

PRODUCT TECHNICAL REFERENCE

SPA-ZC 402

SPA to IEC 61850 Gateway

ABB SPA-ZC 402 is a SPA-to-IEC 61850 gateway that connects one fibre-optic SPA IED to an IEC 61850 station bus. It also permits SPA protocol access over TCP/IP through the same Ethernet connection.

Manufacturer	ABB
Complete model	SPA-ZC 402
Product type	SPA to IEC 61850 Gateway
Country of origin	Sweden
HS code	8537101190
Shipping origin	Xiamen,Fujian,China

APTER POWER SALES TEAM

INDUSTRIAL AUTOMATION PRODUCT SUPPORT

Product-specific support for SPA-ZC 402

WHATSAPP / PHONE +86 180 3023 5313
EMAIL sales13@apterpower.com
WEBSITE www.apterpower.com



SCAN FOR PRODUCT & QUOTE

APTER POWER | SPA-ZC 402

APTER POWER

01 Product role and integration

SPA-ZC 402 bridges one optical SPA device into an IEC 61850 station bus and provides a coordinated engineering path for configuration, reporting and diagnostics.

1 Converts the connected IED's SPA information into IEC 61850 services

2 Supports station-bus reporting, controls and disturbance-record access

3 Allows SPA protocol access over the active Ethernet network

4 Uses CET for device modeling, datasets, report controls and CID downloads

02 System arrangement

The gateway is installed near a protection IED, with a fibre-optic SPA cable on the device side and an Ethernet switch on the station-bus side. It supports substation automation projects that integrate protection indications, controls, measurements, events and disturbance records from a SPA-based IED.

Engineering note

Mount SPA-ZC 402 on the cubicle wall or floor near the IED, keeping the fibre-optic SPA cable within the engineered route and length. Complete protective earth and auxiliary-power wiring before connecting the SPA fibre and LAN path, then commission only one SPA device per adapter loop.

APTER POWER

MODEL-SPECIFIC TECHNICAL REFERENCE | SPA-ZC 402

03 Technical specifications

IED optical interface	ST multimode glass pair; snap-in multimode plastic pair
Ethernet optical connectors	LC multimode; MT-RJ multimode
Ethernet copper connector	RJ-45, STP CAT5e
Auxiliary power option A	100-240 VAC; 110-220 VDC
Auxiliary power option C	24-60 VDC
AC power terminals	1 = L; 2 = N
DC power terminals	1 = +; 2 = -
Common diagnostic LEDs	Power; Diagnostic green/red/yellow
LAN diagnostic LEDs	LINK; TX; RX
SPA diagnostic LEDs	TX; RX
Continuous service temperature	-10...+55 deg C
Short-term temperature range	-40...+85 deg C
Transport and storage temperature	-40...+70 deg C
Contact ESD test level	8 kV
Conducted RF immunity	10 V rms, 150 kHz...80 MHz
Radiated RF immunity	10 V/m rms, 80...2700 MHz
Fast transient immunity	4 kV, all terminals
Option A power-supply surge	4 kV line-to-earth; 2 kV line-to-line
Option C power-supply surge	2 kV line-to-earth; 1 kV line-to-line
50 Hz magnetic-field immunity	300 A/m continuous
Substation communication standard	IEC 61850-3

APTER POWER

VERIFIED TECHNICAL DATA | SPA-ZC 402

04 Industrial applications

SPA relay IEC 61850 gateway

Connects one installed SPA protection IED to a station-level IEC 61850 network.

SPACOM 300 rack integration

Treats a configured SPACOM 300 rack as one SPA device behind the gateway.

Disturbance-record retrieval

Transfers recorder files from the connected protection device for engineering analysis.

Station upgrade with retained IED

Adds modern station-bus communications while keeping the existing SPA-connected device.

05 Installation and commissioning controls

1 Record the complete SPA-ZC 402 ordering code so the protocol, Ethernet connector, SPA fibre and power option remain matched.

2 Isolate both auxiliary power and the connected protection equipment before terminal or fibre work.

3 Connect the protective-earth conductor to the dedicated casing screw before applying auxiliary power.

4 Do not connect multiple separate SPA devices in one SPA loop; configure a larger rack as the single device defined by ABB.

APTER POWER

06

Engineering FAQ

How many SPA devices should be connected to one SPA-ZC 402?

ABB permits one SPA device on the adapter loop; a configured SPACOM 300 rack is treated as one device.

What must be backed up before reconfiguring SPA-ZC 402?

Retain the CET project, IED data model, datasets, report-control settings, communication parameters and exported CID file.

Where should SPA-ZC 402 be mounted inside a cubicle?

Mount it on the cubicle wall or floor near the protection relay, with the fibre-optic SPA cable length and routing considered before drilling.

How should a SPA-ZC 402 configuration error be diagnosed?

Review the Diagnostic LED sequence, verify the downloaded CID content, inspect the error log and simplify or correct any mismatched configuration.

Which auxiliary-power version of SPA-ZC 402 is required for an existing panel?

Read the complete ordering code and match the panel supply to option A or C before any terminal connection.

What compatibility checks apply when replacing SPA-ZC 402?

Match the protocol execution, Ethernet connector, SPA optical hardware, auxiliary-power range, firmware, CET version and IED connectivity package.

How is SPA-ZC 402 connected between an IED and the station bus?

Connect the IED with the specified optical SPA pair and connect the selected LAN interface to the station-bus Ethernet switch.

How is SPA-ZC 402 commissioned after installation?

Confirm protective earth and power polarity, verify LAN and SPA traffic indications, then test configured reports, controls and engineering access from the station system.

Official ABB source record

ABB SPA/Ethernet Adapter - SPA to IEC 61850 Gateway Installation and Commissioning Manual

1MRS755380, Version F/20.05.2009