DATALOGIC™

QL100 / QL150 / QL200
Quick Link ID-NET™ Connectors

DESCRIPTION

The QL series ID-NET™ connectors provide a fast and efficient way to cable an ID-NET™ network with IP65 protection and using standard cables. The QL100/150/200s are ID-NET™ Slave connectors and are designed to be used with the QL300/500 Master ID-NET™ connectors.

The QL100 is an ID-NET™ network "T" passing network and power signals to the connected reader.

The QL150 is also an ID-NET™ network "T" passing network and power signals to the connected reader. In addition it has a service connector which allows an external PC to be connected to the reader AUX port for software configuration. This is typically necessary for Matrix readers.

The QL200 is an ID-NET™ network "T" which passes network signals to the connected reader, however it does not receive input power from the network. An additional connector allows external power to supply the reader. This power is then sent out with the network signals to the next network device. In this way larger networks can be created which otherwise would not be possible due to the overall current limit and/or voltage drop.

The QL series are compatible with the following readers:

DS2100N	DS4800	Matrix 410™
DS2400N		Matrix 210™

QL100

QL150

QL200

821001651 (Rev. A)
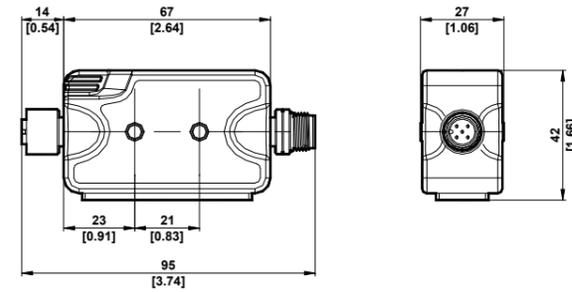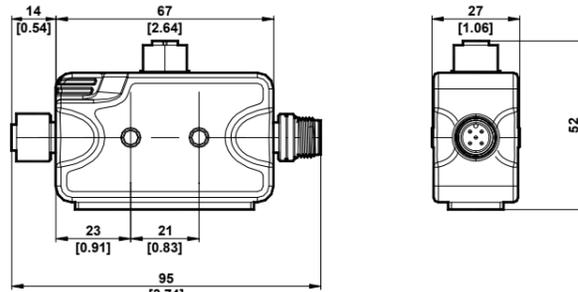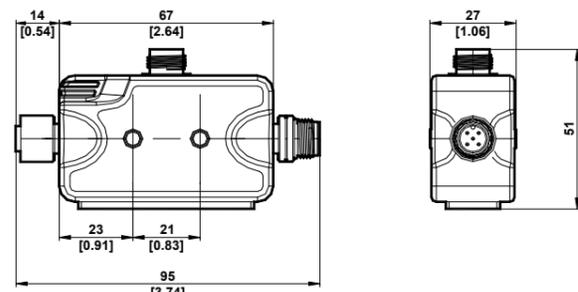
MOUNTING

There are two self-threading screws provided for mounting the QLs to various wooden or plastic surfaces. Mounting to other surfaces such as concrete walls or metallic panels requires user-supplied parts (screws, screw anchors, nuts, etc). Keep in mind that the connected reader must have its Chassis grounded to Earth, see paragraph "Grounding".

QLs can also be mounted to a Bosch Frame using the BA200 mounting accessory.

The distance between mounting bushings is given in the overall dimension diagram for each QL. For QLs which are connected directly without a cable, see the diagram below.
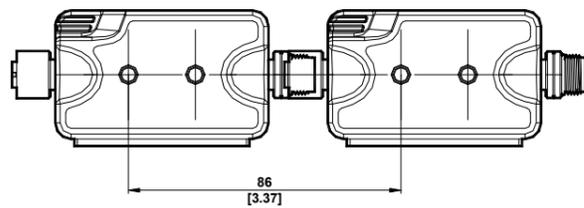
NOTE *IP65 protection is provided when the cables (or QLs) are properly mated. The IP65 protection cap must be in place for unused connectors (typically QL150 Service connector).*

CONNECTIONS

ID-NET Out
M12 5P Female (A-coded)

Pin	Function
1	Shield
2	Vdc
3	GND
4	ID+
5	ID-
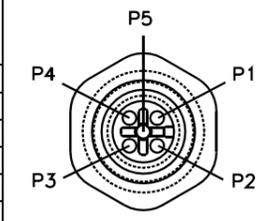
ID-NET In
M12 5P Male (A-coded)

Pin	Function
1	Shield
2	Vdc *
3	GND
4	ID+
5	ID-
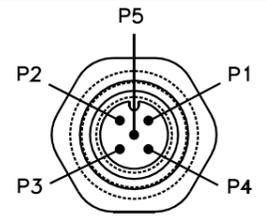
* For QL200 this signal is not connected.

