

FDM128

Display for 8 LV Devices User Guide

04/2014



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

When devices are used for applications with technical safety requirements, the relevant instructions must be followed.

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

Failure to observe this information can result in injury or equipment damage.

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Safety Information



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 a hazardous situation which, if not avoided, **will result in** death or serious injury.

WARNING

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

CAUTION

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

NOTICE

NOTICE is used to address practices not related to physical 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.

A qualified person is one who has skills and knowledge related to the construction and operation of electrical equipment and its installation, and has received safety training to recognize and avoid the hazards involved.

FCC Notice

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 designated 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 this own expense.



At a Glance

Document Scope

This guide describes how to use the FDM128 display for 8 LV devices, installed in an Ethernet network, to monitor and control:

- Circuit breakers equipped with communicating Micrologic trip units of the following ranges:
 - Masterpact™ NW
 - Masterpact™ NT
 - Compact™ NS 1600b-3200
 - Compact™ NS 630b-1600
 - PowerPact™ P- and R-frame
 - Compact™ NSX
 - PowerPact™ H-, J- and L-frame
- Devices connected to Acti 9 Smartlink:
 - Acti 9 iOF+SD24 and OF+SD24 indication auxiliaries
 - Acti 9 iACT24 and iATL24 auxiliaries for contactors and impulse relays in the Acti 9 range
 - Acti 9 RCA iC60 remote control module with Ti24 interface
 - Acti 9 Reflex iC60 integrated control circuit breaker with Ti24 interface
 - EM2000T, iEM3110, iEM3155, iEM3210 and iEM3255 energy meters
 - Compact NSX OF+SD indication auxiliaries

Validity Note

This documentation is valid for all FDM128 display for 8 LV devices.

The technical characteristics of the devices described in this document also appear online. To access this information online:

Step	Action
1	Go to the Schneider Electric home page www.schneider-electric.com .
2	In the Search box type the reference of a product or the name of a product range. • Do not include blank spaces in the model number/product range. • To get information on grouping similar modules, use asterisks (*).
3	If you entered a reference, go to the Product Datasheets search results and click on the reference that interests you. If you entered the name of a product range, go to the Product Ranges search results and click on the product range that interests you.
4	If more than one reference appears in the Products search results, click on the reference that interests you.
5	Depending on the size of your screen, you may need to scroll down to see the data sheet.
6	To save or print a data sheet as a .pdf file, click Download XXX product datasheet .

The characteristics that are presented in this manual should be the same as those characteristics that appear online. In line with our policy of constant improvement, we may revise content over time to improve clarity and accuracy. If you see a difference between the manual and online information, use the online information as your reference.

Related Documents

Title of Documentation	Reference Number
FDM128 Display for 8 LV Devices - Instruction Sheet	HRB45777
IFM Modbus-SL Interface for LV Circuit Breaker - Instruction Sheet	GHD16323AA
IFE Ethernet Interface for LV Circuit Breaker - Instruction sheet	HRB49218
IFE Ethernet Interface for LV Circuit Breaker - User Guide (IEC Version)	DOCA0084EN DOCA0084ES DOCA0084FR DOCA0084ZH
IFE Ethernet Interface for LV Circuit Breaker - User Guide (UL Version)	1040IB1401 (EN) 1040IB1402 (ES) 1040IB1403 (FR) 1040IB1404 (ZH)
IO Input/Output Interface Module for LV Circuit Breaker - User Guide (IEC Version)	DOCA0055EN DOCA0055ES DOCA0055FR DOCA0055ZH
IO Input/Output Interface Module for LV Circuit Breaker - User Guide (UL Version)	0613IB1317 (EN) 0613IB1318 (ES) 0613IB1319 (FR) 0613IB1320 (ZH)
BCM ULP Breaker Communication Module - Installation Manual	5100512864A (EN, ES, FR)
Acti 9 Smartlink Modbus Communication System - User Manual	DOCA0004DE DOCA0004EN DOCA0004ES DOCA0004FR DOCA0004IT DOCA0004PT
Acti 9 Smartlink Ethernet Communication System - User Manual	DOCA0073DE DOCA0073EN DOCA0073ES DOCA0073FR DOCA0073IT DOCA0073PT
EGX300 PowerLogic™ Ethernet Gateway - User Guide	63230-319-216 (EN, ES, FR)
Micrologic 5/6 Trip Units for Compact NSX Circuit Breakers - User Guide	LV434103 (FR) LV434104 (EN) LV434105 (ES)
Compact NSX Modbus Communication - User Guide	LV434106 (FR) LV434107 (EN) LV434108 (ES)
Micrologic 5 and 6 Trip Units for PowerPact H-, J-, and L- Frame Circuit Breakers - User Guide	48940-312 (EN, ES, FR)
PowerPact H-, J-, and L- Frame Circuit Breakers Modbus Communication - User Guide	48940-328 (EN, ES, FR)
Micrologic A/E Trip Units - User Guide	04443723A (FR) 04443724A (EN) EAV16735 (ES)
Micrologic P Trip Units - User Guide	04443725A (FR) 04443726A (EN) EAV16736 (ES)
Micrologic H Trip Units - User Guide	04443727A (FR) 04443728A (EN) EAV16737 (ES)
Micrologic 2.0A, 3.0A, 5.0A, and 6.0A Trip Units - Instruction Bulletin	48049-136 (EN, ES, FR)

