

## 3-3 Wiring

NQ-Series models have, besides one power connector, a number of communication ports. Please refer to Table 2.2: Common specifications for NQ-Series and Table 2.3: Specifications per NQ-Series model for the availability of these ports on each of the NQ-Series models.

**⚠ Caution** If wiring is to be exposed to lightning or surges, use appropriate surge suppression devices. Keep AC, high energy and rapidly switching DC wiring separate from signal wires.

**⚠ WARNING** Connecting high voltages or AC power mains to the DC input will make the NQ Series unusable and may create an electrical shock hazard to personnel. Such a failure or shock could result in serious personal injury, loss of life and/or equipment damage. DC voltage sources should provide proper isolation from main AC power and similar hazards.

### 3-3-1 Power connector

All NQ-Series models have a 3-pin, Green coloured, power connector with pin layout as shown in Figure 3.5: Power connector. Wire the inputs of the power connector according to the pin layout, from left to right: +24 V<sub>DC</sub> (DC+), 0 V (DC-) and Earth.

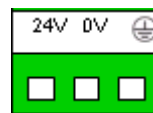


Figure 3.5: Power connector

### 3-3-2 Communication ports

The serial communication ports have two functions:

- 1 To connect to programming devices during configuration.
- 2 To communicate with a PLC and other devices in operating mode.

NQ-Series communication ports support various types of (serial) communication.

#### 3-3-2-1 COM1 port

COM1 is an integrated RS-232 and RS-485/RS-422 communication port. It communicates with external peripheral devices at baud rates of 4800 kbps to 187.5 kbps with none, even or odd parity.

RS-485/RS-422 can be used in multi-drop (networks with more than one NQ-Series or PLC) communication networks.

The connector is a standard D-type 9-pin female connector (see Figure 3.6: 9-pin sub-D connector) with pin layout as shown in Table 3.2: Pin layout of port COM1.

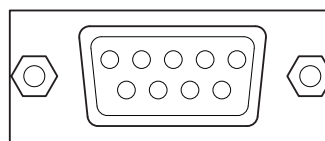


Figure 3.6: 9-pin sub-D connector

Table 3.2: Pin layout of port COM1

Pin number	Pin name	Description
1	TX+	RS-422 transmit +
2	TXD	RS-232 transmit
3	RXD	RS-232 receive
4	RX+	RS-422 receive +
5	GND	Signal Ground
6	NC	Not connected
7	NC	Not connected
8	TX-	RS-422 transmit -
9	RX-	RS-422 receive -
shell		shield

### 3-3-2-2 COM2 port

COM2 is a RS-232 communication port. It communicates with external peripherals at baud rates of 4800 kbps to 115.2 kbps with None, Even or Odd parity.

The connector is a standard D-type 9-pin female connector (see Figure 3.6: 9-pin sub-D connector) with pin layout as shown in Table 3.3: Pin layout of port COM2.

Table 3.3: Pin layout of port COM2

Pin number	Pin name	Description
1	NC	Not connected
2	TXD	RS-232 transmit
3	RXD	RS-232 receive
4	NC	Not connected
5	GND	Signal Ground
6	NC	Not connected
7	NC	Not connected
8	NC	Not connected
9	NC	Not connected
shell		shield

### 3-3-2-3 USB host port

The USB host port is compliant with the USB 2.0 specification. The USB host port supports USB memory stick devices. The USB sticks can be used for data logging and program upload/download, and carrying print files in CSV format.

The connector is a standard USB type A female connector as shown in Figure 3.7: USB host connector.



Figure 3.7: USB host connector

Pinning of the USB host port is described in the table below.

Table 3.4: Pin layout of USB host port

Pin number	Pin name	Description
1	VBUS	+5V
2	D-	Data -
3	D+	Data +
4	GND	Signal ground
shell		shield

### 3-3-2-4 USB device port

The USB device port is compliant with the USB 2.0 specification for self-powered devices.

