

# Rosenberger

## MTD<sup>®</sup> Connector Systems

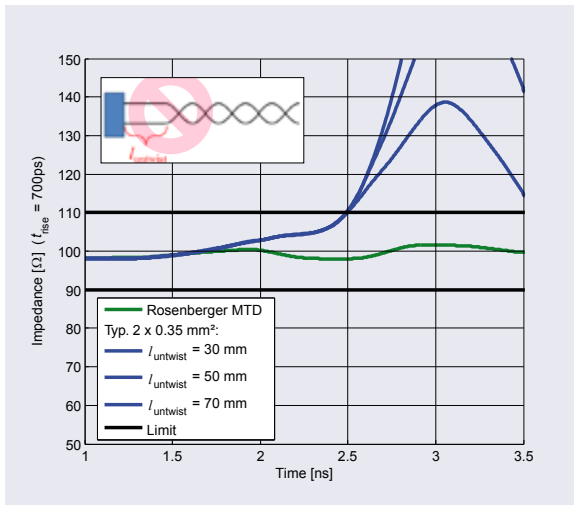
Modular Twisted-Pair Data Connectors  
for Ethernet Applications



## Introduction

The newly developed Rosenberger MTD<sup>®</sup> Connection System is an Ethernet transmission system for jacketed Twisted-Pair cables. During development special focus was set on characteristics cost, weight and construction size and the aim for consequent reduction of these. New standards are set for the implementation of Ethernet 100 Mbit/s and 1 Gbit/s into cars due to the excellent system performance. The MTD<sup>®</sup> (Modular Twisted-Pair Data) connector interface is a free standard. The significant advantage of the Rosenberger MTD<sup>®</sup> connection system is the impedance controlled transition area from cable to connector interface compared to existing solutions on the market.

Small construction size in combination with several coding features allows placing of multiple wire pairs right next to each other still maintaining smallest installation space. The honeycomb structure provides low crosstalk, good symmetry and can be extended modularly. Furthermore during design phase key points as ergonomics, workability and repair facilities were taken into account ensuring best electrical system performance. Jacketing a Twisted-Pair cable enables a reduction in wire size from 0.35 mm<sup>2</sup> to 0.14 mm<sup>2</sup> with same costs and optimized performance characteristics.



## Impedance







Integration of so called „Zone 2“ (transition area connector to cable at a non-sheathed Twisted-Pair =  $l_{untwist}$ ) directly into the connector does ensure a defined twist in the transition area “cable to connector” and so avoids undesirable impedance steps in exactly this area.

## Technical Data MTD®

### Code E5

Electrical data	
Impedance of connector inclusively transition area to cable	100 Ω ±10 Ω at 700 ps risetime
Frequency range	DC to 1.0 GHz
Ampacity	≤ 1.5 A DC
Contact resistance	≤ 10 mΩ
Mechanical data	
Cable retention force	> 80 N
Retention force primary lock	> 80 N
Retention force secondary lock to fix carrier	> 55 N
Number of codings	5
Coding efficiency	> 40 N
Environmental data	
Temperature range	-40 °C to +125 °C
Thermal shock	acc. to DIN EN 60068-2-14
Temperature and humidity	acc. to DIN EN 60068-2-30
Vibration (random)	acc. to DIN EN 60068-2-64
Mechanical shock	acc. to DIN EN 60068-2-27
High temperature exposure	acc. to DIN EN 60068-2-2

### MTD® Connectors

Rosenberger No.	Remarks	
E5S21E-40MX5-Y	PCB connector plug 5 way	
E5Z1LE-000-Y	carrier housing 5 way	
E5K10B-1AQX5-Y	cable connector jack insert	
E5S21A-40MX5-Y	PCB connector plug 1 way	
E5K11B-1AQX5-Y	cable connector jack	
E5S10B-1AQX5-Y	cable connector plug inline	

MTD® fulfills channel requirements in terms of adaptation, symmetry and cross talk according to 100BASE-T1, 1000BASE-T1, OPEN Alliance TC2 and BroadR-Reach® Spec 3.2.

