MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

ABB

CI810B 3BSE020520R1

AF100 FIELDBUS COMMUNICATION INTERFACE

Used with the applicable S800 I/O configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official manufacturer pages follow this cover.

Source: ABB S800 I/O product guide 3BSE015969-600; CI810 includes CI810B

S800 I/O Station

An S800 I/O station includes:

- 1 (or 2 if redundant) Fieldbus Communication Interface (FCI)
- up to 24 S800 I/O modules divided into
  - 1 base cluster
  - up to 7 additional I/O clusters, each one containing up to 12 I/O modules.

Base Cluster

A base cluster includes:

- 1 (or 2 if redundancy) Fieldbus Communication Interfaces (FCI)
- up to 12 S800 I/O modules or 6 pairs of redundant I/O.

I/O Cluster

An I/O cluster includes:

- 1 Optical ModuleBus Modem
- up to 12 S800 I/O modules.

I/O Modules

Any combination of I/O modules is possible, within the limits in Table 1.

Table 1. The max. I/O Configuration of S800 I/O Connected to Advant Fieldbus 100 and PROFIBUS.

Item	Max. No.
S800 I/O stations per Advant Fieldbus 100	79(1)
S800 I/O station per PROFIBUS	99

Fieldbus Communication Interface

A Fieldbus Communication Interface module is used as communication interface to connect S800 I/O modules to the fieldbus.

There are five different FCI modules:

- CI801 – for PROFIBUS-DPV1
- CI810 – for Advant Fieldbus 100, with or without media redundancy
- CI820/CI820V1 – for Advant Fieldbus 100 fully redundant communication
- CI840 – for PROFIBUS-DPV1 fully redundant communication

They all have an isolated input for 24 V d.c. power (19.2 - 30 V). The power source can be the SD831/ SD832/ SD833/ SD834 power supplies, battery, or other IEC664 Installation Category II power sources. Power status inputs, 2 x 24 V, to monitor 1:1 redundant mains are also provided.

CI801 has a 9 pin D-sub connector and modems for PROFIBUS-DPV1 and a connection for the Optical ModuleBus via TB806/TB842.

CI810 has two connectors and modems for a media redundant Advant Fieldbus 100 twisted pair cables and a connection for the Optical ModuleBus.

CI820/CI820V1, together with the interconnection unit TB815, is used when a fully redundant configuration is required. CI820/CI820V1 comprises the Advant Fieldbus 100 twisted pair connection and TB815 the Optical ModuleBus connection.

CI840, together with termination unit TU846/TU847, is used when a fully redundant configuration is required. CI840 is mounted on TU846/TU847 and has a connector for power supply and two 9 pin D-sub connectors for PROFIBUS-DPV1 connection. TU846/TU847 has two service ports and two address switches. CI840 also has a connection for the Optical ModuleBus via TB806/TB842 or TB846/TB842.

CI801 and CI840 supports Hot Configuration in Run (HCIR) and HART pass-through. HCIR makes it possible to change the I/O station configuration without stopping the I/O station execution.

The front plate of the communication modules provides LEDs for diagnostic and status indications. Two rotary switches are provided for setting of the I/O station

address. No other addresses are required to be set within the I/O station. Labels for optional user text and item number are also provided. The communication plugs can be inserted/removed without interrupting the communication between stations on the bus.

The type designation CI810 in this document includes all types of models CI810, CI810V1, CI810V2, CI810A and CI810B if no other information is given.

