DATALOGIC

FBC9080-N100
FBC9080-N200
Installation Manual

The FBC9080-Nx00 is a Fieldbus IO Gateway connection module that can be used as an accessory to facilitate system connections and power several Datalogic family reading devices through the RS232 connector.

The **FBC9080-N100** Gateway provides an easy way to connect many Datalogic reading devices to any PLC with **Profinet IO** support. It allows Profinet IO real-time communication with bus topologies, and due to the two Profinet ports, it eliminates the need for expensive external switches.

Similarly, the **FBC9080-N200** Gateway provides an easy way to connect many Datalogic reading devices to any PLC with **EtherNet/IP IO** support. It allows EtherNet/IP IO real-time communication with bus topologies, and due to the two EtherNet/IP ports, it eliminates the need for expensive external switches.

Both models also support standard Ethernet connection.

GENERAL VIEW

FBC9080-Nx00

Figure 1 - General view

1. Rotary switch and USB connector cover
2. Link port 1 LED
3. Link port 2 LED
4. Fieldbus port 1 Connector
5. Fieldbus port 2 Connector
6. Power 10/30V Connector
7. Reading Device 9-pin Port Connector (RS232)
8. Power LED (yellow)
9. Bus Failure LED
10. System Failure LED

SAFETY PRECAUTIONS

ATTENTION: READ THIS INFORMATION BEFORE INSTALLING THE PRODUCT

POWER SUPPLY

This product is intended to be installed by Qualified Personnel only.
This device is intended to be supplied by a UL Listed NEC Class 2 power source.

> **CAUTION**
> *Total power consumption is given by adding the FBC9080-Nx00 power consumption to that of all the devices powered through the FBC9080-Nx00. Refer to the manual of the connected devices for details about minimum/maximum supply voltage and power consumption.*

Each FBC9080-Nx00 supports only 1 single reading device + system accessories.

SUPPORTED READING DEVICE MODELS

The FBC9080-Nx00 provides 5V @500mA on the RS232 male connector to power the reading device.
All Datalogic Handheld scanners with RS232 interface are supported by FBC9080-Nx00 with RS232 POT cables.
Powerscan 95/93/91 and BC90x0 (except PD9531 HPE) can be connected with CAB-541.
PD9531-HPE (10-30V) can be connected with CAB-434 or equivalent with its own power supply.
All general purpose scanners with RS232 interface and 5V power supply can be connected with CAB-350 and an appropriate RS232 configuration.
Please note that IP65 protection is only guaranteed with CAB-541.

PACKAGE CONTENT

Check that the FBC9080-Nx00 and all the parts supplied with the equipment are present and intact when opening the package. The package includes:
- The FBC9080-Nx00 Gateway
- This Installation Manual
- DIN rail adapters (2)
- Mounting screws (2) and dowel
- MAC address label

ACCESSORIES

The following accessories are available upon request for the FBC9080-Nx00:

Name	Description	Part number
Field Maountable Connectors		
CBL-1487	PWR-IN CONNECTOR M12 5P F. A-Coded	93A050045
Cables		
CAB-541	SERIAL CABLE 9P FEMALE	CAB-541
CAB-350	SERIAL STRAIGHT CABLE 9P FEMALE	90A051230
CS-A1-01-G-03	3-POLE STRAIGHT CABLE 3M	95A251290
CS-A1-01-G-05	3-POLE STRAIGHT CABLE 5M	95A251300
CS-A1-01-G-07	3-POLE STRAIGHT CABLE 7M	95A251320
CS-A1-01-G-10	3-POLE STRAIGHT CABLE 10M	95A251340
CBL-1534	ETH M12-TO-RJ4 ADAPTER	93A050057
CAB-ETH-M01	M12-IP67 ETHERNET CABLE 1M	93A051346
CAB-ETH-M03	M12-IP67 ETHERNET CABLE 3M	93A051347
CAB-ETH-M05	M12-IP67 ETHERNET CABLE 5M	93A051348
CAB-ETH-M10	M12-IP67 ETHERNET CABLE 10M	93A051391

OPENING THE FBC9080-NX00 COVER

To configure the FBC9080-Nx00, it is necessary to open its cover (illustrated in Figure 1).

> **CAUTION**
> *The FBC9080-Nx00 must be disconnected from the power supply during this operation.*

MECHANICAL INSTALLATION

The FBC9080-Nx00 can be mounted to various surfaces using the screws and the dowel provided in the package.

The FBC9080-Nx00 can also be mounted to a DIN rail using the DIN rail adapters provided in the package.

