



by Honeywell

Installation guide

Delta DA Quad

Detection and
Alarm module



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NS-ISO 9001:2000 Sertifikat No.900765
Sertifikatet omfatter ikke produkter.



This product satisfies all requirements applicable to relevant standards and directives:

EMC

Immunity Standard

- EN50130-4 Product Family Std. Immunity Alarm Systems

Generic Emission Standard:

- EN50081-1 Residential, Commercial and Light Industry
- EN50081-2 Industrial Environment

LVD

LVD73/23/EEC Low Voltage Directive

Delta DA Quad is tested according to EN54-4



For other type approvals and certificates, visit our Web site: www.eltek-fs.com

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1. Installation



Figure 1 Packaging, *Delta DA Quad*

Congratulations on your purchase of the *Delta DA Quad* module! — a cost-effective fire detection and alarm module developed to facilitate the decentralisation of the fire alarm installation throughout the protected area.

This equipment is packed to withstand the normal stresses of transport and storage. However, it must not be exposed to impact, extreme humidity or major fluctuation in temperature (storage temperature -20°C to $+70^{\circ}\text{C}$)

It is also important that the equipment is stored in the original packaging, in a suitable storeroom, before installation begins. The installation cables and other equipment is not included in the delivery.

The installation of *Delta DA Quad* principally consists of:

1. **Unpacking**
— identification and inspection of equipment received
2. **Mechanical installation**
— Fixing the module to a wall or in to a cabinet
3. **Electrical installation**
— connecting cables and plugs to the module
4. **Configuration**
- Please contact *Honeywell Life Safety's* service department

System Diagram

This system diagram shows an example of the inputs, outputs and other interfacing connections used in a *Delta DA Quad* fire alarm installation.

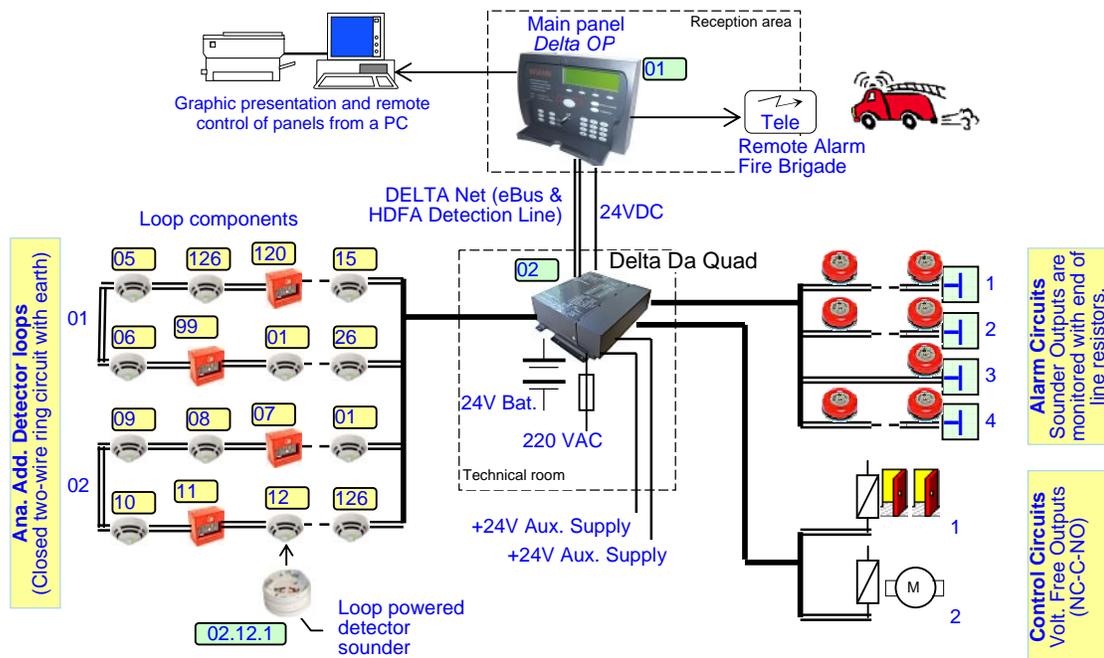


Figure 2 Example of fire alarm installation using *Delta OP* panel (system 01) and *Delta DA Quad* module (system 02), monitoring addressable *Esser* loop components. For connection of the remote alarm, see folder '*Kit for OP: Fire Brigade Termination Card*'. Use the *EDP-1* hand-held programmer to address the *IQ8* detectors.