Title of Documentation	Reference Number
Micrologic 5.0P and 6.0P Trip Units - Instruction Bulletin	48049-137 (EN, ES, FR)
Micrologic 5.0H and 6.0H Trip Units - Instruction Bulletin	48049-330 (EN, ES, FR)
ULP System for Compact and Masterpact Circuit Breakers - User Guide	TRV99100 (FR) TRV99101 (EN) TRV99102 (ES)
ULP System for PowerPact and Masterpact Circuit Breakers - User Guide	48940-329 (EN, ES, FR)

You can download these technical publications and other technical information from our website at www.schneider-electric.com.

Chapter 1

Introduction

What Is in This Chapter?

This chapter contains the following topics:

Topic	Page
Overview	12
Recommendations	18
Certifications and Standards	19
General Specifications	20
Functional Specifications	22
Interface Specifications	23

Overview

Presentation

The FDM128 display for 8 LV devices is a 1-to-8 human machine interface (HMI). The main component is a 5.7 inch touch screen.

A FDM128 display unit can be connected to the devices via an Ethernet interface by using:

- An IFE gateway
- An Acti 9 Smartlink Ethernet
- A PowerLogic EGX300 Ethernet gateway
- Several IFE and Acti 9 Smartlink Ethernet

Each type of connection is described further in this section.

The FDM128 display unit can be set up in one or any combination of these architectures. When combining these architectures, make sure that there is no more than one master/slave configuration.

The FDM128 display unit can monitor and control up to eight LV devices. The information displayed includes measurements, alarms, and operating assistance data.

For ease of installation, an autodiscovery function is embedded in the FDM128 display unit.

