

# Technical Datasheet



## R&M Real10 Cat 6 Shielded Connection Module

## Real10 Cat 6 Connection Module

R&M's Real10 Cat 6 connection modules, from the R&Mfreenet cabling system, are ideal for voice, fast data transmissions and high bandwidth applications. This high-performance Cat 6 module is perfect for use in 10 Gigabit Ethernet (10GBASE-T) applications to 500 MHz.

### Real10 Cat 6 Features

When installed as part of an R&M Real10 Cat 6 shielded 4-conductor channel, exceeds the IEEE 802.3an minimum requirements for 10GBASE-T performance, as well as the requirements for Class E<sub>A</sub> performance according to ISO/IEC 11801 ed. 2.2, June 2011.

Exceeds the Cat 6 specification (mated) for the entire de-embedded plug range as specified by the standards (ISO/IEC 11801, EN 50173 and TIA/EIA 568C)

Attains Cat 6 values together with Cat 6 patch cables, as specified in standard IEC 11801 Ed. 2.2

Achieves best transmission characteristics with R&Mfreenet Cat 6 patch cables (e.g. R302331 – R302340)

NEXT values at 100 MHz are 11dB better than Cat 5e

NEXT performance is tripled and bandwidth performance is doubled compared to Cat 5e in the channel

Gold-plated contact area and tin-plated insulation displacement contact area

Maximum reliability through special contact design that does not use internal transfer points such as printed circuit board

Capacitive and inductive compensation

Compatible with Cat 6 standard plugs

Full mechanical and electrical backward compatibility with Cat 5e and 5

RJ-11 compatible

Fits into all R&Mfreenet patch panels and outlets, and in selected vendors' faceplates using specific adapters

Tool-free connection of installation cables of AWG 22-26 plus stranded cables of AWG 22/7 – 26/7

Allows connection of cables with larger or smaller AWG with use of the Screw Clip (R35293)

Wiring option according to TIA/EIA 568 A and B with parallel termination of the pairs without splitting pair 3,6

Label with color wiring chart and integrated production date for quality tracing

360° shield coverage with shielded modules

Simple and time-saving, patented shield contact with integrated cable strain relief

Lead-free shield coating

Halogen-free materials

PoE and PoE+ compatible according to IEC 60512-99-001

Delta, GHMT, 3P certified

### Standards

IEC 60603-7: Electrical Characteristics of the Telecommunication Outlets

ISO/IEC 11801, Ed. 2.2: June 2011

EN50173-1: May 2011

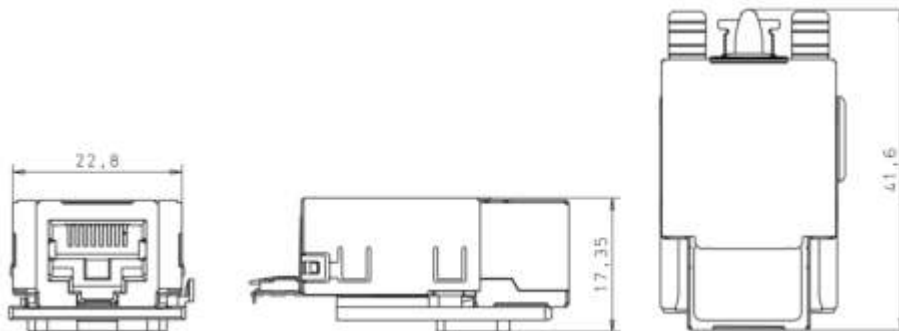
## Mechanical Data

Number of RJ45 jacks	1
Operating temperature range	-10°C to 60°C
Storage temperature range	-40°C to 70°C
Humidity	95% (non-condensing)
Contact material	CuSn
Contact surface	>0.76 µm gold over >1.2 µm nickel
Housing material	Polycarbonate (UL-94-V0)
Number of IDC* connections	8 / jack
IDC contact material	CuSn, tin-plated
Admissible wire Ø	0.4 mm (AWG26) – 0.65 mm (AWG22)
Admissible strand Ø	AWG26/7 – AWG22/7
Admissible insulation Ø	0.8 mm – 1.6 mm
Wire strain relief	Through labyrinth in IDC block
Cable strain relief	Through cable tie
Shield contact on plug	Through contact springs (on plugs)
Shield contact on installation cable	Large surface with shield lance (on cable)
Earth contact	2 contact fingers for flat plug 4.8 x 0.5 mm
Shield material	CuSn, tin-plated 2-4 µm