QL150 only (Service)
M12 3P Female (B-coded)

Pin	Function
1	RXA
2	GND
3	TXA
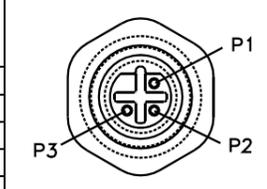
QL200 only (Ext. Power)
M12 3P Male (B-coded)

Pin	Function
1	Earth
2	Vdc
3	GND
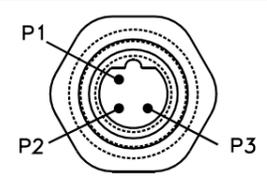
Reader
25P D-Sub Female

Pin	Function
1, shell, both bushings	Reader Chassis
13	Vdc
25	GND
23	ID+
24	ID-
20	RXA
21	TXA
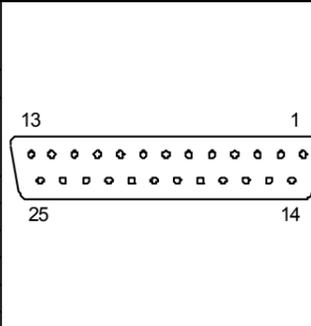
GROUNDING

There are two general rules to follow regarding network grounding:

1) The network Shield must only be connected to Earth ground at one point (the Master).

When using isolated power supplies, Earth grounding can be accomplished through the CAB-PW-EXT accessory cable and the BA400 or QL300/500 Power connector.
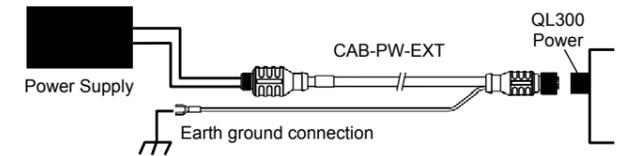
2) All reader Chassis must be connected to Earth ground.

All the readers in the network must have their **Chassis connected to Earth ground** either by: mounting to conductive metal brackets or frames which are connected to Earth ground; or through the CBX or SC4000; or through the QL bushing.

In the case of grounding through the CBX or SC4000, connect the Earth signal to a good earth ground and set the internal Chassis jumper to **Earth**.

In the case of grounding through the QL bushing, connect a flying lead from the mounting bushing to an Earth ground. The mounting bushing is internally connected to the reader Chassis.

ACCESSORIES

Description	Part Number	Connection
Cables		
CAB-AUX03 M12 3P TO DB9 SERIAL CABLE 3M	93A051385	Service
CAB-PW-EXT M12 POWER EXTENSION CABLE	93A051381	Power
CBL-1480-01 M12/5P MALE/FEMALE 1M IDNET	93A050049	ID-NET Out/In
CBL-1480-02 M12/5P MALE/FEMALE 2M IDNET	93A050050	
Terminators		
CBL-1490 TERM. RESIST. M12/5P/MALE IDNET	93A050046	ID-NET Out
CBL-1496 TERM. RESIST. M12/5P/FEMALE IDNET	93A050047	ID-NET In
Field Mountable Connectors		
FMC300 M12 3P M. CONN. SERVICE	93ACC1883	Service
FMC400 M12 3P F. CONN. POWER	93ACC1884	Power
Mounting		
BA200 Bosch Adaptors	93ACC1822	

The FMC accessory connectors can be used to make custom External Power and Service cables in case the standard cables don't satisfy the application requirements.

TECHNICAL SPECIFICATIONS

ELECTRICAL FEATURES	QL100	QL150	QL200
Supply Voltage	10 to 30 Vdc (see Voltage Drop below)		
Maximum Distributed Current Allowed see related reading device manual for consumption	4 A		
PHYSICAL FEATURES			
Mechanical Dimensions	95 x 42 x 27 mm (3.7 x 1.7 x 1.1 in.)	95 x 52 x 27 mm (3.7 x 2 x 1.1 in.)	95 x 51 x 27 mm (3.7 x 2 x 1.1 in.)
Weight	115 g. (4.05 oz.)	123 g. (4.34 oz.)	122 g. (4.30 oz.)
ENVIRONMENTAL FEATURES			
Operating Temperature	0° to 50 °C (+32° to 122 °F)		
Storage Temperature	-20° to 70 °C (-4° to 158 °F)		
Humidity max.	90% non condensing		
Vibration Resistance EN 60068-2-6 2 hours on each axis	14 mm @ 2 to 10 Hz 1.5 mm @ 13 to 55 Hz 2 g @ 70 to 200 Hz		
Shock Resistance EN 60068-2-27	30 g; 11 ms; 3 shocks on each axis		
Protection Class EN 60529	IP65 (when IP protection caps or IP cables and reading device are correctly connected)		

The features given are typical at a 25 °C ambient temperature (if not otherwise indicated).