-Y: please fill-in requested coding

## Product Features:

- ▶ The MTD® system for modern automotive applications (100 Mbit/s & 1 Gbit/s)
- ▶ Newly developed connection system for optimized jacketed cable
- ▶ Cost optimized products
- ▶ Optimized in weight and installation space
- ▶ Elaborate and well designed for chip to chip applications
- ▶ For highest automotive requirements – LV 214
- ▶ Mechanically robust design
- ▶ Best conditions: manual, semi-automated and fully automated assembly process
- ▶ Standard round contacts applicable
- ▶ Radial free positionable contacts
- ▶ Stressless and torsion free contact assembling

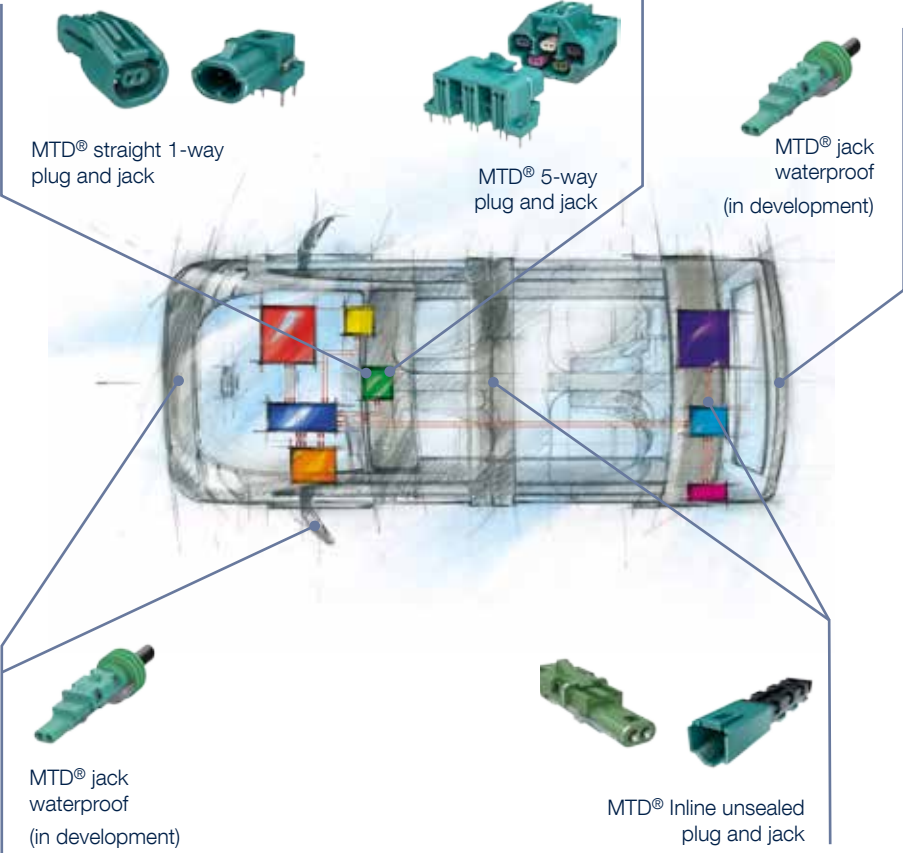


### Easy assembly process

1. Cutting and stripping of cable jacket and wires
2. Crimping of terminals
3. Insertion of crimped terminals and jacket in lower shell
4. Assembly of upper shell



# Modular Twisted-Pair Data Connectors



**Rosenberger**

**Hochfrequenztechnik GmbH & Co. KG**

Hauptstraße 1 | 83413 Fridolfing

P.O. Box 1260 | 84526 Tittmoning

Germany

Phone +49 (0)8684 18-0

[info@rosenberger.de](mailto:info@rosenberger.de)

[www.rosenberger.com](http://www.rosenberger.com)

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