

## M12 transf. 10GBASE-T x STR with PoE+



Image is for illustration purposes only. Please refer to product description.

|                    |                                                                                       |
|--------------------|---------------------------------------------------------------------------------------|
| Part number        | 21 03 381 2823                                                                        |
| Specification      | M12 transf. 10GBASE-T x STR with PoE +                                                |
| HARTING eCatalogue | <a href="https://b2b.harting.com/21033812823">https://b2b.harting.com/21033812823</a> |

### Identification

|                |                                                                       |
|----------------|-----------------------------------------------------------------------|
| Category       | Connectors                                                            |
| Series         | Circular connectors M12                                               |
| Identification | Magnetics                                                             |
| Element        | PCB adapter                                                           |
| Specification  | with integrated transformer<br>Straight<br>Power over Ethernet (PoE+) |

### Version

|                    |                                    |
|--------------------|------------------------------------|
| Termination method | Reflow soldering termination (SMT) |
| Gender             | Female                             |
| Shielding          | Shielded                           |
| Number of contacts | 8                                  |
| Coding             | X-coding                           |
| Details            | Order housings separately          |
| Pack contents      | 60 pieces in a tray                |

### Technical characteristics

|                       |        |
|-----------------------|--------|
| Rated current         | 0.8 A  |
| Rated voltage         | 57 V   |
| Rated impulse voltage | 1.5 kV |
| Pollution degree      | 3      |



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## Technical characteristics

|                                        |                                                    |
|----------------------------------------|----------------------------------------------------|
| Data rate                              | 10 Mbit/s                                          |
|                                        | 100 Mbit/s                                         |
|                                        | 1 Gbit/s                                           |
|                                        | 2.5 Gbit/s                                         |
|                                        | 5 Gbit/s                                           |
|                                        | 10 Gbit/s                                          |
| Insulation resistance                  | $>10^8 \Omega$                                     |
| Contact resistance                     | $\leq 10 \text{ m}\Omega$                          |
| Limiting temperature                   | -40 ... +85 °C (during reflow soldering max. +245) |
| Insertion force                        | 30 N                                               |
| Withdrawal force                       | 30 N                                               |
| Mating cycles                          | $\geq 100$                                         |
| Degree of protection acc. to IEC 60529 | IP65 / IP67 mated condition                        |
| Isolation group                        | IIIa ( $175 \leq \text{CTI} < 400$ )               |
| Process Sensitivity Level (PSL)        | R7 acc. to ECA/IPC/JEDEC J-STD-075                 |

## Material properties

|                                           |                                                        |
|-------------------------------------------|--------------------------------------------------------|
| Material (insert)                         | Liquid crystal polymer (LCP)                           |
| Colour (insert)                           | Black                                                  |
| Material (contacts)                       | Brass                                                  |
| Surface (contacts)                        | Au over Ni Mating side                                 |
| Material flammability class acc. to UL 94 | V-0                                                    |
| RoHS                                      | compliant with exemption                               |
| RoHS exemptions                           | 6(c): Copper alloy containing up to 4 % lead by weight |
| ELV status                                | compliant with exemption                               |
| China RoHS                                | 50                                                     |
| REACH Annex XVII substances               | Not contained                                          |
| REACH ANNEX XIV substances                | Not contained                                          |
| REACH SVHC substances                     | Yes                                                    |
| REACH SVHC substances                     | Lead                                                   |
| ECHA SCIP number                          | 0d7d3693-d625-47ab-934a-d241bf72c86e                   |
| California Proposition 65 substances      | Yes                                                    |
| California Proposition 65 substances      | Lead                                                   |
|                                           | Nickel                                                 |
|                                           | Naphthalene                                            |
| Fire protection on railway vehicles       | EN 45545-2 (2020-08)                                   |



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Material properties

Requirement set with Hazard Levels R26

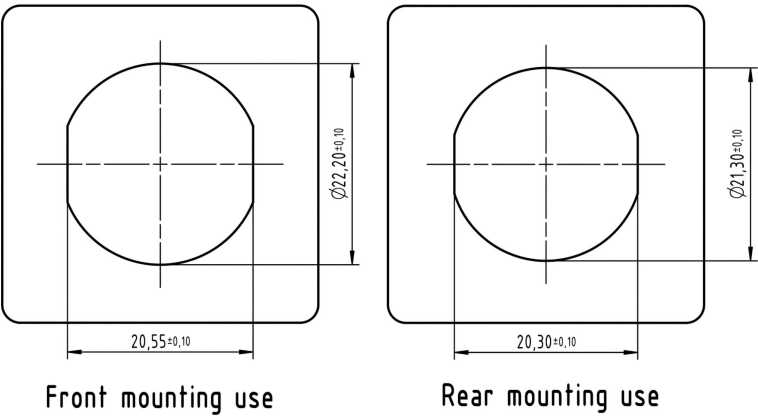
Specifications and approvals

|                |                 |
|----------------|-----------------|
| Specifications | IEC 61076-2-109 |
|----------------|-----------------|

