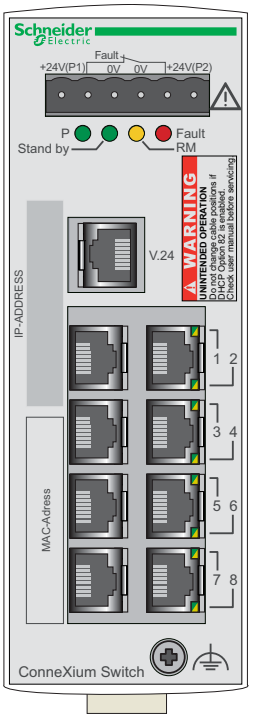
ConneXium

TCSESB Basic Managed Switch
Installation Manual



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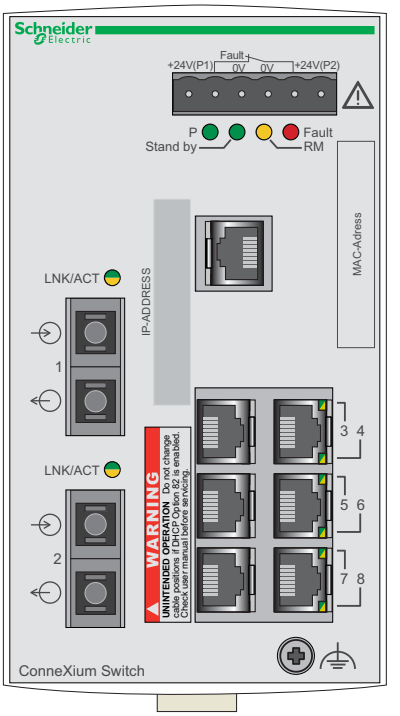

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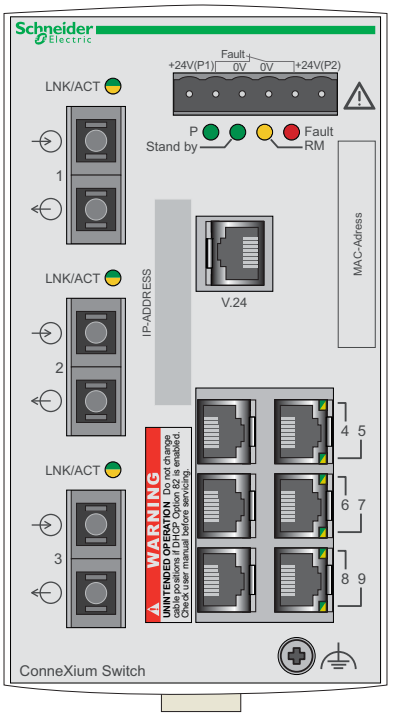

TCSESB093F2CU0

S1A78204.00

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About this Manual

Validity Note

The data and illustrations found in this book are not binding. We reserve the right to modify our products in line with our policy of continuous product development. The information in this document is subject to change without notice and should not be construed as a commitment by Schneider Electric.

Product Related Information

Schneider Electric assumes no responsibility for any errors that may appear in this document. If you have any suggestions for improvements or amendments or have found errors in this publication, please notify us.

No part of this document may be reproduced in any form or by any means, electronic or mechanical, including photocopying, without express written permission of Schneider Electric.

All pertinent state, regional, and local safety regulations must be observed when installing and using this product. For reasons of safety and to ensure compliance with documented system data, only the manufacturer should perform repairs to components.

When devices are used for applications with technical safety requirements, please follow the relevant instructions.

Failure to use Schneider Electric software or approved software with our hardware products may result in improper operating results.

Failure to observe this product related warning can result in injury or equipment damage.

User Comments

We welcome your comments about this document. You can reach us by e-mail at techpub@schneider-electric.com

Related Documents

Title of Documentation	Reference-Number
ConneXium TCSESB Basic Managed Switch Redundancy Configuration User Manual	S1A78418
ConneXium TCSESB Managed Switch Basic Configuration User Manual	S1A78213
ConneXium TCSESB Basic Managed Switch Command Line Interface Reference Manual	S1A78426
ConneXium TCSESB Basic Managed Switch Web-based Interface Reference Manual	S1A78429
ConneXium TCSESB Basic Managed Switch Installation Manual	S1A78204

Note: The Glossary is located in the Reference Manual “Command Line Interface”.

The “Web-based Interface” reference manual contains detailed information on using the Web interface to operate the individual functions of the device.

The “Command Line Interface” Reference Manual contains detailed information on using the Command Line Interface to operate the individual functions of the device.

The “Installation” user manual contains a device description, safety instructions, a description of the display, and the other information that you need to install the device.

The “Basic Configuration” user manual contains the information you need to start operating the device. It takes you step by step from the first startup operation through to the basic settings for operation in your environment.

The “Redundancy Configuration” user manual contains extensive information you need to select a suitable redundancy procedure and configure that procedure.

Key

The symbols used in this manual have the following meanings:

▶	Listing
☐	Work step
■	Subheading

Safety instructions

■ Important Information

Notice: Read these instructions carefully, and look at the equipment to become familiar with the device before trying to install, operate, or maintain it. The following special messages may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

The addition of this symbol to a Danger or Warning safety label indicates that an electrical hazard exists, which will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER

DANGER indicates an imminently hazardous situation which, if not avoided, **will result in** death or serious injury.

⚠ WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, **can result in** death or serious injury.

⚠ CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, **can result in** minor or moderate injury.

PLEASE NOTE: Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel.
No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

Usage

The device may only be employed for the purposes described in the catalog, technical description, and manuals.

Supply voltage

For safety reasons the devices have been designed to operate at low voltages. Thus, they may only be connected to the supply voltage connections and to the signal contact with SELV circuits with the voltage restrictions in accordance with IEC/EN 60950-1.