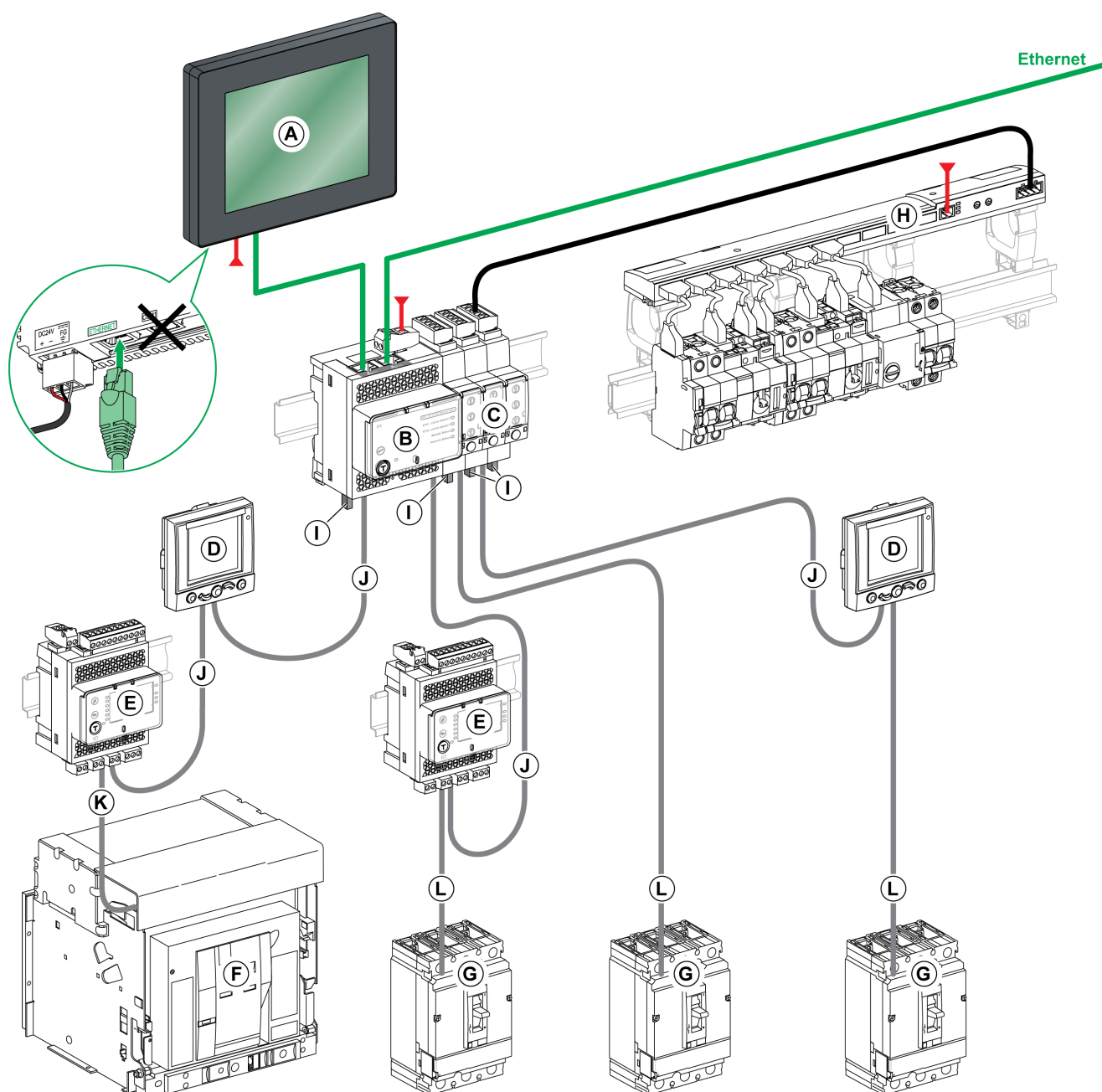
Number and Nature of Monitored Devices

The maximum number of devices that can be monitored simultaneously is eight devices, among the list below:

- Circuit breakers:
 - Masterpact NT/NW
 - Compact NS
 - Compact NSX
 - PowerPact P- and R-frame
 - PowerPact H-, J-, and L-frame
- Acti 9 Smartlink:
 - Acti 9 Smartlink Modbus
 - Acti 9 Smartlink Ethernet