Unpacking



ESD



Special treatment of circuit cards (ESD sensitive equipment)

This product includes semiconductor components that are sensitive to *electro static discharge* (ESD). The product can be damaged, perform poorly or have a reduced lifecycle if it is exposed to incorrect treatment during installation, servicing or transport.

Circuit cards must be handled as sensitive electronic equipment, i.e. you must use special aids and handling methods which prevent damage in accordance with NS-ISO-9001.

Delta DA Quad is packed in a special box. Following variants are available:

- ◇ **As part of the *Delta Compact Quad*** fire alarm control panel
- ◇ **As an independent module**— for connection to an existing fire alarm system or as an independent fire alarm module with decentralised *Delta OP* panel

Check that you have received all the parts:



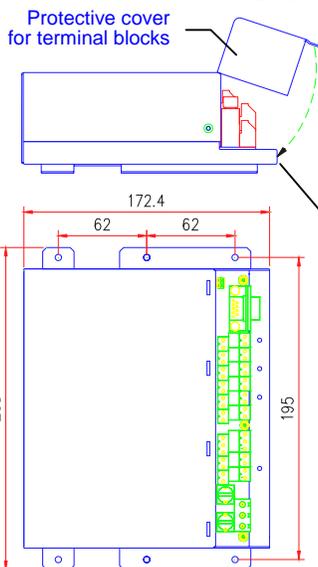
Mechanical Installation

This product is CE labelled and meets all requirements set out in relevant standards/directives.



The electrical engineer is responsible for ensuring that the EMC properties of this product/system do not deteriorate during installation.

Installing the Module



You can install *Delta DA Quad* on a wall or in a cabinet by fastening the module with six suitable screws through the holes (4.5mm Ø) in the fastening brackets. Centre distances are 62 mm and 195 mm. Adjust the installation height as required.

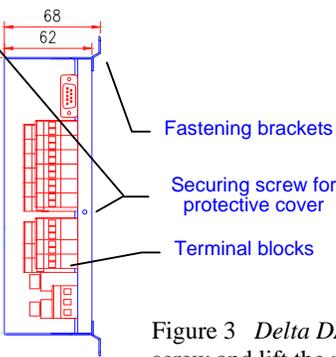


Figure 3 *Delta DA Quad* mounting instructions. Remove the securing screw and lift the protective cover to access the terminal blocks.

Electrical Installation

Connect the cables to the *Delta DA Quad* module by screwing off and lifting up the protective cover of the terminal blocks — see Figure 3, on page 4 — and fasten the cables to the terminal block as illustrated in ‘Figure 5 Standard terminal block connections for *Delta DA Quad* (factory settings)’, on page 6.

See also ‘Figure 4 Location of terminal blocks and plugs on *Delta DA Quad*’, page 5.

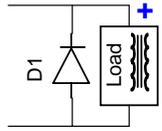
If the *Delta DA Quad* module has been programmed with a configuration other than the factory setting, you must connect the cables according to the terminal block drawings for that configuration.

✓ Before connection, all **cables must be checked** for breaks, shorts and earth faults. Faults in the cables may damage the equipment. **Meggers** must not be used!

✓ In order to meet the module’s sealing requirements (IP 30, max. 2.5 mm opening), the **protective cover** for the terminal blocks **must be fitted**. This is not necessary when the module is used in the *Delta Compact Quad*.