- ☐ Relevant for North America:
  The device may only be connected to a supply voltage of class 2 that fulfills the requirements of the National Electrical Code, Table 11(b). If the voltage is being supplied redundantly (two different voltage sources), the combined supply voltages must fulfill the requirements of the National Electrical Code, Table 11(b).
- ☐ Relevant for North America: For use in Class 2 circuits.
  Only use copper wire/conductors of class 1, 75 °C (167 °F).
- ☐ Relevant for North America
  for devices certified for hazardous locations:
  Power, input and output (I/O) wiring must be in accordance with Class I, Division 2 wiring methods [Article 501-4(b) of the National Electrical Code, NFPA 70] and in accordance with the authority having jurisdiction.
- ☐ The device does not contain any service components. If the device is not functioning correctly, or if it is damaged, switch off the voltage supply and return the device to the plant for inspection.
- ☐ Apply supply voltage to the device if terminal blocks are wired and installed correctly as described in chapter “Installing the device on the DIN rail, grounding“ on page 21.

Shielding ground

Note: The shielding ground of the connectable twisted pair lines is connected to the front panel as a conductor.

Housing

DANGER

HAZARD OF ELECTRIC SHOCK

Never insert sharp objects (small screwdrivers, wires, etc.) into the inside of the product.

Failure to follow these instructions will result in death, serious injury, or equipment damage.

CAUTION

EQUIPMENT OVERHEATING

When installing the device, make sure any ventilation slots remain free. Maintain a clearance of at least 10 cm (3.94 in).

Failure to follow these instructions can result in injury or equipment damage.

Only technicians authorized by the manufacturer are permitted to open the housing.
The housing is grounded via the separate ground screw on the bottom right of the front panel.

- ☐ The ventilation slots must not be covered so as to ensure free air circulation.
- ☐ Make sure that the electrical installation meets local or nationally applicable safety regulations.
- ☐ The clearance to the ventilation slots of the housing must be at least 10 cm (3.94 in).

- ☐ The device must be installed in the vertical position.
- ☐ If installed in a living area or office environment, the device must be operated exclusively in switch cabinets with fire protection characteristics in accordance with EN 60950-1.

Environment

The device may only be operated at the specified surrounding air temperature (temperature of the surrounding air at a distance of up to 5 cm (1.97 in) from the device) and relative air humidity specified in the technical data.

- ☐ Install the device in a location where the climatic threshold values specified in the technical data will be observed.

- ☐ Relevant for North America: MAXIMUM SURROUNDING AIR TEMPERATURE: +60 °C.
- ☐ Use the device only in an environment within the pollution degree specified in the technical data.

General safety instructions

Electricity is used to operate this equipment. Comply with every detail of the safety requirements specified in the operating instructions regarding the voltages to apply (see page 8).

- ☐ Only qualified personnel should work on this device or in its vicinity. These personnel must be thoroughly familiar with all the warnings and maintenance procedures in accordance with this operating manual.
- ☐ The proper and safe operation of this device depends on proper handling during transport, proper storage and assembly, and conscientious operation and maintenance procedures.
- ☐ Never start operation with damaged components.
- ☐ Any work that may be required on the electrical installation may only be carried out by personnel trained for this purpose.

Note: LED components in compliance with IEC 60825-1 (2007): CLASS 1 LED PRODUCT for Cat. No. having the following fiber optic modules: TCSESB083F2CU, TCSESB093F2CU0.

National and international safety regulations

- ☐ Make sure that the electrical installation meets local or nationally applicable safety regulations.

CE marking

The devices comply with the regulations contained in the following European directive(s):

2004/108/EG
Directive of the European Parliament and the council for standardizing the regulations of member states with regard to electromagnetic compatibility.

In accordance with the above-named EU directive(s), the EU conformity declaration will be at the disposal of the relevant authorities at the following address:

Schneider Electric
35 rue Joseph Monier
CS30323
92506 Rueil-Malmaison-France

The product can be used in living areas (living area, place of business, small business) and in industrial areas.

- Interference immunity: EN 61000-6-2:2005
- Emitted interference: EN 55022:2006 + A1:2007 Class A

FCC note:

This device complies with part 15 of FCC rules. Operation is subject to the following two conditions : (1) This device may not cause harmful interference; (2) this device must accept any interference received, including interference that may cause undesired operation.
Appropriate testing has established that this device fulfills the requirements of a class A digital device in line with part 15 of the FCC regulations.
These requirements are designed to provide sufficient protection against interference when the device is being used in a business environment. The device creates and uses high frequencies and can radiate same, and if it is not installed and used in accordance with this operating manual, it can cause radio transmission interference. The use of this device in a living area can also cause interference, and in this case the user is obliged to cover the costs of removing the interference.

Instructions for Use in Hazardous Locations

Refer to the Control Drawing – Document No. 000147906DNR.

⚠ WARNING

EXPLOSION HAZARD

Only use this equipment in non-hazardous locations, or in locations that comply with Class 1, Division 2, Groups A, B, C and D.

Substitution of any components may impair suitability for Class 1, Division 2. Do not substitute components which would impair compliance to Class 1 Division 2.