\*IDC: Insulation Displacement Contact

Description	Standard value	Relevant Standard	Typical value (at 20°C)
Mating cycles min.	> 750	ISO/IEC 11801 2 <sup>nd</sup> Ed.	> 1000
Insertion cycles installation cables	> 20	ISO/IEC 11801 2 <sup>nd</sup> Ed.	> 20

## Dimensions shielded



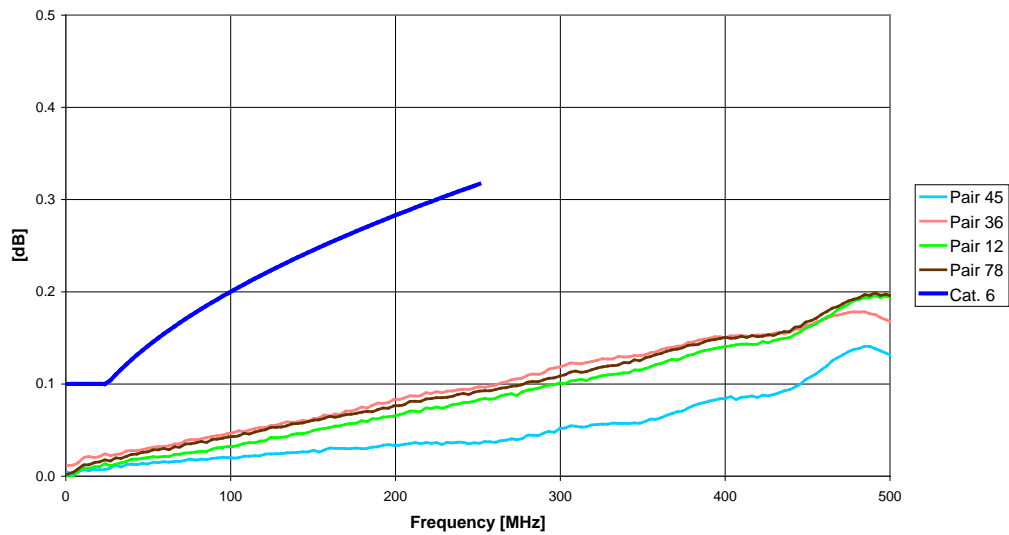
## Electrical Data

Description	Standard value	Relevant standard	Typical value (at 20°C)
Electric strength	1000 V DC or AC peak	IEC 60603-7	> 1000 V <sub>eff</sub>
Insulation resistance	> 500 MΩ (500 V DC)	IEC 60603-7	> 500 MΩ (500 V DC)
Contact resistance	< 200 mΩ	IEC 60603-7	< 50 mΩ

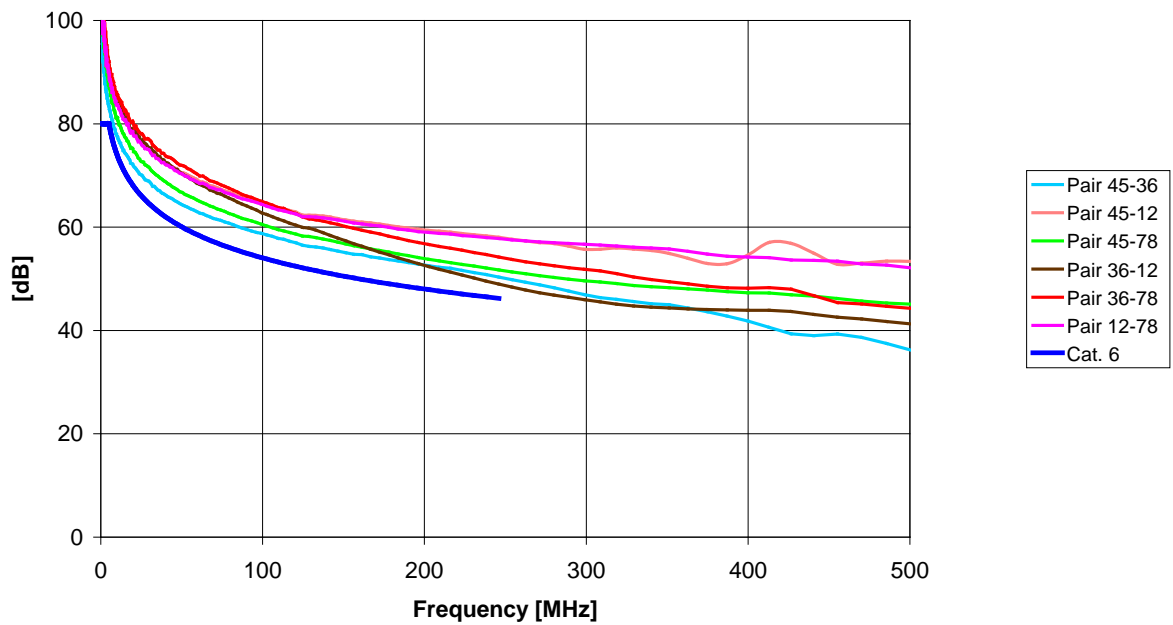
Transfer impedance	EN-50173 value	Typical value (at 20°C) (Standard installation)	Typical value (at 20°C) (Deluxe installation)
1 MHz	< 100 mΩ	< 75 mΩ	< 50 mΩ
10 MHz	< 200 mΩ	< 150 mΩ	< 100 mΩ
30 MHz	< 600 mΩ	< 450 mΩ	< 300 mΩ
80 MHz	< 1600 mΩ	< 1200 mΩ	< 800 mΩ
100 MHz	< (2000 mΩ)	< 1500 mΩ	< 1000 mΩ