✓ **The power supply** cables (CN3:1-2-3 and CN2:6-7) must **always** be connected **last**.

✓ Connect the fire alarm equipment to **dedicated fused circuits**, labelled "FIRE" in the fuse board. *Delta DA Quad* is rendered completely voltage free by disconnecting all the cables.



✓ You must always connect a **protective diode** D1 (e.g. 1 A/400V) across all inductive loads (door magnets, flashlights, sirens, etc.) controlled from the *Delta DA Quad* module.

✓ **Unused circuits** must be terminated on the terminal blocks (loops with straps, monitored circuits with terminating resistors).

Location of Terminal Blocks

Circuit cards must be treated as sensitive electronic equipment. See ‘Unpacking’ on page 4.

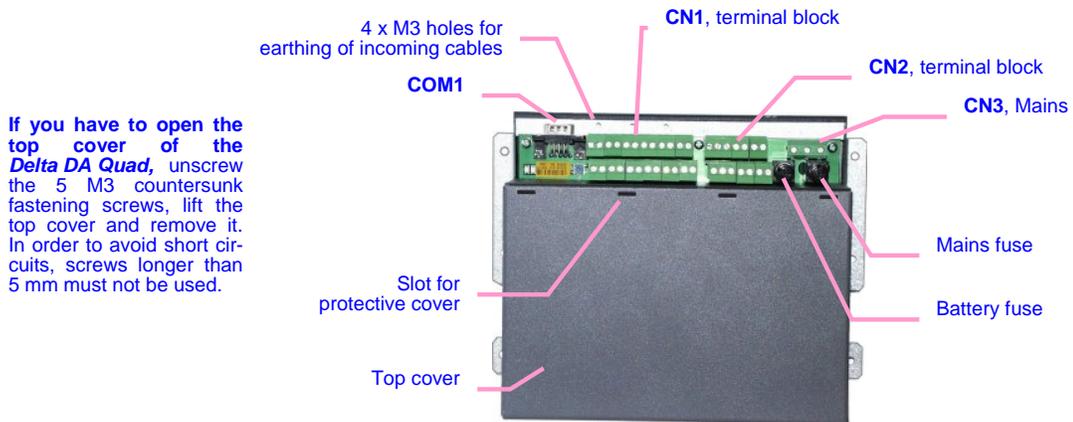


Figure 4 Location of terminal blocks and plugs on *Delta DA Quad*

Delta DA Quad Connections — Factory Settings

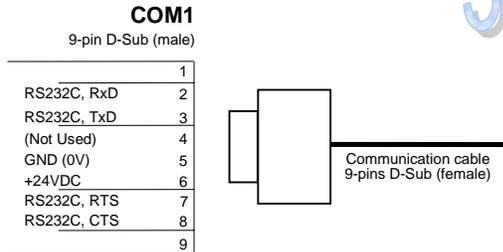
The figure shows the polarity of the signals and the position of the relay contacts when the *Delta DA Quad* module is in its normal mode of operation. For information on:

- ◇ **Maximum load for inputs and outputs**, see chapter, ‘Technical Specification’ in ‘*User Guide Delta DA Quad*’
- ◇ **Connecting the fire brigade transmitter**, see folder ‘*Kit for OP: Fire Brigade Termination Card*’
- ◇ **Cable types**, ‘Recommended Cable Types’ on page 9.

Perform the following:

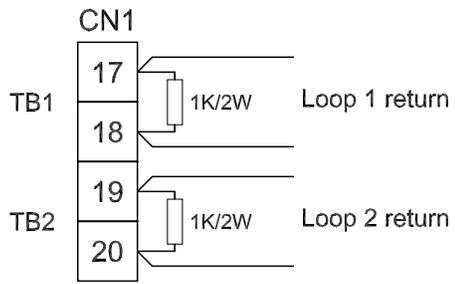
1. **Unscrew and lift the protective cover** on the terminal blocks and — while the power is down,
2. Terminate all necessary **communication cables** (COM1 and CN1:1-2; 13-14; 15-16),
3. Terminate **detector loops, alarm and control circuits** (CN1 and CN2),
4. Finally, connect the **power supply cables** (CN3:1-2-3 and CN2:13-14).