The diagram below gives the overall dimensions of the FBC9080-Nx00 and shows the mounting through-holes.
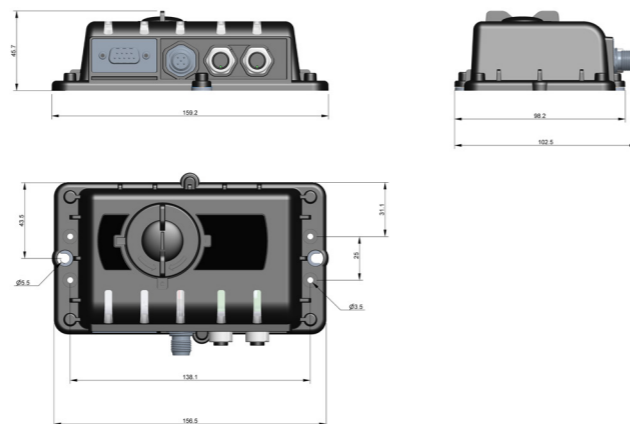

Figure 2 - Overall dimensions

ELECTRICAL CONNECTIONS AND SETUP

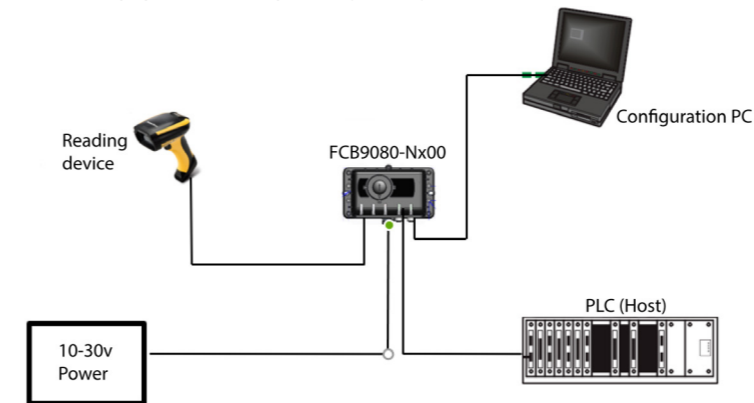The following figure shows the general system layout.

Figure 3 - System Layout

Connect the reading device to the RS232 connector. The CAB-541 provides power to the reading device.
The PLC can be connected to either ETH1 or ETH2 port.
A PC for network or reading configuration can be connected to either ETH1 or ETH2 port.
The reading device serial interface setup is the default for the Datalogic Powerscan family:

- Baud = 115200
- Data = 8 bits
- Parity = none
- Stop = 1 bit

In addition, Global Suffix (Terminator) must be = 0x0D (CR). This is the default for many Datalogic readers.
The reading device and the FBC9080-Nx00 are easily configurable with Datalogic Aladdin tool. A USB connector and a rotary switch (located under the cover, see Figure 1) are used for this purpose. See *Rotary switch, USB connector and Reset button* on the next page for more details.

CONNECTORS

■ PWR-IN

PWR-IN (Power In) M12 5P Male (A-coded)	
Pin	**Function**
1	Vdc
2	nc
3	GND
4	nc
5	nc

PWR-IN is a 5-pin Male A-Coded M12 connector. Input power must only be supplied to the FBC9080-Nx00 through the PWR-IN connector, which then internally distributes it to the connected reading device.
You can use the CBL-1487 connector and follow the pinout above to build your
You can also use one of the CS-A2-02-G-xx cables, which terminate in four single stranded wires. The **brown wire** corresponds to pin 1 Vdc, the **blue wire** to pin 3 GND. The white and black wires are not used.

The yellow LED placed below the PWR-IN connector signals the presence of input power.

> **NOTE**
> *The power supply must be between 10 and 30 Vdc only.*

■ ETH1 and ETH2 connectors

ETH1 (IO Port 1) and ETH2 (IO Port 2) M12 4P Female (D-coded)	
Pin	**Function**
1	TX+
2	RX+
3	TX-
4	RX-

ETH1 and ETH2 are 4-pin Female D-Coded M12 connectors. They are used to connect the FBC9080-Nx00 to a Profinet-Ethernet/IP IO network.

■ D-SUB connector

D-sub connector 9P Male	
Pin	**Function**
1	nc
2	RD (Receive Data)
3	TD (Transmit Data)
4	Reading device 500mA @ 5V power
5	GND (Signal Ground)
6	nc
7	RTS (Request To Send)
8	CTS (Clear To Send)
9	Reading device 500mA @ 5V power

D-SUB is a standard 9-pin Male connector. It is used to connect the reading device to the FBC9080-Nx00.

SYSTEM WIRING

The connection and wiring procedure for FBC8090-Nx00 is described as follows:
1. Connect the power supply cable to the FBC9080-Nx00.
2. Connect the reading device to the 9-pin connector.
3. Connect the FBC9080-Nx00 to the Profinet IO Network using proper Ethernet cables. If the ETH2 connector is not used for network propagation, use the M12 protection cap.
4. Apply power to the FBC9080-Nx00.