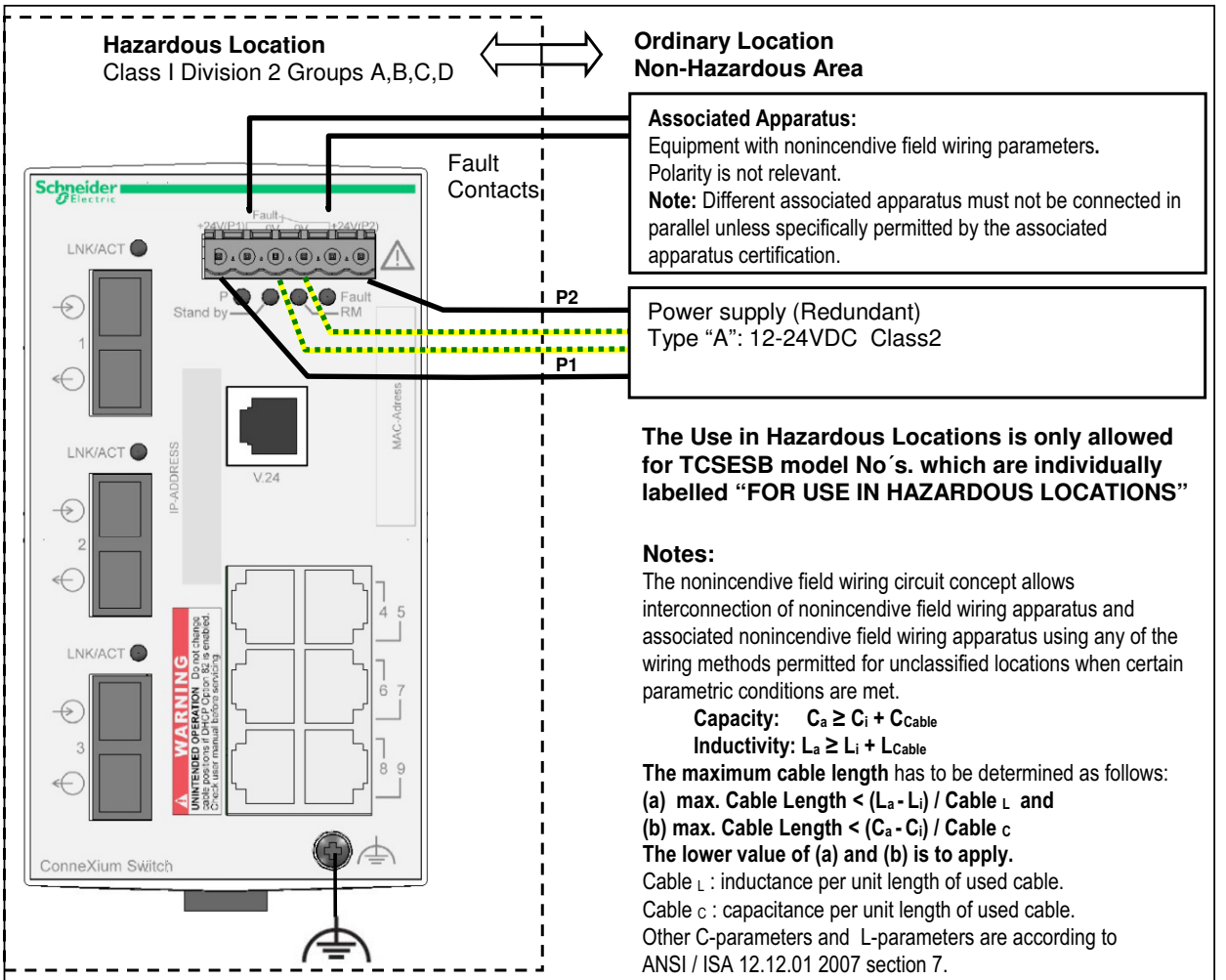
Failure to follow these instructions can result in death, serious injury, or equipment damage.

⚠ WARNING

EXPLOSION HAZARD

Do not disconnect equipment unless power has been switched off or the area is known to be non-hazardous.

Failure to follow these instructions can result in death, serious injury, or equipment damage.



The Use in Hazardous Locations is only allowed for TCSESB model No´s. which are individually labelled "FOR USE IN HAZARDOUS LOCATIONS"

Notes:

The nonincendive field wiring circuit concept allows interconnection of nonincendive field wiring apparatus and associated nonincendive field wiring apparatus using any of the wiring methods permitted for unclassified locations when certain parametric conditions are met.

Capacity: $C_a \geq C_i + C_{Cable}$

Inductivity: $L_a \geq L_i + L_{Cable}$

The maximum cable length has to be determined as follows:

(a) max. Cable Length < (L_a - L_i) / Cable $_L$ and

(b) max. Cable Length < (C_a - C_i) / Cable $_C$

The lower value of (a) and (b) is to apply.

Cable $_L$: inductance per unit length of used cable.

Cable $_C$: capacitance per unit length of used cable.

Other C-parameters and L-parameters are according to ANSI / ISA 12.12.01 2007 section 7.

Nonincendive field wiring circuits must be wired in accordance with the National Electrical Code (NEC), NFPA 70 , article 501.

THE RELAY TERMINALS ARE DEPENDENT UPON THE FOLLOWING ENTITY PARAMETERS:	V_{max}	I_{max}	C_i	L_i
	30 V	90 mA	5 pF	0,2 µH

SUITABLE FOR USE IN CLASS I, DIVISION 2, GROUPS A, B, C AND D HAZARDOUS LOCATIONS, OR NONHAZARDOUS LOCATIONS ONLY .

WARNING - EXPLOSION HAZARD - DO NOT DISCONNECT EQUIPMENT WHILE THE CIRCUIT IS LIVE OR UNLESS THE AREA IS KNOW TO BE FREE OF IGNITABLE CONCENTRATIONS.

WARNING - EXPLOSION HAZARD - SUBSTITUTION OF ANY COMPONENT MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.

MAXIMUM SURROUNDING AIR TEMPERATURE: 60 °C.

DO NOT OPEN WHEN ENERGIZED.

CONTROL DRAWING for TCSESB devices **Schneider Electric** according to ANSI / ISA-12.12.01 – 2007		Schneider Electric
Rev.: 1	Document No.: 000147906DNR	Page 1/1

1 Device description

1.1 General device description

The TCSESB devices are designed for the special requirements of industrial automation. They meet the relevant industry standards, provide very high operational reliability, even under extreme conditions, and also long-term reliability and flexibility.

The devices allow you to set up switched industrial ETHERNET networks that conform to the IEEE 802.3 and 802.3u standards using copper wires or optical fibers in a line or ring structure.

The devices work without a fan.

The voltage is supplied redundantly.
The devices are mounted very quickly by snapping them onto the DIN rail.

Depending on the device variant, you can choose various media to connect terminal devices and other infrastructure components:
- twisted pair cable
- multimode F/O

The twisted pair ports support:
- Autocrossing
- Autonegotiation
- Autopolarity

There are a number of convenient options for managing the device.
Administer your devices via:
- a Web browser
- management software
- a V.24 interface (locally on the Switch)

The HIPER-Ring redundancy concept enables a quick reconfiguration. With one additional connection, projection remains simple.