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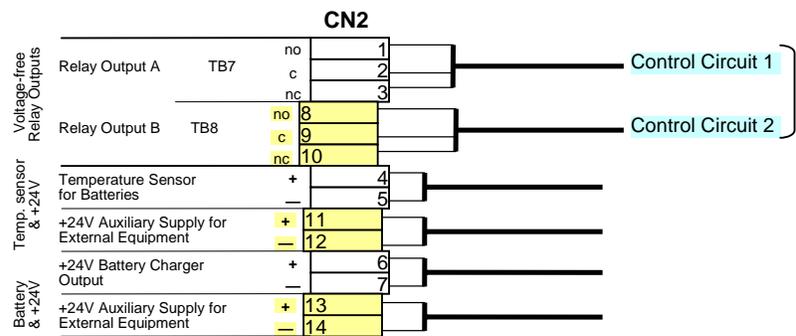
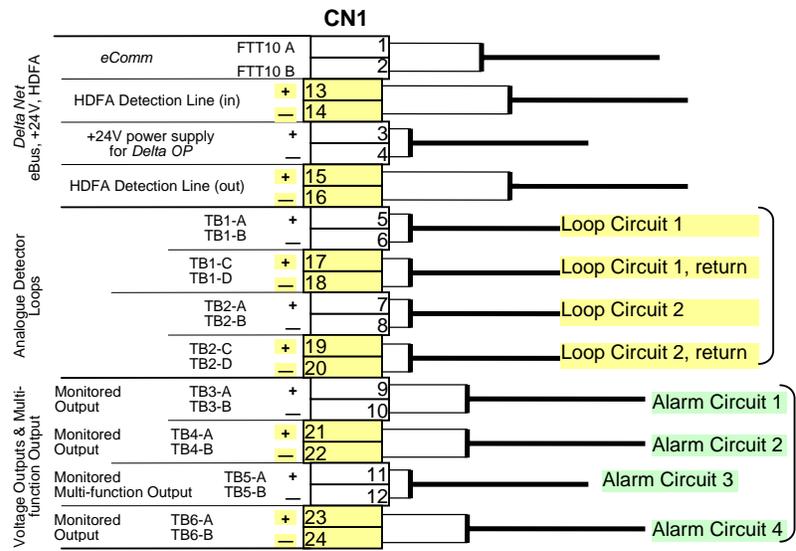


FUNCTION	SIGNAL	PLINTH NO.
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Load/terminating resistors



Connect a 1Kohm/2W resistor across +/- on the return loop.



Use the M3 holes in the bottom chassis (in front of the terminal blocks) for earthing incoming cables.

Figure 5 Standard terminal block connections for *Delta DA Quad* (factory settings)

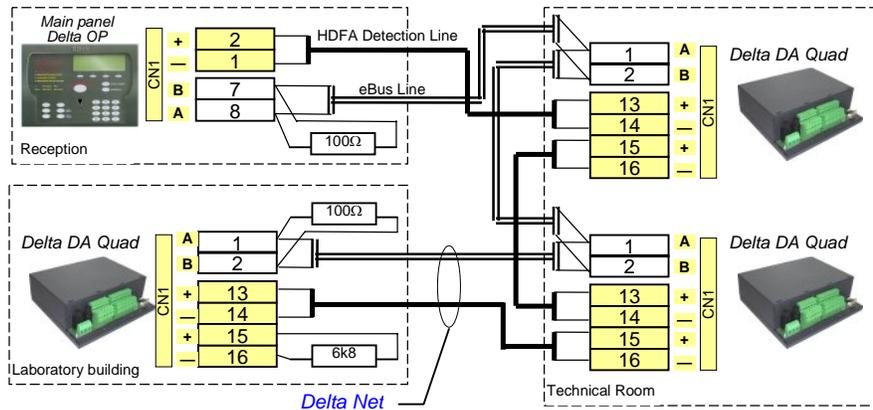
Delta Net Connections — example

Delta Net communication — between the Delta OP panel and Delta DA Quad modules — consists of 2 paired cables, where one of the cables is used as a HDFA Detection Line (Hardware Detection of Fire Alarm) and the other as an eBus Line. The HDFA Detection Line must be terminated with a 6k8 end-of-line resistor, which is connected to the last module. The eBus Line must also be terminated with an end-of-line resistor — or RC circuit.

