

# Technical Datasheet



## R&M Real10 Cat 6 Unshielded 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 Cat 6 unshielded 4-connector 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 Real10 Cat 6 patch cables (R312803 – R312807)

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 22-24 plus stranded cables of AWG 22/7 – 26/7

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

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

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

Halogen-free materials

PoE and PoE+ compatible

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

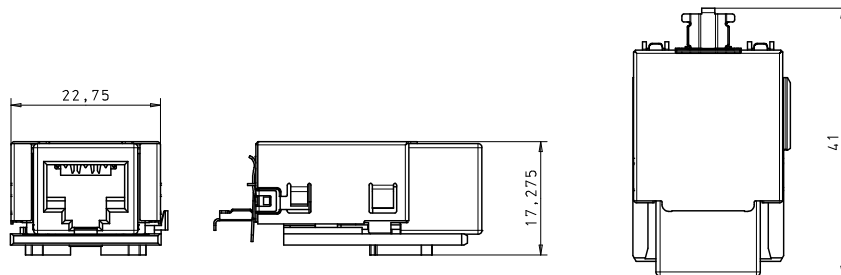
**Mechanical Data**

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	0.5 mm (AWG24) – 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

\*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 unshielded

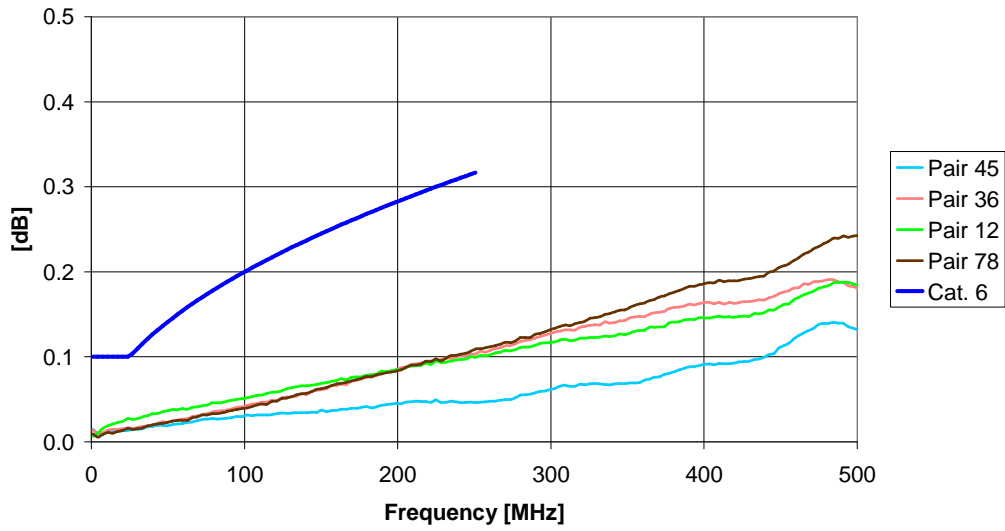


### Electrical Data

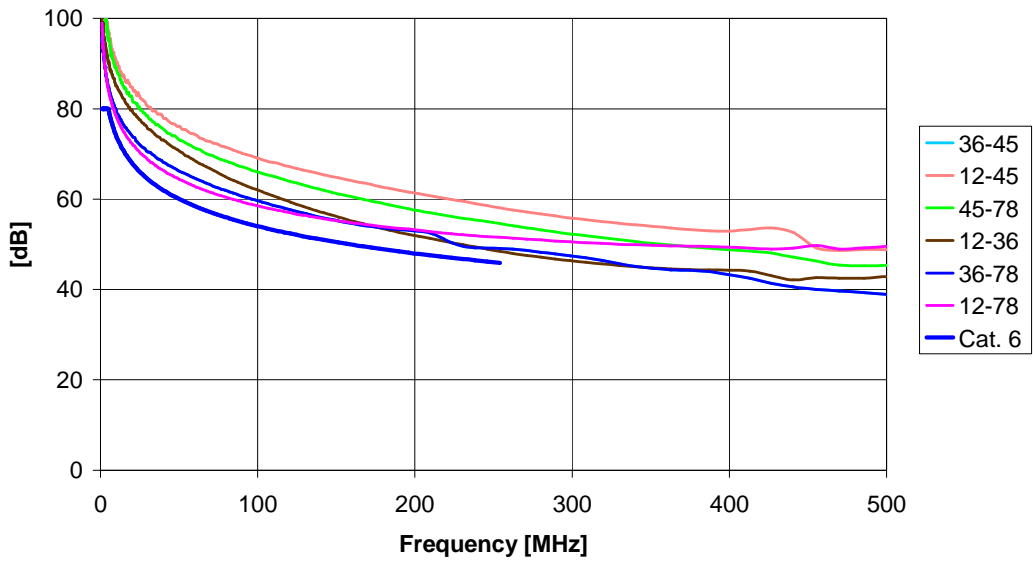
Description	Standard value	Relevant standard	Typical value (at 20°C)
Electric strength	1000 V DC or AC peak	IEC 60603-7	> 1000 V <sub>eff</sub>
Insulation resistance	> 500 MΩ (500 V DC)	IEC 60603-7	> 500 MΩ (500 V DC)
Contact resistance	< 200 mΩ	IEC 60603-7	< 50 mΩ