Product configuration data can be provided by:
- diagnosis displays
- displaying the operating parameters
- a label area for the IP address

Depending on the software you choose, the devices provide you with a large range of functions:
- Redundancy functions
  - Redundant ring structure
  - HIPER-Ring

- Redundant power supply
- Rapid Spanning Tree Protocol (RSTP)

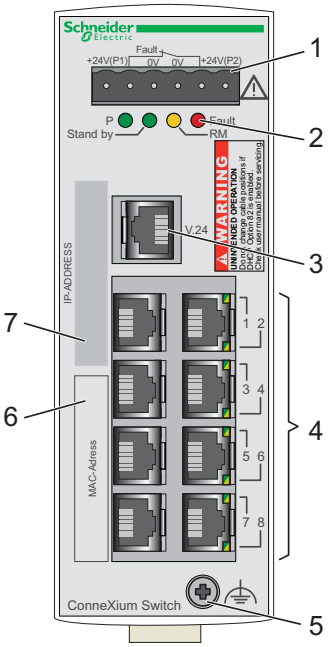
- Security
  - Protection from unauthorized access
  - Blocking of unauthorized messages (MAC or IP based)
- Synchronized system time in the network
- Network load control
- Operation diagnosis
- Diagnostics (hardware self-testing)
- Reset
- Priority
- Topology Discovery
- Web-based Interface
- Command Line Interface CLI
- SNMP

1.2 Device versions

Part Number	Part Number	Description
8 Port Version	TCSESB083F23F0	8 10/100 TX Managed
	TCSESB083F2CU0	6 10/100 TX Managed, 2 100 FX-MM Managed
9 Port Version	TCSESB093F2CU0	6 10/100 TX Managed, 3 100 FX-MM Managed
Accessories	TCSEAM0200 Adapter	Memory Back-up Adapter
	490NTRJ11 Cable	Terminal 490NTRJ11 cable

1.2.1 Device variants with 8 TP ports

Number of ports and media	
1	Plug-in terminal block, 6-pin
2	LED display elements
3	V.24 connection for external management
4	8 ports in compliance with 10/100BASE-T(X), RJ45 connections
5	protective earth ground
6	MAC address field
7	IP address field



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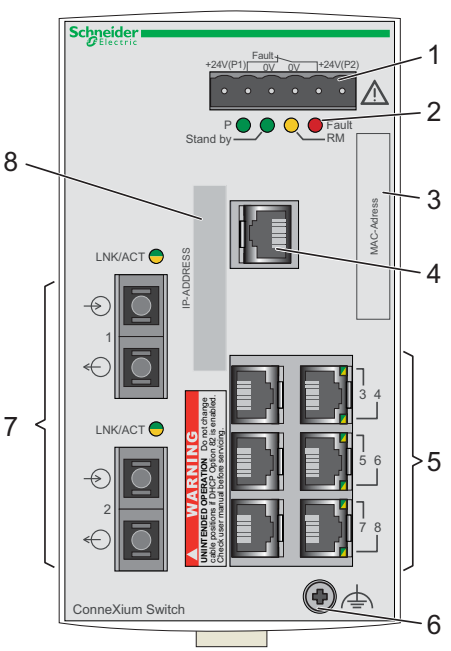
1.2.2 Device variants with 6 TP ports and 2 FX ports

Number of ports and media	
1	Plug-in terminal block, 6-pin
2	LED display elements
3	MAC address field
4	V.24 connection for external management
5	6 ports in compliance with 10/100BASE-T(X), RJ45 connections
6	protective earth ground
7	2 multimode ports in accordance with 100BASE-FX, DSC connections
8	IP address field



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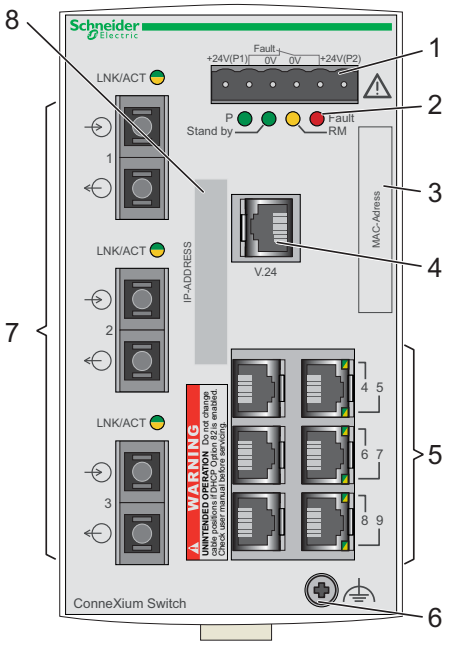
1.2.3 Device variants with 6 TP ports and 3 FX ports

Number of ports and media



TCSESB093F2CU0

1	Plug-in terminal block, 6-pin
2	LED display elements
3	MAC address field
4	V.24 connection for external management
5	6 ports in compliance with 10/100BASE-T(X), RJ45 connections
6	protective earth ground
7	3 multimode ports in accordance with 100BASE-FX, DSC connections
8	IP address field

2 Assembly and start-up

2.1 Safety instructions

Staff qualification requirements

Only appropriately qualified staff should work on or near this equipment. Such staff must be thoroughly acquainted with all the warnings and maintenance measures contained in these operating instructions.
The proper and safe operation of this equipment assumes proper transport, appropriate storage and assembly, and careful operation and maintenance.
Qualified staff are persons familiar with setting up, assembling, installation, starting up, and operating this product, and who have appropriate qualifications to cover their activities, such as:

- knowledge of how to switch circuits and equipment/systems on and off, ground them, and identify them in accordance with current safety standards
- training or instruction in accordance with current safety standards of using and maintaining appropriate safety equipment
- first aid training

Recycling note

After usage, this product must be disposed of properly as electronic waste, in accordance with the current disposal regulations of your county, state and country.

2.2 Installing the device

2.2.1 Overview of installation

Two or more devices configured with the same IP address can cause unpredictable operation of your network.

⚠ WARNING

UNINTENDED EQUIPMENT OPERATION

Establish and maintain a process for assigning unique IP addresses to all devices on the network.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

⚠ WARNING

UNINTENDED OPERATION

Do not change cable positions if DHCP Option 82 is enabled. Check the Basic Configuration user manual before servicing (refer to DHCP OPTION 82 topic).

Failure to follow these instructions can result in death, serious injury, or equipment damage.