For information on:

The eBus line's terminating values, see '

- ◇ eBus Cable Types & Termination', on page 9
- ◇ Function description of Delta Net, see the Appendix in 'User Guide Delta DA Quad
- ◇ Cable types, see 'Recommended Cable Types' on page 9

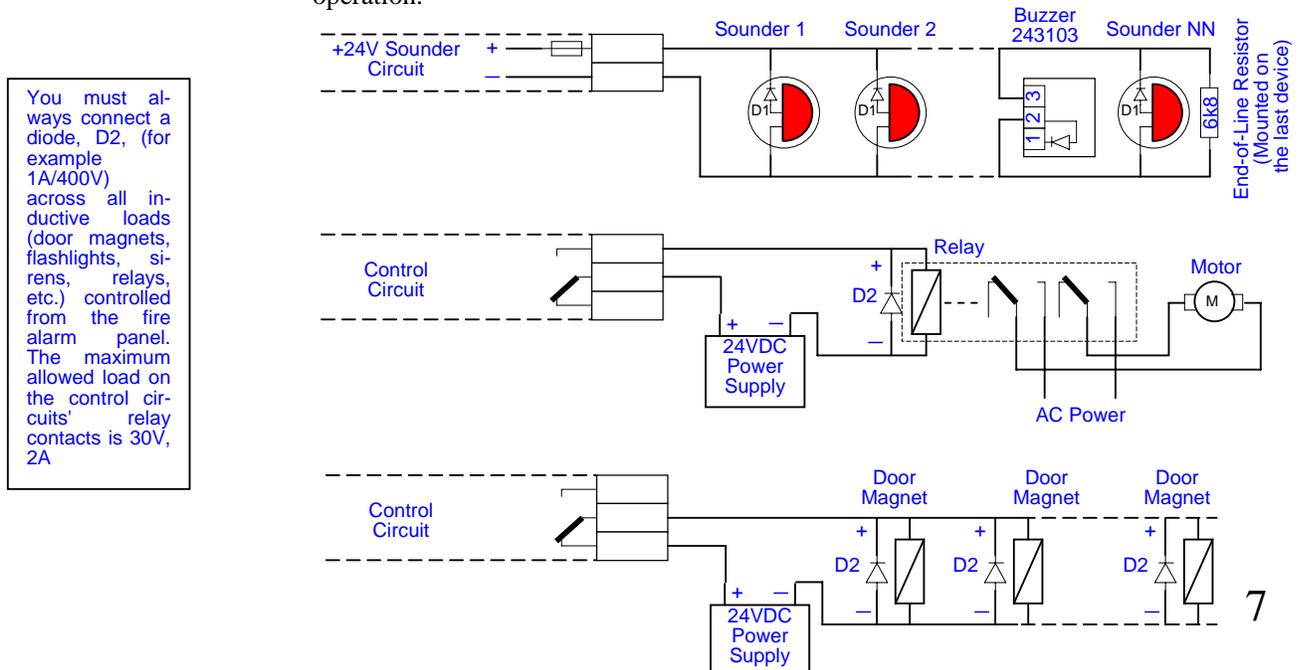


Note that
The HDFA line can also be used in cases where you use an RS232 line instead of an eBus line.