FDM128 Display Unit Connected to an IFE Gateway

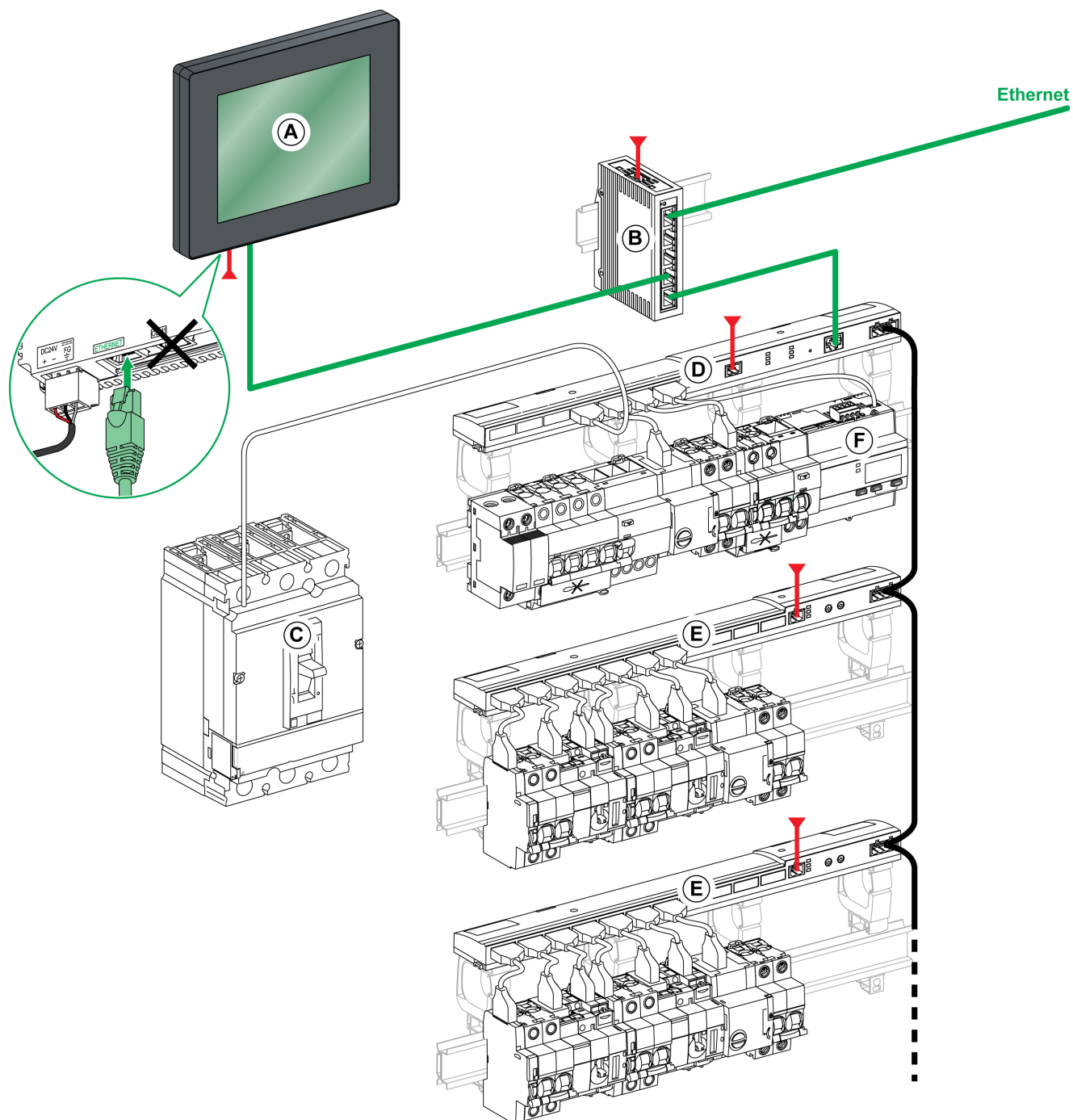
The following diagram shows an IFE-based network architecture that includes an Acti 9 Smartlink Modbus:



- A** FDM128 display for 8 LV devices
- B** IFE Ethernet interface for LV circuit breaker and gateway
- C** IFM Modbus-SL interface for LV circuit breaker
- D** FDM121 display for LV circuit breaker
- E** IO input/output interface module for LV circuit breaker
- F** Masterpact NT/NW circuit breaker
- G** Compact NSX, PowerPact H-, J-, or L-frame circuit breaker
- H** Acti 9 Smartlink Modbus
- I** ULP line terminator
- J** ULP cable
- K** Breaker ULP cord
- L** NSX cord
- Ethernet
- Modbus-SL
- 24 Vdc