On delivery, the device is ready for operation.

The following steps should be performed to install and configure a switch:

- Unpacking and checking
- Insert data in label area
- Connect the terminal block for voltage supply and signal contact and connect the supply voltage
- Install the device on the DIN rail, grounding
- Install the terminal block, start-up procedure
- Connecting the data lines

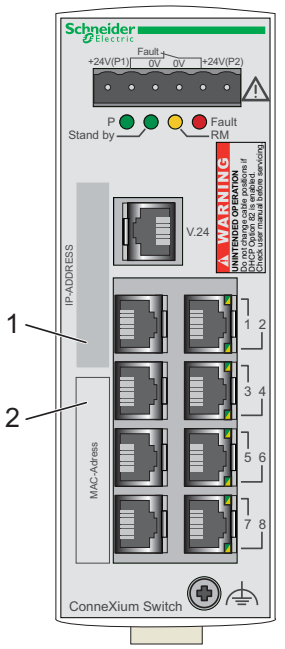
2.2.2 Unpacking and checking

☐ Check that the contents of the package are complete (see page 30 “Scope of delivery“).
☐ Check the individual parts for transport damage.

2.2.3 Insert data in label area

The information field for the IP address on the front of the device helps you to structure your network installation clearly.

Label area for IP address of device



TCSESB083F23F0

1	IP address of device (label area)
2	MAC address of device (label)

2.2.4 Connecting the terminal blocks for supply voltage and signal contact

Supply voltage

DANGER

HAZARD OF ELECTRIC SHOCK OR BURN

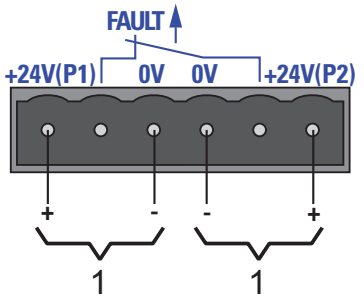
When the module is operated with direct plug-in power units, use only:
– SELV supply units that comply with IEC 60950/EN 60950 and
– (in USA and Canada) Class 2 power units that comply with applicable national or regional electrical codes

Connect the ground wire to the PE terminal (where applicable) before you establish any further connections. When you remove connections, disconnect the ground wire last.

Failure to follow these instructions will result in death, serious injury, or equipment damage.

Redundant power supplies can be used. Both inputs are uncoupled. There is no distributed load. With redundant supply, the power supply unit supplies the device only with the higher output voltage. The supply voltage is electrically isolated from the housing.
See “Insulation voltage” in chapter “Technical data“ on page 28.

Connecting the supply voltage at the 6-pin terminal block



1 DC voltage
Nominal voltage range: 12 to 24 V DC
Max. voltage range: min. 9.6 to max. 32 V DC

Note: The tightening torque for field wiring terminals is 2 to 4 lb in. (0.22 to 0.25 Nm).

"FAULT" signal contact

- The signal contact ("FAULT", for pin assignment of terminal block, see fig. 1) monitors the functioning of the device, thus enabling remote diagnostics. You can specify the type of function monitoring in the Management.
- You can also use the switch Web page to switch the signal contact manually and thus control external devices.

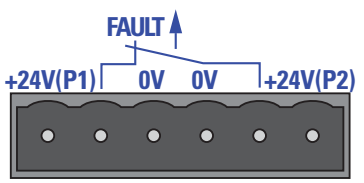


Figure 1: Pin assignment of the signal contact

WARNING

EXPLOSION HAZARD

When you are wiring the alarm contacts for an installation that will operate in a Class 1, Division 2, Groups A, B, C and D hazardous location, follow the noninductive field wiring recommendations of the National Electrical Code (NEC) or equivalent and NFPA 70, article 501.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

A break in contact is used to report the following conditions via the potential-free signal contact (relay contact, closed circuit):

- The detected inoperability of at least one of the two voltage supplies (voltage supply 1 or 2 is below the threshold value).
- The device is not operational.
- The loss of connection at at least one port. The report of the link status can be masked by the Management for each port. In the delivery state, link status monitoring is deactivated.

- The loss of ring redundancy reserve.
- A detected error during the self-test.
- Incorrect configuration of the HIPER-Ring.

The following condition is also reported in RM mode:

- Ring redundancy reserve is available. On delivery, there is no ring redundancy monitoring.

☐ Pull the terminal block off the device and connect the power supply and signal lines.

2.2.5 Installing the device on the DIN rail, grounding

Mounting on the DIN rail

☐ Mount the device on a 35 mm DIN rail in accordance with DIN EN 60175.

☐ Attach the upper snap-in guide of the device into the DIN rail and press it down against the DIN rail until it snaps into place.

Note: The shielding ground of the connectable twisted pair lines is connected to the front panel as a conductor.

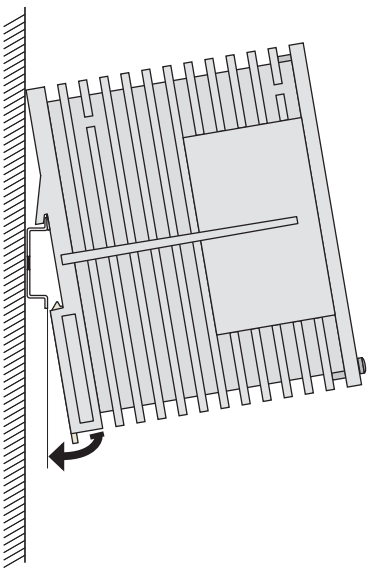


Figure 2: Mounting on the DIN rail

Grounding

The front panel of the device is grounded via the separate ground screw.