DEFAULT SETTING

Parameter	Value
IP	192.168.187.31
Netmask	255.255.255.0
Gateway	192.168.187.254
DNS1	0.0.0.0
DNS2	0.0.0.0
Device Name	null string
DHCP	disabled
AIDA LED mode	enabled

ETHERNET TCP/IP

FCB9080-Nx00 is also provided with a standard Ethernet TCP/IP data socket port that allows birectional point-to-point communication with the scanner.
The default port number is 51000. When the socket port is open, the Profinet or Ethernet IP channels are automatically disabled.
DAD Data flow control is not applied to this channel.
Network parameters can be changed using Datalogic Aladdin tool. See "DEFAULT SETTING" in this manual for the factory configuration.

INDICATOR LEDS

■ Power LED

LED State	Description	Comments
Yellow on	Power is supplied to the FBC9080-Nx00	
Yellow off for 100 ms	Data activity (input or output) on RS232 port	
Yellow, fast blinking	FBC9080-Nx00 in programming mode	Only with rotary switch in position 4
Yellow, slow blinking	AUX USB not enumerated	Only with rotary switch in positions 3 and 4

FBC9080-N100: Profinet AIDA Mode (default)

The FBC9080-N100 follows the AIDA LED Mode Standard as default.
In this configuration, the LEDs behave as described below.

■ BF/NS LED (Bus Failure)

LED State	Comments
Off	No problems detected
Red	• Major internal error (combined with a red SF LED) • Station name not set • IP address not set • Other configuration error

■ SF/MS LED (System Failure)

LED State	Comments
Off	No problems detected
Red	Device in EXCEPTION state
	Major internal error (combined with a red BF LED)
	Diagnostic event(s) present

■ P1 and P2 LEDs (Link/Activity)

LED State	Comments
Off	No link, no communication present
Green	Ethernet link established
Green, blinking	Used by engineering tools to identify the node on the network 500 ms on, 500 ms off for 3 seconds
Orange, flashing	Activity

FBC9080-N100: AIDA disabled

When using the FBC9080-N100 with AIDA disabled, the LEDs behave as described below.

■ BF/NS LED (Network Status)

LED State	Comments
Off	No connection
Green	Connected with IO controller in RUN state
Green (1 flash)	Connected with IO controller in STOP state
Red	Major internal error (combined with a red MS LED)
Red, flashing	• Station name not set • IP address not set • Other configuration error

■ SF/MS LED (Module Status)

LED State	Comments
Off	No power or module in setup
Green	Normal operation
Green, flashing	Diagnostic event(s) present
Red	Device in EXCEPTION state
	Major internal error (combined with a red NS LED)

■ P1 and P2 LEDs (Link/Activity)

LED State	Comments
Off	No communication present
Green	Ethernet link established
Green, blinking	Ethernet link established, communication present

FBC9080-N200

LEDs on the FBC9080-N200 behave as follows.

■ BF/NS LED (Network Status)

LED State	Comments
Off	No power or no IP address
Green	Online, one or more connections established
Green, flashing	Online, no connections established
Red	Duplicate IP address, FATAL error
Red, flashing	One or more connections timed out

■ SF/MS LED (Module Status)

LED State	Comments
Off	No power
Green	Run state
Green, flashing	Not configured or Idle state
Red	Major fault
Red, flashing	Recoverable fault(s). Module is configured, but stored parameters differ from currently used parameters

■ P1 and P2 LEDs (Link/Activity)

LED State	Comments
Off	No link, no activity
Green	Link (100 Mbit/s) established
Green, flashing	Activity (100 Mbit/s)
Yellow	Link (10 Mbit/s) established
Yellow, flashing	Activity (10 Mbit/s)

ROTARY SWITCH, RESET BUTTON, AND USB CONNECTOR

Under the removable cover illustrated in Figure 1 (item 1), the following can be found:
- Micro USB connector
- Reset button
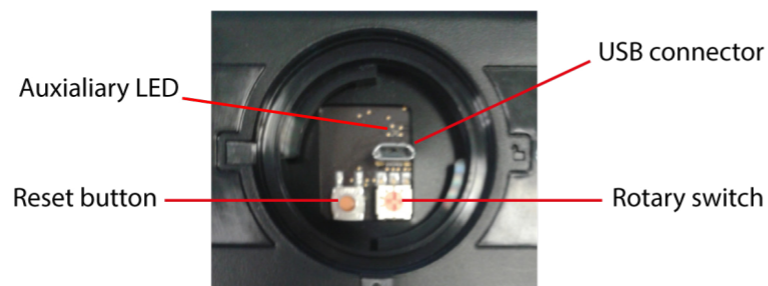- Rotary switch for mode selection
- Auxiliary LED