The connector is a standard USB type B female connector as shown in Figure 3.8: USB device connector.

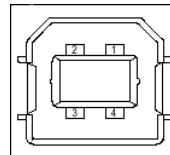


Figure 3.8: USB device connector

Table 3.5: Pin layout of USB device port

Pin number	Pin name	Description
1	VBUS	+5V
2	D-	Data -
3	D+	Data +
4	GND	Circuit ground
shell		shield

### 3-4 Multi-drop networks

Several NQ-Series can be set up in a network. The following wiring diagrams show the correct connections:

- RS-422 interface
- RS-485 interface

#### 3-4-1 RS-422 network

The following wiring diagram is applicable for a RS-422 network (4-wire).

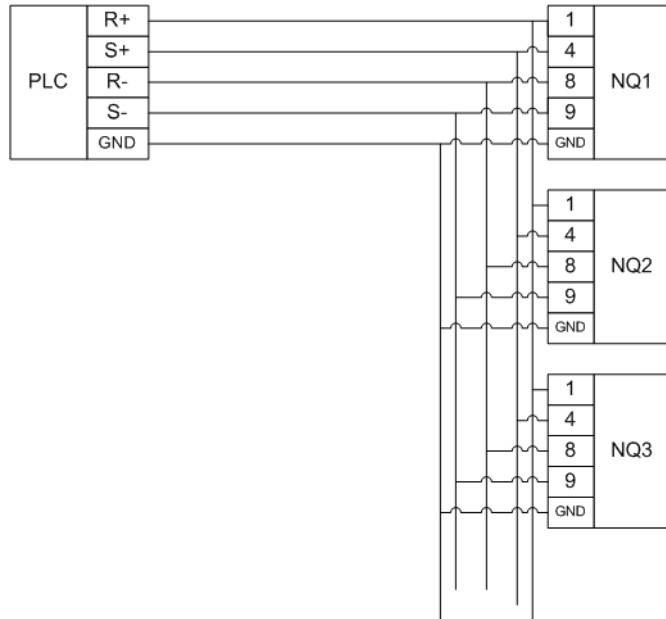


Figure 3.9: RS-422 network

### 3-4-2 RS-485 network

The following wiring diagram is applicable for a RS-485 network (2-wire).

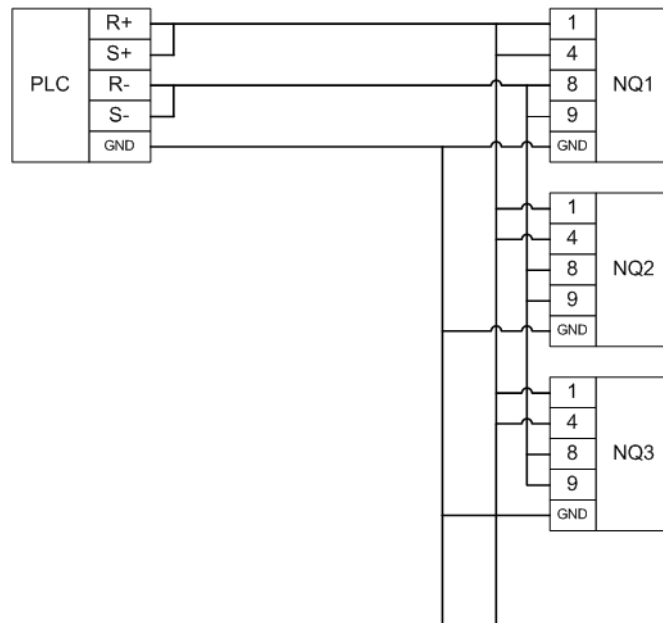


Figure 3.10: RS-485 network

### 3-4-3 Network termination

The two ends of a multi-drop network have to be terminated. For the correct termination of the last NQ-Series in the network, a resistor (120 Ohm) needs to be applied between R+ (pin 4) and R- (pin 9) on DSUB9 (Male) cable connector for correct termination.