Commercial data

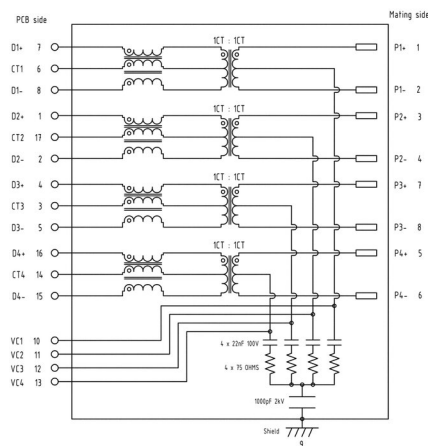
|                                |                                          |
|--------------------------------|------------------------------------------|
| Packaging size                 | 60                                       |
| Net weight                     | 5.91 g                                   |
| Country of origin              | China                                    |
| European customs tariff number | 85366990                                 |
| GTIN                           | 5713140228917                            |
| ETIM                           | EC002637                                 |
| eCl@ss                         | 27460201 PCB connector (board connector) |

Panel cut out

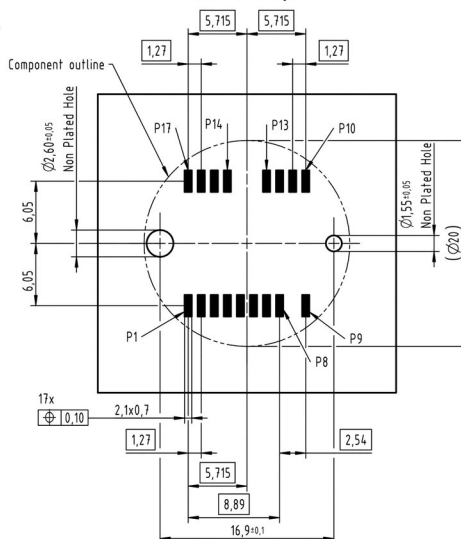


## General information

### Schematic



### Recommended PCB layout

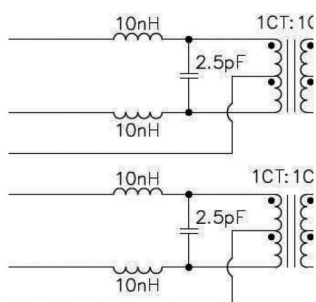


Electrical Characteristics @ +25°C unless otherwise noted  
Meets IEEE802.3 specification  
RoHS compliant

| Parameter                          | Specification/ Limit Values                        |
|------------------------------------|----------------------------------------------------|
| Operating Temperature              | -40°C ~ +85°C                                      |
| Turn Ratio (+/- 2%)                | 1CT : 1CT                                          |
| Current Capacity Pins 1-8/ VC1-VC4 | 750mA                                              |
| OCL                                | min 120µH @ 100KHz, 100mV with 18mA bias current   |
| Isolation (Input- Output)          | 2.25kV VDC, for 60sec. min<br>0.1MHz < f ≤ 500 MHz |
| Insertion Loss                     | 3.1 db                                             |
| Return Loss                        | 5 db                                               |
| Crosstalk                          | 23 db                                              |
| CMRR                               | 20 db                                              |
| CDMR                               | 20 db                                              |

NOTE: 1. f is the frequency in MHz  
2. The Product has been tested for DC isolation. HARTING assumes no liability or obligation for AC isolation testing.  
3. Please note that the M12 Magnetics connector generates less high frequency losses (1-3GHz) compared to an RJ45 with magnetics. In combination with Chipsets that require high frequency losses to pass the PSD test, it is recommended to add a Lowpass filtering network to the M12 10G Magnetics PCB-side for 10GBASE-T signalling (see Detail A)

### Detail A



### Tape layout & packaging

