

Cabling requirements for the CORE system

TLDR: Cat 6 fire-rated cable should be used for all connections; the cable recommended by Ciqurix is Firecel Lan 6 manufactured by Cavicel. Fibre and wireless linking of Hubs is possible if specified at time of order. See below for full details and recommendations.

The Ciqurix CORE system uses the Ciqurix **QLS** protocol for connections between field devices and Hubs, and the Ciqurix **Hublink** protocol for the interconnections between the Control Hub and any Extension Hubs.

QLS connections use 4-pair copper data cable (often commonly known as "Cat6").

Hublink connections use 4-pair copper data cable as standard, but can also use fibre-optic or wireless links if specified at time of order.

There are five main considerations for specifying cable for the CORE system:

1. Maximum length **QLS:** 90m
Hublink: 90m (fibre and wireless optional upgrade)
2. Speed/bandwidth **QLS:** Cat 5e or Cat 6
Hublink: Cat 6
3. Fire resistance Depends on local regulations, in the UK generally needs to meet BSEN50200 PH30
4. Temperature limits Our recommended cable is rated -20°C to +70°C, for freezers use specialist cable (see below)
5. Physical protection Use specialist cable if physical armouring is required, or use suitable containment

1. Maximum length

The absolute maximum length of any 4-pair copper data cable used on the CORE system is 100m including internal interconnects, so in practice this is around 90m. (Some cable types may have a shorter allowable length; always refer to the manufacturer's specification).

QLS connections can be extended beyond 100m using the Ciqurix NEFP Network Extender (this requires an additional 2-core 24v power cable from the Hub).

Hublink connections can also be extended using the NEFP Network Extender, or can be upgraded to use fibre-optic or wireless links instead (must be specified at time of order).

2. Speed/bandwidth (of copper cabling)

QLS cabling must meet the requirements of ANSI/TIA-568-D category 5 enhanced ("Cat 5E")

Hublink cabling must meet the requirements of ANSI/TIA-568-D category 6 ("Cat 6")

Note that basic cat5 cable is not suitable (although it may suffice over short distances, eg under 20m). For simplicity, most of our installers use Cat6 cable for all connections.

3. Fire Resistance

The fire resistance of all cables will usually need to comply with EN 50200 (either PH30 “standard” or PH120 “enhanced” category depending on location), or IEC standard 60331. In the UK this requirement is set out in British Standard 5839-1. Other countries will have equivalent local regulations which should be followed.

4. Temperature limits

Our recommended cable is specified for use between -20°C and $+70^{\circ}\text{C}$. For installations in extreme temperatures you will need alternative cable. For low temperatures see our suggestion below, otherwise please contact your usual cable supplier or Ciqurix for advice.

5. Physical protection

Our recommended cable (see below) is unarmoured and should be installed inside suitable containment in any areas where it may be subjected to mechanical damage. Armoured cables are available, please speak to your cable supplier or contact Ciqurix for advice.

Cable recommendations

General use:

The only 4-pair data cable that we have extensively tested with our system is Firecel Lan 6 made by Cavicel. This cable meets BS5839-1 and BSEN50200 (enhanced grade ph120), and is cat6, so is suitable for all connections on our systems. It is used by most of our installers. The main UK distributor is Cables Britain.

Low temperature use:

Although not extensively tested by Ciqurix, some of our installers have successfully used LanMarin Fire Cat 6A from NEK Kabel which is rated to -40°C . This is compatible with the Ciqurix CORE terminations, and is fire resistant (check specification). It is available in the UK from FS Cables.

Fibre optic:

If specified with order, the CORE Control Hub and Extension Hubs can be upgraded to allow linking using fibre-optic cabling. We supply a media converter inside each upgraded Hub, but do not supply the patch or SFP elements because they depend on the type of fibre used. Any fibre optic cable will be compatible; most installers use OMI multimode 4 core. Although not extensively tested by Ciqurix, the Draka FT Fire Resistant range has been used successfully by our installers. The Draka Firetuf OFC-UT-NM unarmoured fibre is rated -25°C to $+70^{\circ}$ and the Firetuf OFC-UT-CST armoured version is rated -40°C to $+70^{\circ}\text{C}$. These are available in the UK from FS Cables.

We do not usually hold cable in stock, but we can supply cable if required (although we are unlikely to be price competitive and you may prefer to purchase direct from a distributor if possible).

Information last updated June 2023. Quoted specifications are correct at time of writing; always obtain latest information from cable manufacturers and confirm suitability before purchasing.