2.2.6 Dimension drawings

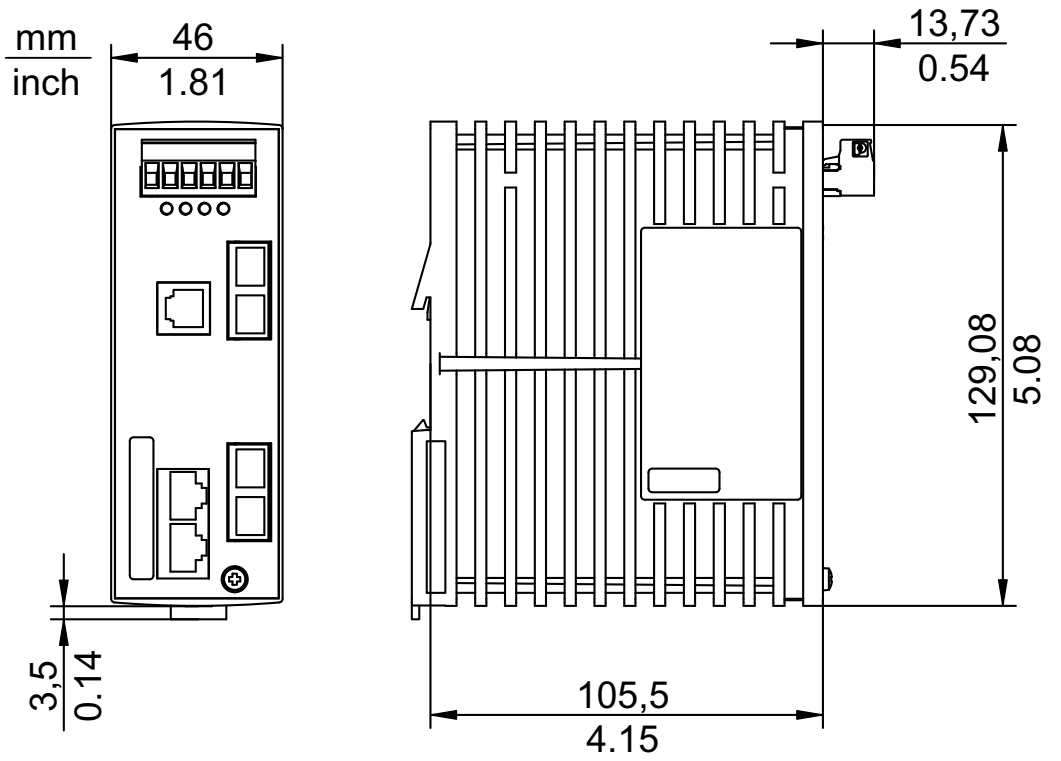


Figure 3: Dimensions of device variant TCSESB083F23F0

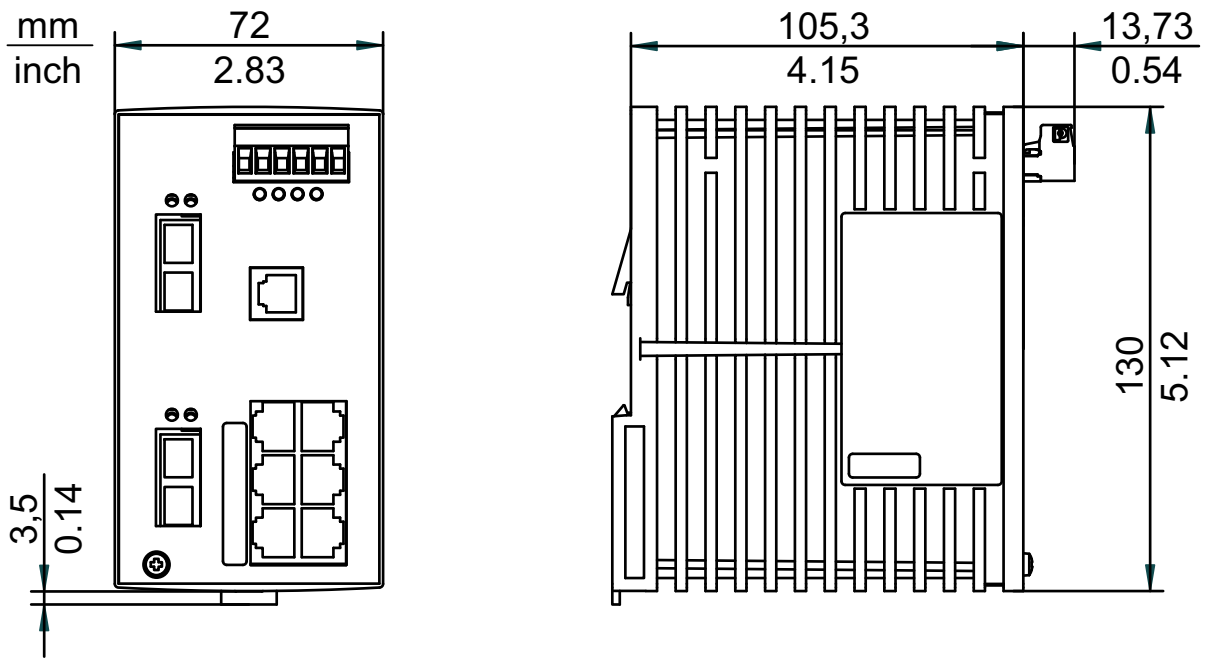


Figure 4: Dimensions of device variants TCSESB083F2CU0 and TCSESB093F2CU0

2.2.7 Installing the terminal block, start-up procedure

☐ Mount the terminal block for the voltage supply and signal contact on the front of the device using the snap lock. Make sure that the snap lock snaps into place.

Connecting the voltage supply via the terminal block starts the operation of the device.

2.2.8 Connecting the data lines

You can connect terminal devices and other segments at the ports of the device via twisted pair cables or F/O cables.

☐ Install the data lines according to your requirements.

■ 10/100 Mbit/s twisted pair connection

These connections are RJ45 sockets.
10/100 Mbit/s TP ports enable the connection of terminal devices or independent network segments according to the IEEE 802.3 10BASE-T/ 100BASE-TX standard.
These ports support:

- Autonegotiation
- Autopolarity
- Autocrossing (if autonegotiation is activated)
- 100 Mbit/s half-duplex mode, 100 Mbit/s full duplex mode
- 10 Mbit/s half-duplex mode, 10 Mbit/s full duplex mode

State on delivery: autonegotiation activated.
The socket housing is electrically connected to the front panel.