VOLTAGE DROP AND MAX DISTRIBUTED CURRENT CALCULATIONS

For correct network management, the maximum number of readers which can propagate power through the QLs must be calculated so that max distributed current is not exceeded and so voltage drop doesn't affect reader functioning. This is done according to the following formula:

Voltage Drop = (Max Reader Current x Number of readers) x
(Resistance per Meter per wire* x Cable length in Meters)

* the resistance calculation must include both wires (Vdc and GND).

Example:

An ID-NET™ network is composed of 4 DS2100N readers. Three 2-meter ID-NET™ cables are used to connect the readers, which have Cable Resistance = 0.058 Ohms per meter per wire. The network power is 24 Vdc.

(0.2083 A x 4 readers) x [(0.058 x 2) x 6 meters] = 0.58 Vdc voltage drop

24 Vdc - 0.58 = 23.42 Vdc at reader number 4 (worst case)

Integrate a sufficient number of QL200s to resupply network power.

TYPICAL LAYOUTS
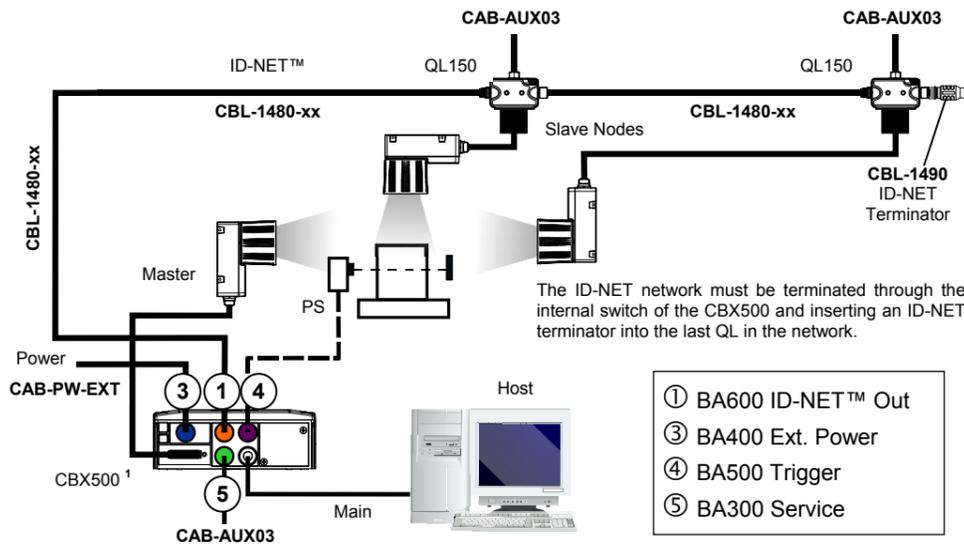
ID-NET™ Synchronized Network - Matrix 410™ Master with CBX500 + Matrix 410™ Slaves with QL150

① BA600 ID-NET™ Out
③ BA400 Ext. Power
④ BA500 Trigger
⑤ BA300 Service

[1] The Master reader can be connected to a CBX series or SC4000 controller with the advantage of the Backup and Restore configuration function (CBX + BM100 module). If the Backup and Restore function is not required, then a QL300 or QL500 can be used to connect the master reader.
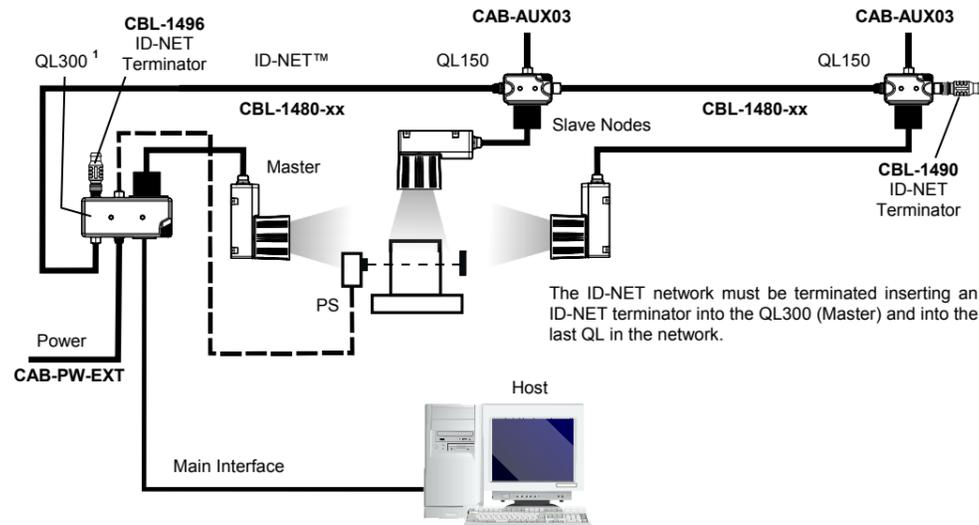
ID-NET™ Synchronized Network - Matrix 410™ Master with QL300 + Matrix 410™ Slaves with QL150