Frequency (MHz)	Attenuation (20°C) [dB]	NEXT (20°C) [dB]	Return Loss (20°C) [dB]	PS ANEXT (20°C) [dB]
1.0	0.01	96.1	46.5	92.5
4.0	0.01	86.3	48.8	95.8
10.0	0.02	78.4	47.6	93.5
16.0	0.02	74.2	45.2	89.1
20.0	0.02	72.2	43.7	88.6
31.25	0.03	68.4	40.6	84.1
62.5	0.04	62.5	35.3	80.0
100.0	0.05	58.5	31.4	74.4
125.0	0.06	56.7	29.5	72.5
155.0	0.07	54.9	27.7	72.9
175.0	0.08	53.8	26.6	72.7
200.0	0.09	52.0	25.4	71.6
250.0	0.11	49.1	23.4	64.7
300.0	0.13	47.4	21.8	66.9
400.0	0.19	43.2	19.3	65.0
500.0	0.24	38.9	15.9	61.8

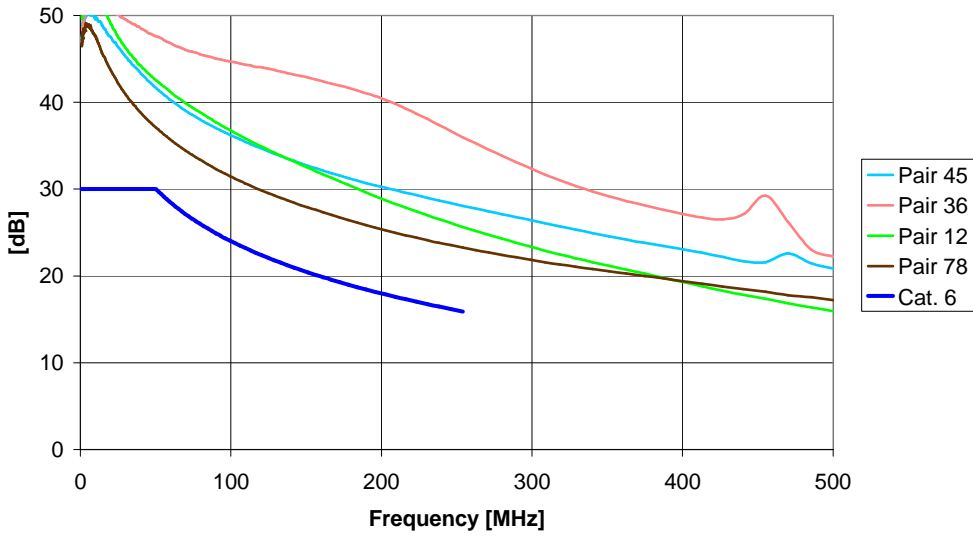
Attenuation, Real10 Cat. 6 unshielded



NEXT, Real10 Cat. 6 unshielded



**Return Loss, Real10 Cat. 6 unshielded**



**PS ANEXT, Real10 Cat. 6 unshielded  
8 disturbers around 1 victim**