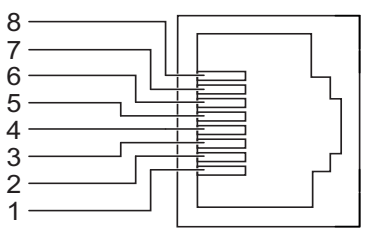
Figure	Pin	Function	
	1	RD+	Receive Data +
	2	RD-	Receive Data -
	3	TD+	Transmit Data +
	6	TD-	Transmit Data -
	4,5,7,8	Not used	

Table 1: Pin assignment of a TP/TX interface in MDI-X mode, RJ45 socket

■ 100 Mbit/s F/O connection

These connections are DSC connectors.
100 MBit/s F/O ports enable the connection of terminal devices or independent network segments in compliance with the IEEE 802.3 100BASE-FX standard.
These ports support:

- Full or half duplex mode

State on delivery: full duplex FDX

Note: Make sure that you connect the MM ports only with MM ports.

2.3 Display elements

After the operating voltage is set up, the software starts and initializes itself. Afterwards, the device performs a self-test. During this process, various LEDs light up. The process takes around 60 seconds.

Device state

These LEDs provide information about conditions which affect the operation of the whole device.

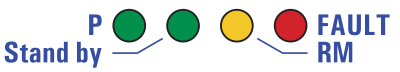


Figure 5: Device status LEDs

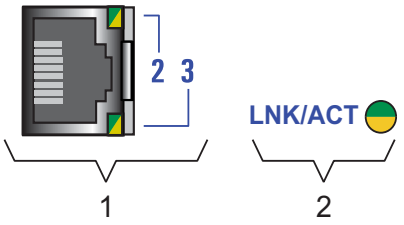
P - Power (green/yellow LED)	
Glowing green	Both supply voltages are on
Glowing yellow	There is only one supply voltage (P1 or P2) on
Not glowing	Supply voltages P1 and P2 are too low
FAULT - error, signal contact (red LED) [a]	
Glowing red	The signal contact is open, i.e. it is reporting an error.
Not glowing	The signal contact is closed, i.e. it is not reporting an error.

a. If the manual adjustment is active on the “FAULT” signal contact, then the detected error display is independent of the setting of the signal contact.

RM - Ring Manager (green/yellow LED)	
Glowing green	RM function active, redundant port disabled
Glowing yellow	RM function active, redundant port enabled
Not glowing	RM function not active
Flashing green	Incorrect configuration of the HIPER-Ring (e.g. the ring is not connected to the ring port).
Stand-by	
Glowing green	Stand-by mode enabled
Not glowing	Stand-by mode not enabled

Port state

The green and yellow LEDs at the individual port display port-related information. During the boot phase, these LEDs are used to display the status of the boot procedure.

Port status LEDs		
	1	Port status LEDs for RJ45
	2	Port status LEDs for DSC

LED	Display	Color	Activity	Meaning
LNK	Link status	Green	Lights up	Valid connection
			None	No valid connection
			flashes green (1 time/s)	Port is switched to stand by
			flashes green (3 times/s)	The port is disabled.
ACT	data	Yellow	None	No data reception at this port
			Flashing	Data reception at this port

2.4 Basic set-up

The IP parameters must be entered when the device is installed for the first time.
The device provides the following options for configuring IP addresses:

- Configuration via V.24 connection
- Configuration via the switch configurator software
- Configuration via BOOTP
- Configuration via DHCP
- Configuration via the Memory Back-up Adapter (TCSEAM0200)

Further information on the basic settings of the device can be found in the "Basic Configuration" user manual on the CD ROM.

Default settings

- IP address: The device looks for the IP address using DHCP
- Password for management:
  Login: user; password: public (read only)
  Login: admin; password: private (read and write)
- V.24 data rate: 9,600 Baud
- Ethernet ports: link status is not evaluated (signal contact)
- Optical 100 Mbit/s ports: 100 Mbit/s, full duplex
  All other ports: autonegotiation
- RM function (Ring Manager) not activated
- RSTP (Rapid Spanning Tree) activated
- HIPER-Ring not activated

- Stand-by mode not enabled

V.24 interface (external management)

The V.24 interface is an RJ11 socket.

The V.24 interface is a serial interface which allows you to connect the following devices locally:

- An external management station (VT100 terminal or PC with appropriate terminal emulation). This enables you to set up a connection to the Command Line Interface (CLI) and to the system monitor.
- A Memory-Back-up-Adapter (TCSEAM0200)

VT 100 terminal settings	
Speed	9,600 Baud
Data	8 bit
Stopbit	1 bit
Handshake	off
Parity	none

The socket housing is electrically connected to the front panel of the device.

The V.24 interface is not electrically isolated from the supply voltage.

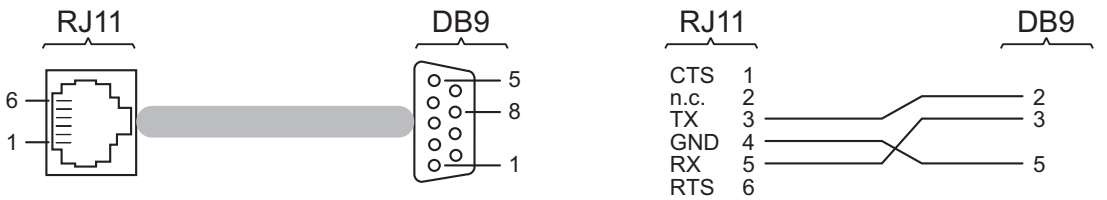


Figure 6: Pin assignment of the V.24 interface and the DB9 connector

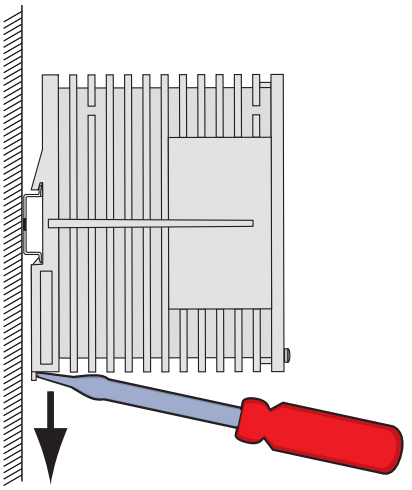
Note: You can order the terminal cable separately (ref #: 490NTRJ11).