Frequency (MHz)	Attenuation (20°C) [dB]	NEXT (20°C) [dB]	Return Loss (20°C) [dB]	PS ANEXT (20°C) [dB]
1.0	0.01	96.9	49.0	97.4
4.0	0.01	85.2	51.7	100.4
10.0	0.02	77.6	49.4	97.5
16.0	0.02	73.9	46.5	90.7
20.0	0.02	72.0	45.0	90.4
31.25	0.02	68.3	41.6	94.7
62.5	0.03	62.6	36.3	90.4
100.0	0.05	58.7	32.6	85.3
125.0	0.05	56.5	30.7	88.0
155.0	0.06	54.8	28.9	90.5
175.0	0.07	53.9	27.9	89.1
200.0	0.08	52.6	26.6	87.5
250.0	0.10	48.7	24.7	83.1
300.0	0.12	45.9	23.0	75.4
400.0	0.15	41.8	20.2	77.2
500.0	0.20	36.2	17.4	73.1

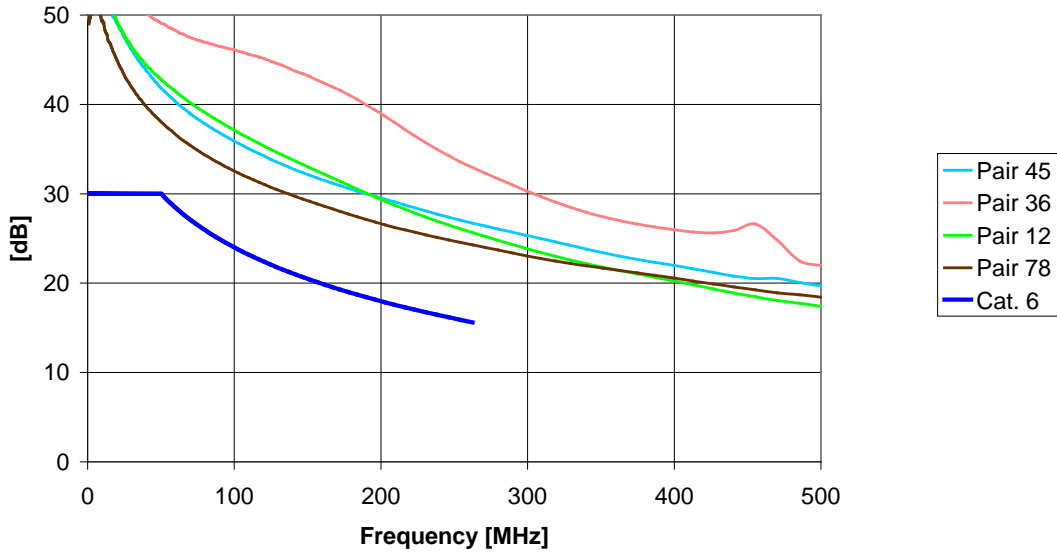
### Attenuation, Real10 Cat. 6 shielded



### NEXT, Real10 Cat. 6 shielded



### Return Loss, Real10 Cat. 6 shielded



### PS ANEXT, Real10 Cat. 6 shielded 8 disturbers around 1 victim

