Voltage protection level at In (line/PE)Up<450 V	Connector type		Screw terminals
Rated load currentIL0.5 AC1 Voltage protection level at In (line/PE)Up<450 V	Rated operating DC voltage	U <sub>N</sub>	0 ÷ 48 V
C1 Voltage protection level at In (line/PE)Up p< 450 VC1 Voltage protection level at In (line/line)Up p< 80 V	Maximum continuous operating voltage DC	U <sub>c</sub>	57.6 V
C1 Voltage protection level at In (line/line)Up< 80 VC1 Nominal discharge current (8/20)In1 kAC2 Voltage protection level at In (line/PE)Up< 600 V	Rated load current	IL I	0.5 A
C1 Nominal discharge current (8/20)I n1 kAC2 Voltage protection level at In (line/PE)Up p<600 V	C1 Voltage protection level at I <sub>n</sub> (line/PE)	Up	< 450 V
C2 Voltage protection level at 1n (line/PE)Up p< 600 VC2 Voltage protection level at 1n (line/line)Up p< 120 V	C1 Voltage protection level at In (line/line)	Up	< 80 V
C2 Voltage protection level at $l_n$ (line/line) $J_p$ < 120 VC2 Nominal discharge current (8/20)In15 kAC3 Voltage protection level at 1 kV/µs (line/PE) $U_p$ < 85 V	C1 Nominal discharge current (8/20)	l <sub>n</sub>	1 kA
C2 Nominal discharge current (8/20)In15 kAC3 Notiage protection level at 1 kV/µs (line/PE)Up<85 V	C2 Voltage protection level at In (line/PE)	Up	< 600 V
InInC3 Voltage protection level at 1 kV/µs (line/IE) $U_p$ < 85 V	C2 Voltage protection level at In (line/line)	Up	< 120 V
C3 Voltage protection level at 1 kV/µs (line/line)U µ<70 VD1 Impulse discharge current (10/350) line/PEImp2.5 kAD1 Total impulse discharge current (10/350)I Total5 kAResponse timeI 1 total5 kAData rateI 1 Mbit/s1 Mbit/sBandwidthB0 ÷ 1 MHzSeries impedance per lineC<1.5 nF	C2 Nominal discharge current (8/20)	I <sub>n</sub>	15 kA
D1 Impulse discharge current (10/350) line/PEImpulse discharge current (10/350)IImpulse discharge current (10/350)Impulse discharge current (10/	C3 Voltage protection level at 1 kV/µs (line/PE)	Up	< 85 V
InterfaceImpD1 Total impulse discharge current (10/350)I TotalI TotalResponse timet A<30 ns	C3 Voltage protection level at 1 kV/µs (line/line)	Up	< 70 V
Response timet_A< 30 nsData rate1Mbit/sBandwidthB0 ÷ 1 MHzSeries impedance per line11.8 ΩParasitic capacitanceC< 1.5 nF	D1 Impulse discharge current (10/350) line/PE	l <sub>imp</sub>	2.5 kA
Data rateImage: constraint of the second secon	D1 Total impulse discharge current (10/350)	I <sub>Total</sub>	5 kA
BandwidthB0÷1 MHzBandwidthB0÷1 MHzSeries impedance per lineC1.8 ΩParasitic capacitanceC<1.5 nF	Response time	t <sub>A</sub>	< 30 ns
Series impedance per line1.8 ΩParasitic capacitanceC<1.5 nF	Data rate		1 Mbit/s
Parasitic capacitanceC< 1.5 nFLightning protection zoneILPZ 1-2, LPZ 2-3Housing materialPolyamid PA6, UL94 V-0Degree of protectionIIP20Operating temperatureA -40 ÷ 55 °CClamp fastening range (solid conductor)I0.2 ÷ 1.5 mm²Tightening moment0,5 NmInstallationOn DIN rail 35 mmModular widthI TE	Bandwidth	В	0 ÷ 1 MHz
Lightning protection zoneLPZ 1-2, LPZ 2-3Housing materialPolyamid PA6, UL94 V-0Degree of protectionIP20Operating temperature9Clamp fastening range (solid conductor)1Tightening moment0,2 ÷ 1.5 mm²Installation0,5 NmModular width1 TE	Series impedance per line		1.8 Ω
Housing materialPolyamid PA6, UL94 V-0Degree of protectionIP20Operating temperatureϑ-40 ÷ 55 °CClamp fastening range (solid conductor)0.2 ÷ 1.5 mm²Tightening moment0,5 NmInstallationOn DIN rail 35 mmModular width1 TE	Parasitic capacitance	С	< 1.5 nF
Degree of protectionIP20Operating temperatureθ-40 ÷ 55 °CClamp fastening range (solid conductor)00.2 ÷ 1.5 mm²Tightening moment0,5 NmInstallationOn DIN rail 35 mmModular width1 TE	Lightning protection zone		LPZ 1-2, LPZ 2-3
Operating temperature9-40 ÷ 55 °CClamp fastening range (solid conductor)0.2 ÷ 1.5 mm²Tightening moment0,5 NmInstallationModular widthModular width1 TE	Housing material		Polyamid PA6, UL94 V-0
Clamp fastening range (solid conductor) $0.2 \div 1.5 \text{ mm}^2$ Tightening moment $0,5 \text{ Nm}$ InstallationOn DIN rail 35 mmModular width1 TE	Degree of protection		IP20
Tightening moment0,5 NmInstallationOn DIN rail 35 mmModular width1 TE	Operating temperature	9	-40 ÷ 55 °C
Installation On DIN rail 35 mm Modular width 1 TE	Clamp fastening range (solid conductor)		$0.2 \div 1.5 \text{ mm}^2$
Modular width 1 TE	Tightening moment		0,5 Nm
	Installation		On DIN rail 35 mm
Operating position Any	Modular width		1 TE
	Operating position		Any

## Surge protection for data and information signal transmission



Туре		HDT2/48B
Remote signalling		No
Modular design		Yes
Article number of spare module		56 009/M
Lifetime		> 100 000 h
Designed according to standards		
Requirements and test methods for SPDs connected to telecommunications and signalling networks		IEC 61643-21:2000
Safety of Flammability of Plastic Materials		UL 94
Application standards		
Protection against lightning		IEC 62305:2010
Ordering, packaging and additional data		
Mass	m	79 g
Mass (including the packaging)	m	90 g
Packaging dimensions (H x W x D)		26 x 98 x 73 mm
Packaging value	V	0.19 dm <sup>3</sup>
ETIM group		EG000021
ETIM class		EC000943
Customs tariff no.		85363010
EAN code		8590681167434
Art. number		56 009



**The link in the QR code** leads to the online presentation of the **HDT2/48B**. There, in addition to the always up-to-date data sheet, you will also find all diagrams and drawings, declarations of conformity, or 2D or 3D models and other necessary materials. For more information, visit **www.hakel.com** 



## Internal diagram