You will find a description of the V.24 interface in the “Basic Configuration User Manual” on the CD-ROM.

2.5 Disassembly

Removing the device from the DIN rail

☐ To take the device off the DIN rail, insert a screwdriver horizontally under the housing into the locking slide, pull it (without tipping the screwdriver) downwards and lift the device upwards.



3 Technical data

General technical data

Dimensions W × H × D	TCSESB083F23F0	47 mm x 131 mm x 111 mm (1.85 in x 5.16 in x 4.37 in)
	TCSESB083F2CU0 TCSESB093F2CU0	74 mm x 131 mm x 111 mm (2.91 in x 5.16 in x 4.37 in)
Weight	TCSESB083F23F0	400 g (0.881 lb)
	TCSESB083F2CU0 TCSESB093F2CU0	410 g (0.904 lb)
Power supply	Operating voltage Rated voltage range DC Max. voltage range DC	 12 to 24 V DC min. 9.6 to max. 32 V DC Safety extra-low voltage (SELV), redundant inputs disconnected. Relevant for North America: NEC Class 2 power source max. 5A.
Overload current protection at input		Non-replaceable fuse
Insulation voltage between operating voltage connections and housing		800 V DC Protective elements limit the insulation voltage to 45 V DC (1mA)
"FAULT" signal contact	Switching current	max. 1 A, SELV
	Switching voltage	max. 60 V DC or max. 30 V AC, SELV
Environment	Storage temperature (ambient air)	Standard: -40 °C to +70 °C (-40 °F to +158 °F)
	Humidity	10% to 95% (non-condensing)
	Air pressure	Up to 2000 m (795 hPa), higher altitudes on request
Surrounding air temperature	Standard	0 °C to +60 °C (+32 °F to +140 °F)
Pollution degree		2
Protection classes	Laser protection	Class 1 according to EN 60825-1 (2001)
	Protection class	IP 20

EMC and immunity

EMC interference immunity		
IEC/EN 61000-4-2	Electrostatic discharge	
	Contact discharge Air discharge	4 kV 8 kV
IEC/EN 61000-4-3	Electromagnetic field	
	80 - 3,000 MHz	10 V/m

EMC interference immunity		
IEC/EN 61000-4-4	Fast transients (burst)	
	Power line	2 kV
	Data line	1 kV
IEC/EN 61000-4-5	Voltage surges	
	Power line, line / line	0.5 kV
	Power line, line / earth	1 kV
	Data line	1 kV
IEC/EN 61000-4-6	Line-conducted interference voltages	
	10 kHz - 150 kHz	3 V
	150 kHz - 80 MHz	10 V
EMC emitted interference		
EN 55022	Class A	Yes
FCC 47 CFR Part 15	Class A	Yes
Stability		
Vibration	IEC 60068-2-6 Test FC test level according to IEC 61131-2	Yes
Shock	IEC 60068-2-27 Test Ea test level according to IEC 61131-2	Yes

Network range

TP port	
Length of a twisted pair segment	typ. 100 m (cat5e cable with 100BASE-TX)

Table 2: TP port 10BASE-T / 100BASE-TX

Description	Wave length	Fiber	System attenuation	Expansion	Fiber data
Multimode FX, DSC, 10/100 Mbit/s	1300 nm	50/125 µm	0-8 dB	0-5 km	1.0 dB/km, 800 MHz*km
Multimode FX, DSC, 10/100 Mbit/s	1300 nm	62,5/125 µm	0-11 dB	0-4 km	1.0 dB/km, 500 MHz*km

Table 3: F/O port 100BASE-FX

Power consumption/power output

Device name	TX ports	FX ports	Maximum power consumption	Maximum power output
TCSESB083F23F0	8 x RJ45	— —	6.0 W	20.5 Btu (IT)/h
TCSESB083F2CU0	6 x RJ45	2 x MM, DSC	8.0 W	27.5 Btu (IT)/h
TCSESB093F2CU0	6 x RJ45	3 x MM, DSC	9.0 W	31.0 Btu (IT)/h

Table 4: Power consumption/power output TCSESB devices

Scope of delivery

Device	Scope of delivery
TCSESBxx	Device
	Terminal block for supply voltage and signal contact
	Installation user manual and CD-ROM

Order numbers/product description

Part Number	Part Number	Description
8 Port Version	TCSESB083F23F0	8 10/100 TX Managed
	TCSESB083F2CU0	6 10/100 TX Managed, 2 100 FX-MM Managed
9 Port Version	TCSESB093F2CU0	6 10/100 TX Managed, 3 100 FX-MM Managed
Accessories	TCSEAM0200 Adapter	Memory Back-up Adapter
	490NTRJ11 Cable	Terminal 490NTRJ11 cable

Underlying norms and standards

Name	
cUL 508:1998	Safety for Industrial Control Equipment
EN 55022:2006 + A1:2007	IT equipment – radio interference characteristics
EN 60079-15	Electrical equipment for explosive gas atmospheres – part 15: Construction, testing and marking of protection type "n" electrical apparatus.
EN 61000-6-2:2005	Generic norm – immunity in industrial environments
EN 61131-2:2007	Programmable logic controllers
FCC 47 CFR Part 15:2009	Code of Federal Regulations
IEC/EN 60950-1:2006	Safety for the installation of IT equipment
IEEE 802.1 D	Switching, GARP, Spanning Tree
IEEE 802.1 D-1998	Media access control (MAC) bridges (includes IEEE 802.1p Priority and Dynamic Multicast Filtering, GARP)
IEEE 802.3-2002	Ethernet
ISA 12.12.01 (cUL 1604), CSA C22.2 No. 213	Electrical Equipment for Use in Class I and Class II, Div.2 and Class III Hazardous (Classified) Locations

Table 5: List of norms and standards

Certifications

Norm	
cUL 508 / CSA C22.2 No.142	Safety for Industrial Control Equipment 
ISA 12.12.01 / CSA C22.2 No.213	Electrical Equipment for Use in Class I and Class II, Div.2 and Class III Hazardous (Classified) Locations 

The devices have CE certifications.