Figure 6 Example of terminal block connections for a Delta Net network

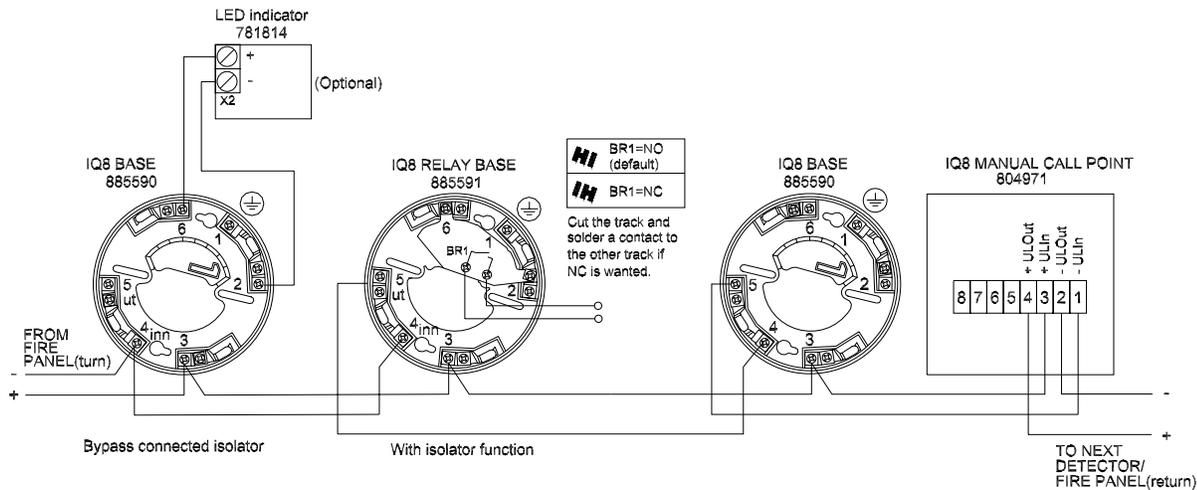
Connecting Sounders, Control Devices — example

The figure shows general examples of how to connect sounders and other control devices to the Delta DA Quad module. It also illustrates the signals' polarity and the relay contacts' position when the Delta DA Quad module is in normal mode of operation.



Connection of Loop Components — example

This figure shows how to connect detectors and other loop components to an addressable loop.



For connection of other loop components, read the actual component's installation folder.

Figure 7 Connection example of analogue detector loop with IQ8 addressable loop components.

The two-wire loop is connected to one of the panel's inputs, links all the loop devices and returns to the panel. Notice that the loop devices are polarity sensitive.

Installation Check

Before calling *Honeywell Life Safety's* Service Department, check that:

- ◇ All cables are connected to the terminal blocks (use installation's *terminal block drawings*)
- ◇ All screws have been tightened sufficiently, but do not use excessive force in order to avoid damaging the terminal blocks
- ◇ The correct *terminating resistors* are connected to all **unused monitored output terminals**
- ◇ **Both power supplies are connected** (mains and batteries)

2. Configuring the System — Commissioning

Delta DA Quad does not require any adjustment or configuration of DIL-switches or jumpers on the circuit card. Commissioning consists of configuring the software in *Delta DA Quad* to communicate in a network with the *Delta OP* panel and with other modules or fire alarms panels.

Configuration is performed via *FireWin Explorer*, a Windows-based PC program.

The *Delta DA Quad* module stores the configuration data (serial and system numbers, number of systems, communication protocol, etc.) in the module's EEPROM.

For more detailed information on the configuration of *Delta DA Quad*, see *FireWin Explorer's* relevant documentation.



For security reasons, the commissioning and configuration of *Delta DA Quad* is regarded as *access level no. 3*. Only authorised and qualified personnel may have access to this. Please contact *Honeywell Life Safety's* Service Department.

