

M-bus Cable Specification

M-bus cable should have the following characteristics –

1 twisted pair of conductors
No protective screen

The twisted pair of conductors should have a resistance of less than 29m Ω per metre and a capacitance of less than 180pF per metre. All the conductors should be of at least 0.5mm² (20 AWG) cross section and preferably of stranded construction for greater durability.

The total length of all cable within a network is limited to 1 km with this type of cable.

A cheaper alternative for smaller networks (up to 300 m total cable length) is to use Cat5E ethernet cable (UTP) with similar characteristics.

Maximum total resistance = 29 Ω

Maximum total capacitance = 180 nF

With Alpha Wire 1131C cable (6mm O/D) –

Resistance = 0.0237 Ω /m -> 1224 m

Capacitance = 110 pF/m -> 1636 m

Total network length = 1.2 km

With Belden 8205 cable (6mm O/D) –

Resistance = 0.0328 Ω /m -> 884 m

Capacitance = 80 pF/m -> 2250 m

Total network length = 850 m

With Belden BE46382 cable (7mm O/D) –

Resistance = 0.012 Ω /m -> 2417 m

Capacitance = 115 pF/m -> 1565 m

Total network length = 1.5 km

With Cat5E cable (5mm O/D) –

Resistance = 0.0938 Ω /m -> 309 m

Capacitance = 56 pF/m -> 3214 m

Total network length = 300 m