Table 2. Fieldbus Communication Interface

Module Type	Description
CI801	Fieldbus Communication Interface for PROFIBUS-DPV1. Support for Hot Configuration in Run and HART pass-through(1). PROFIBUS Modem for twisted pair cable. Power supply 24 V (19.2 - 30 V d.c.) Rated insulation voltage 50 V.
CI810	Single Advant Fieldbus 100 FCI. 2 x Advant Fieldbus 100 Modems for twisted pair cable. Power supply 24 V(19.2-30 V), Rated insulation voltage 50 V.
CI820/ CI820V1	Advant Fieldbus 100 FCI for redundancy configuration. Advant Fieldbus 100 modem for twisted pair cable. Power supply 24 V (19.2-30 V), Rated insulation voltage 50 V.
CI840/ CI840A	Fieldbus Communication Interface for PROFIBUS-DPV1 for redundancy configuration. Support for Hot Configuration in Run and HART pass-through(1). PROFIBUS Modem for twisted pair cable. Power supply 24 V (19.2 - 30 V d.c.) Rated insulation voltage 50 V.
TB815	Interconnection unit used with CI820/CI820V1.
TU846	Module Termination Unit for dual CI840, redundant I/O.
TU847	Module Termination Unit for dual CI840, non-redundant I/O. Also in a G3 compliant version (TU847Z).

(1) Always check the controller documentation for information about supported functionality.

Standards and Approvals

It is important to check how the approvals are applicable for each module.

Electrical Safety

Table 11. Electrical Safety

EN 50178	Electronic Equipment for Use in Power Installations
IEC/EN 61131-2 (Clause 11, 12, 13 and 14)	Programmable Controllers Part 2: Equipment Requirements and Tests
UL 508	Industrial Control Equipment.

Hazardous Classified Locations

Table 12. Hazardous Locations

UL 60079-15	Electrical Apparatus for Explosive Gas Atmospheres - Part 15: Electrical Apparatus with Type of Protection "n".
IEC/EN 60079-15	Electrical apparatus for explosive gas atmospheres – Part 15: Construction, test and marking of type of protection “n” electrical apparatus.
EN 50020	Electrical apparatus for potentially explosive atmospheres - Intrinsic safety "i"

See Certifications on page 164 for each module type certification details.

CE-marking

The S800 products fulfill the requirements of EU-directives 2004/108/EC "Electromagnetic Compatibility" (EMC Directive) and 2006/95/EC "Electrical Equipment Designed for Use between Certain Voltage Limits" (Low Voltage Directive). The declarations of conformity are available on request.
See Certifications on page 164 for each module type certification details.

G3 Compliant

The G3 compliant modules fulfills the severity level in the standard ISA-S71.04 Environmental Conditions for Process Measurement and Control Systems: Airborne Contaminants.

The G3 compliant modules shall not be stored in more severe environment than G2 if the contacts are unconnected.

Transport and Storage Conditions

The S800 modules should be transported and stored in their original packaging.

Table 13. S800 Storage Conditions

Condition	Range	Standard
Temperature	-40 to +70°C	IEC/EN 61131-2
Humidity	RH = 5 to 95%, no condensation	
Altitude	-500 to +3000 m	
Pollution degree	Degree 2	IEC 60664-1
Corrosive atmosphere	< 1000 Angstrom copper corrosion over 28 days	ISA-71.04 Severity level G2
Fall in package	< 10 kg: 300 mm 10 - 40 kg: 300 mm > 40 kg: 250 mm Free-fall drop height in original product package.	IEC/EN 61131-2
Shock	150 m/s^2, 11 ms	

Climatic Operating Conditions

Table 14. Climatic Operating Conditions

Condition	Operative range	Standard
Temperature(1)	0 to +55°C non-condensing 0 to +40°C compact MTUs or S800L modules on vertical DIN-rail, see Table 32, non-condensing	IEC/EN 61131-2
Temperature change	3 °C/min	
Humidity	RH = 5 to 95%, no condensation	
Altitude	2000 m	
Pollution degree	Degree 2	IEC 60664-1
Corrosive atmosphere	<1000 Angstrom copper corrosion over 28 days <2000 Angstrom copper corrosion over 28 days	ISA-71.04 Severity level G2 ISA-71.04 Severity level G3

(1) Approvals are issued for +5 to +55°C.