Figure 4 - Rotary switch, reset button, and USB connector

■ Rotary switch

The rotary switch allows the user to configure the FBC9080-Nx00, modify its behavior, or access the reading device configuration.
When the configuration changes, resetting or power cycling the FBC9080-Nx00 is required.
Depending on the rotary switch position, the following operating modes can be selected:

0   **Normal mode DAD disabled** (factory default)
1   **Normal mode DAD enabled**
2   **Normal mode DAD consistency enabled:** all data is transfered from the reading device to the PLC according to the specific DAD (Data flow control) that has been selected. For "DAD protocol" details refer to the DAD driver Reference Manual available on Datalogic website (download here or look for "DAD driver" in the search bar and download the document from the Manuals & Technical Literature section). A standard Ethernet port is also available on these positions through socket port 51000. DAD is not applied on this port. When the standard Ethernet port is open, Data automatically switch to this port and communication with the PLC is ignored. The scanner and FBC9080-Nx00 can be configured using Datalogic Aladdin tool through Ethernet connection.
3   **Reading device configuration**: the reading device can be configured through USB connector using Datalogic Aladdin tool, which recognizes the reading device as directly connected to a host USB port and easily configurable.
4   **FBC9080-Nx00 configuration:** the FBC9080-Nx00 can be configured through USB connector using Datalogic Aladdin tool.
5-9   **Reserved**

■ USB Connector

This micro USB connector is used to connect the configuration PC to the reading device or to the FBC9080-Nx00 itself, depending on the Rotary Switch position.

To configure the reading device:

a.   Power off the FBC9080-Nx00, remove the cover and select **position 3** on the rotary switch.
b.   Connect the host to the FBC9080-Nx00 using a USB cable, then power on the FBC9080-Nx00.
c.   Run Aladdin configuration tool on the host to configure the reader.

To configure the FBC9080-Nx00:

a.   Power off the FBC9080-Nx00, remove the cover and select **position 4** on the rotary switch.
b.   Connect the host to the FBC9080-Nx00 using a USB cable, then power on the FBC9080-Nx00.
c.   Run Aladdin configuration tool on the host to configure the FBC9080-Nx00.

■ Reset Button

Press the reset button to reset the FBC9080-Nx00.

FIRMWARE UPGRADE

For Firmware upgrade, power off the FBC9080-Nx00, hold the reset button pressed and power back on. When the auxiliary green LED is blinking, you can release the reset button.

TECHNICAL FEATURES

ELECTRICAL FEATURES	
Supply Voltage	10 to 30 Vdc
Consumption	- Typical (without scanner) 200 mA @12 V 100 mA @24 V - Max (with scanner) 400 mA @12 V 200 mA @24 V
Scanner Power Supply	5 VDC 500 mA max.
COMMUNICATION INTERFACES	
Host Interface	Profinet IO 10/100 Mbit/s EtherNet/IP IO 10/100 Mbit/s
Reader	RS232 115.2 kbit/s 8 bits, parity NONE, 1 stop bit
Communication protocols	Datalogic Application Driver (DAD Driver)
PHYSICAL FEATURES	
Mechanical dimensions	158 x 43 x 98 mm (6.2 x 1.7 x 3.9 in.)
Weight	290 g
ENVIRONMENTAL FEATURES	
Operating Temperature	-20° to 50 °C (-4° to 122 °F)
Storage Temperature	-40° to 70 °C (-40° to 158 °F)
Contaminants/humidity	5 - 95%
Protection Class EN 60529	IP65

SUPPORT THROUGH THE WEBSITE

Datalogic provides several services as well as technical support through its website. Log on to www.datalogic.com and click on the **SUPPORT** link, which gives you access to:
Downloads by selecting your product model from the dropdown list in the Search by Product field for specific Data Sheets, Manuals, Software & Utilities, and Drawings;
Repair Program for On-Line Return Material Authorizations (RMAs) plus Repair Center contact information;
Customer Service containing details about Maintenance Agreements;
Technical Support through email or phone.

CE COMPLIANCE

CE marking states the compliance of the product with essential requirements listed in the applicable European directive. Since the directives and applicable standards are subject to continuous updates, and since Datalogic promptly adopts these updates, therefore the EU declaration of conformity is a living document. The EU declaration of conformity is available for competent authorities and customers through Datalogic commercial reference contacts. Since April 20th, 2016 the main European directives applicable to Datalogic products require inclusion of an adequate analysis and assessment of the risk(s). This evaluation was carried out in relation to the applicable points of the standards listed in the Declaration of Conformity. Datalogic products are mainly designed for integration purposes into more complex systems. For this reason, it is under the responsibility of the system integrator to do a new risk assessment regarding the final installation.

Warning: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

FCC COMPLIANCE

Modifications or changes to this equipment without the expressed written approval of Datalogic could void the authority to use the equipment.
This device complies with PART 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference which may cause undesired operation.
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

LEGAL NOTICES

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