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3. Recommended Cable Types

Cable Specification	
APPLICATION	CABLE TYPE
<ul style="list-style-type: none"> ◇ Earth cable ◇ Power supply: <ul style="list-style-type: none"> Mains 220VAC 24V Auxiliary Supply Battery Bat. cable length - cross section 	PN 6 mm ² , or equivalent PR2x1.5 mm ² , or equivalent PR2x1.5 mm ² , or equivalent PN2x4.0 mm ² , or equivalent <10m → 4 mm ² <20m → 6 mm ² <40m → 10 mm ²
<ul style="list-style-type: none"> ◇ Detector loops (max. 50 Ω, 0.5 μF) 	PVXP or BPR2x1.0 mm ² , or equivalent (Interconnect the earth cable/screen through the loop, and terminate it in just one shared earth point in the <i>Delta DA Esser</i> module) PFLP2x1.0 mm ² , twisted, used in areas with electrical interference
<ul style="list-style-type: none"> ◇ Spur Circuits (max. 5 Ω, 150 nF) 	PVXP or BPR2x1.0 mm ² , or equivalent
<ul style="list-style-type: none"> ◇ Sounder Circuits (max. 5 Ω, no star connection) 	PR2x1.0 mm ² , PTS0.6 mm ² , PFSP1.5 mm ² , or equivalent
<ul style="list-style-type: none"> ◇ Cable Riser 	PFSP1.5 mm ² , or equivalent (max. 1 detector loop per cable riser)
COMMUNICATION CABLES	
<ul style="list-style-type: none"> ◇ <i>eBus</i> network (FTT-10) (max. 500m, <i>Star</i> or <i>Loop</i> topology max. 2700m, <i>Bus</i> topology) 	Belden 85102 or Belden 8471, 2x1.3 mm Ø, twin, unscreened cable or YFSK 2x0.5 mm ² , 0.8 mm Ø, screened cable, or equivalent
<ul style="list-style-type: none"> ◇ HDFA Detection Line 	PVXP or BPR2x1 mm ² , or MICC FP200, or equivalent
<ul style="list-style-type: none"> ◇ RS232C communication (max. 15m) 	Screened YFSK4x0.5 mm ² or paired cable with aluminium screen: Alpha 5471 or Belden 9501 or BICC H8093
Notice!	
For max. load of inputs and outputs, see chapter, 'Technical Specification' in 'User Guide Delta DA Esser'	

eBus Cable Types & Termination

eBus Multi-master network (FTT-10), Protocol: eComm

Choose one of the twin cables below or cables with corresponding transmission characteristics.

Type of cable	Wire diam./ AWG	Rloop Ω/km	C nF/km	Max. bus length (Bus topology), m	Max. cable length (free topology), m
Belden 85102	1.3mm/16	28	56	2700	500
Belden 8471	1.3mm/16	28	72	2700	500
Level IV 22AWG	0.65mm/22	106	49	1400	500
JY (St) Y 2x2x0.8	0.8mm/20.4	73	98	900	500
YFSK 2x0.5 mm ²	0.8mm	75	95	900	500

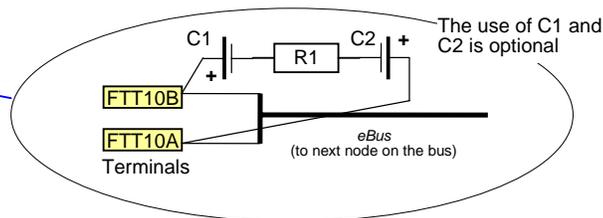
Note that YFSK is a screened cable, while the Belden types are twisted and not screened.

If you use screened cables, you must connect the screen to earth via a resistor (470kΩ, 0.25W, ≤10%) in order to prevent charging by static electricity.

Required total cable impedance approx. 52Ω

The use of C1 and C2 is optional, (C1=C2=100μF, ≥50V)
The resistance value of R1 (1/8W, 1%) is:

- ◇ In *Star* and *Loop* topology, the RC coupling can be located anywhere on the bus, (R1=52.3Ω)
- ◇ In *Bus* topology, the RC coupling should be located on both ends of the bus, (R1=105Ω or 100Ω)



Notes:

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