Mechanical Operating Conditions

Table 15. Mechanical Operating Conditions

	Operative range	Standard
Vibration Test Sinusoidal Operational	5–9 Hz, amplitude 3,5 mm 9-150 Hz, acceleration 1,0g 1 octave/min	IEC/EN 61131-2
Shock	150 m/s^2, 11 ms	IEC/EN 61131-2
Emitted noise	<55 dB (A)	

EMC

Table 16. Radiated Radio Frequency Emission IEC/EN 61000-6-4 (Class A), IEC/EN 61131-2

Radiated Radio Frequency Emission IEC/EN 61000-6-4 (Class A), IEC/EN 61131-2		
Test	**Limits**	**Generic standards**
30 MHz -230 MHz	40 dB (µV/m) quasi peak measured at 10m	EN/IEC 61000-6-4, EN/IEC 61131-2
230 MHz - 1000 MHz	47 dB (µV/m) quasi peak measured at 10m	

Table 17. Conducted Radio Frequency Emission, AC mains port IEC 61000-6-4 (Class A), IEC/EN 61131-2

Conducted Radio Frequency Emission, AC mains port IEC 61000-6-4 (Class A), IEC/EN 61131-2		
Test	**Limits**	**Generic standards**
0,15 MHz -0,50 MHz	79 dB (µV/m) quasi peak 66 dB (µV/m) average	EN/IEC 61000-6-4, EN/IEC 61131-2
0,50 MHz - 30 MHz	73 dB (µV) quasi peak 60 dB (µV/m) average	

PRODUCT-DETAILS

3BSE020520R1

CI810B AF 100 Fieldbus Comm. Interface



General Information

Product ID	3BSE020520R1
ABB Type Designation	CI810B
Catalog Description	CI810B AF 100 Fieldbus Comm. Interface

Additional Information

Medium Description	CI810B AF100 Field Comm. Interface
Technical Information	CCI810B AF100 Fieldbus Communication Interface 2*AF100 Twisted Pair Modems. Including: 1 pce Power Supply Connector 3BSC840098R1 1 pce TB807 Modulebus Terminator 3BSE008538R1 2 pcs AF100 Connector 3BSC840105R1 The basic system software version 1.5 loaded. Exchange No. EXC3BSE020520R1
Product Type	Communication_Module

Ordering

Country of Origin	Estonia (EE)
Customs Tariff Number	85389091

Dimensions

Product Net Length	87 mm
Product Net Height	250 mm
Product Net Width	158 mm
Product Net Weight	0.5 kg

Technical

Number of Channels	1

Classifications

WEEE Category	5. Small Equipment (No External Dimension More Than 50 cm)
Number of Batteries	0

Categories

Control Systems → 800xA → I/Os → S800 I/O → S800 I/O 4.0 → Communication Modules

Control Systems → 800xA → I/Os → S800 I/O → S800 I/O 4.1 → Communication Modules

Control Systems → 800xA → I/Os → S800 I/O → S800 I/O 5.0 → Communication Modules

Control Systems → 800xA → I/Os → S800 I/O → S800 I/O 5.1 → Communication Modules

Control Systems → Advant OCS with Master SW → I/Os → S800 I/O → Communication Modules

Control Systems → Advant OCS with Master SW → System → Advant OCS with Master SW → Advant Fieldbus 100 → Communication Modules

Control Systems → Advant OCS with MOD 300 SW → I/Os → S800 I/O → Communication Modules

Control Systems → 800xA → I/Os → S800 I/O → S800 I/O 4.1 → Communication Modules

Control Systems → 800xA → I/Os → S800 I/O → S800 I/O 5.0 → Communication Modules

Control Systems → 800xA → I/Os → S800 I/O → S800 I/O 5.1 → Communication Modules

Control Systems → Compact Product Suite → I/Os → S800 I/O → S800 I/O 4.1 → Communication Modules

Control Systems → Compact Product Suite → I/Os → S800 I/O → S800 I/O 5.0 → Communication Modules

Control Systems → Compact Product Suite → I/Os → S800 I/O → S800 I/O 5.1 → Communication Modules