The ID-NET network must be terminated inserting an ID-NET terminator into the QL300 (Master) and into the last QL in the network.
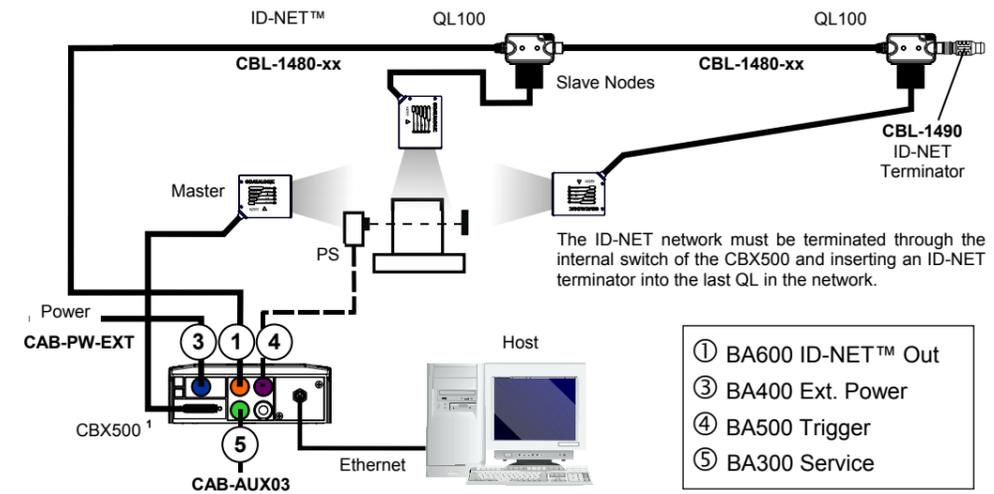
ID-NET™ Synchronized Network - DS2KN Master with QL500 + DS2KN Slaves with QL100

The ID-NET network must be terminated through the internal switch of the CBX500 and inserting an ID-NET terminator into the last QL in the network.

① BA600 ID-NET™ Out
③ BA400 Ext. Power
④ BA500 Trigger
⑤ BA300 Service
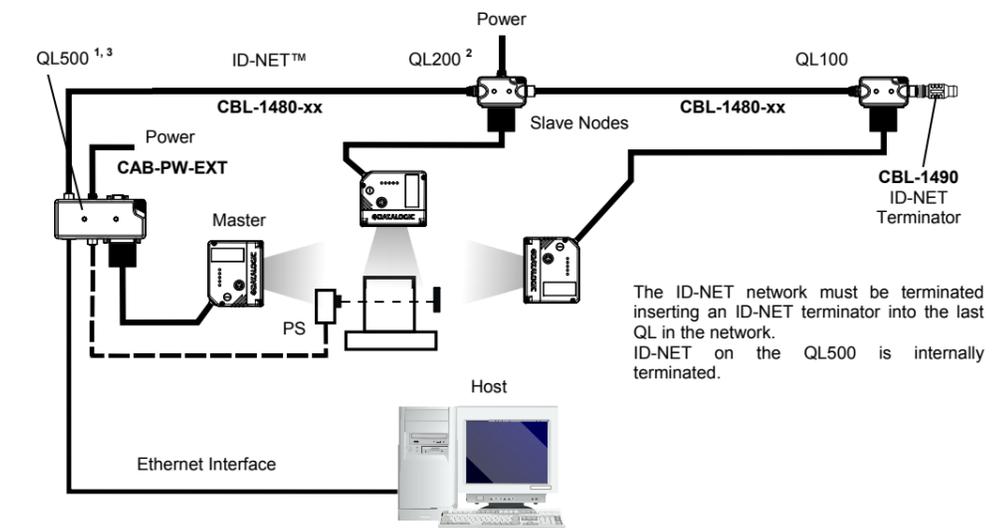
ID-NET™ Synchronized Network - DS4800 Master with QL500 + DS4800 Slaves with QL200 and QL100

The ID-NET network must be terminated inserting an ID-NET terminator into the last QL in the network.
ID-NET on the QL500 is internally terminated.

[2] The above diagram is an example showing layout connections and is not intended to represent power limits, which instead, depend on each specific application. See "Voltage Drop and Max Distributed Current Calculations".

[3] The reader must first be configured for Ethernet communication. This is done by connecting to the reader through the RS232 Aux port available on the QL500 I/O Port and running the software configuration program.