FDM128 Display Unit Connected to an Acti 9 Smartlink Ethernet Gateway

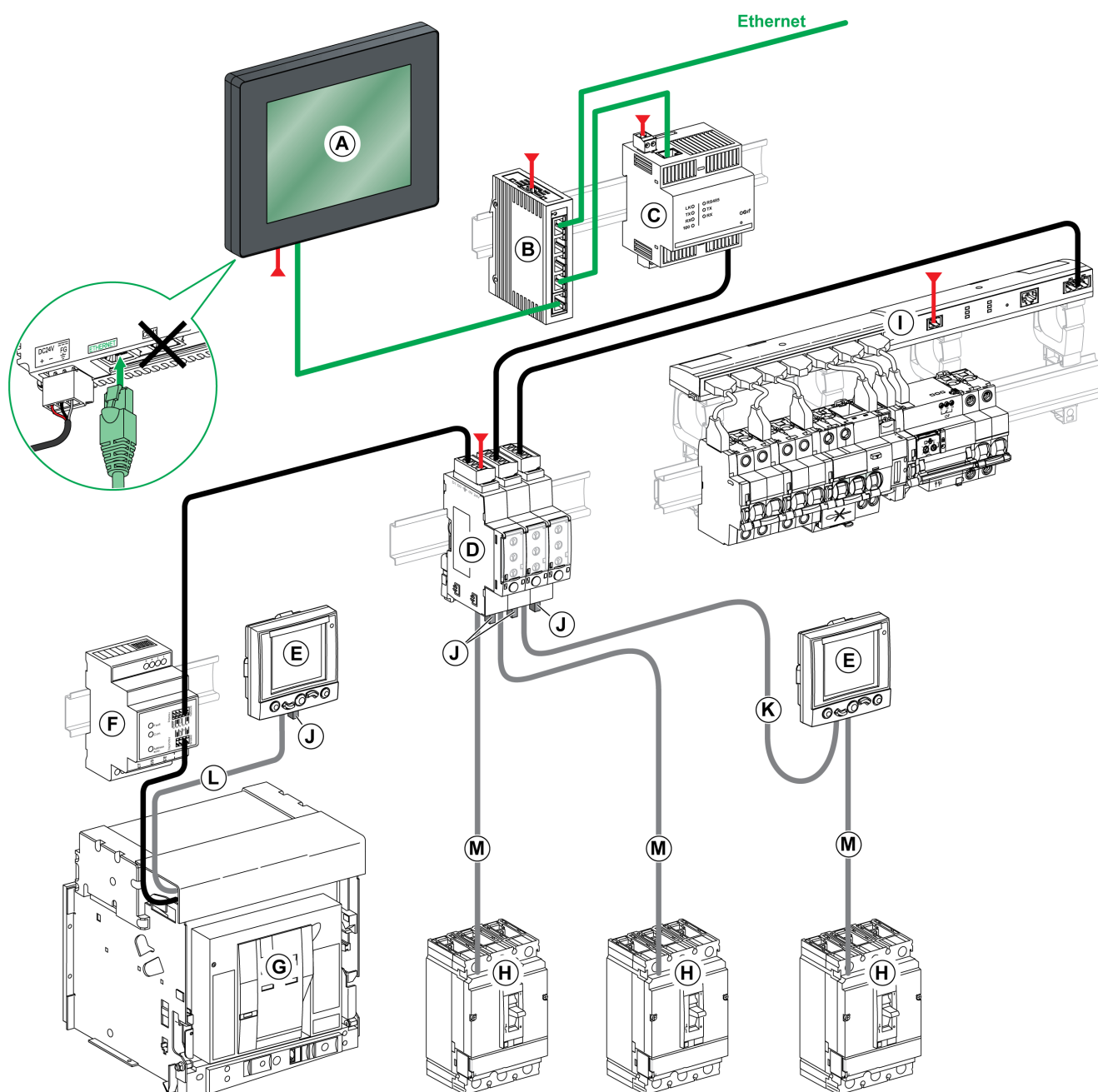
The following diagram is an example of an Acti 9 Smartlink Ethernet network architecture, in a floor switchboard application:



- A FDM128 display for 8 LV devices
- B Switch Connexion
- C Compact NSX, PowerPact H-, J-, or L-frame circuit breaker
- D Acti 9 Smartlink Ethernet
- E Acti 9 Smartlink Modbus
- F iEM• Acti 9 Smartlink energy meter
- Ethernet
- Modbus-SL
- 24 Vdc

FDM128 Display Unit Connected to a PowerLogic EGX300 Ethernet Gateway

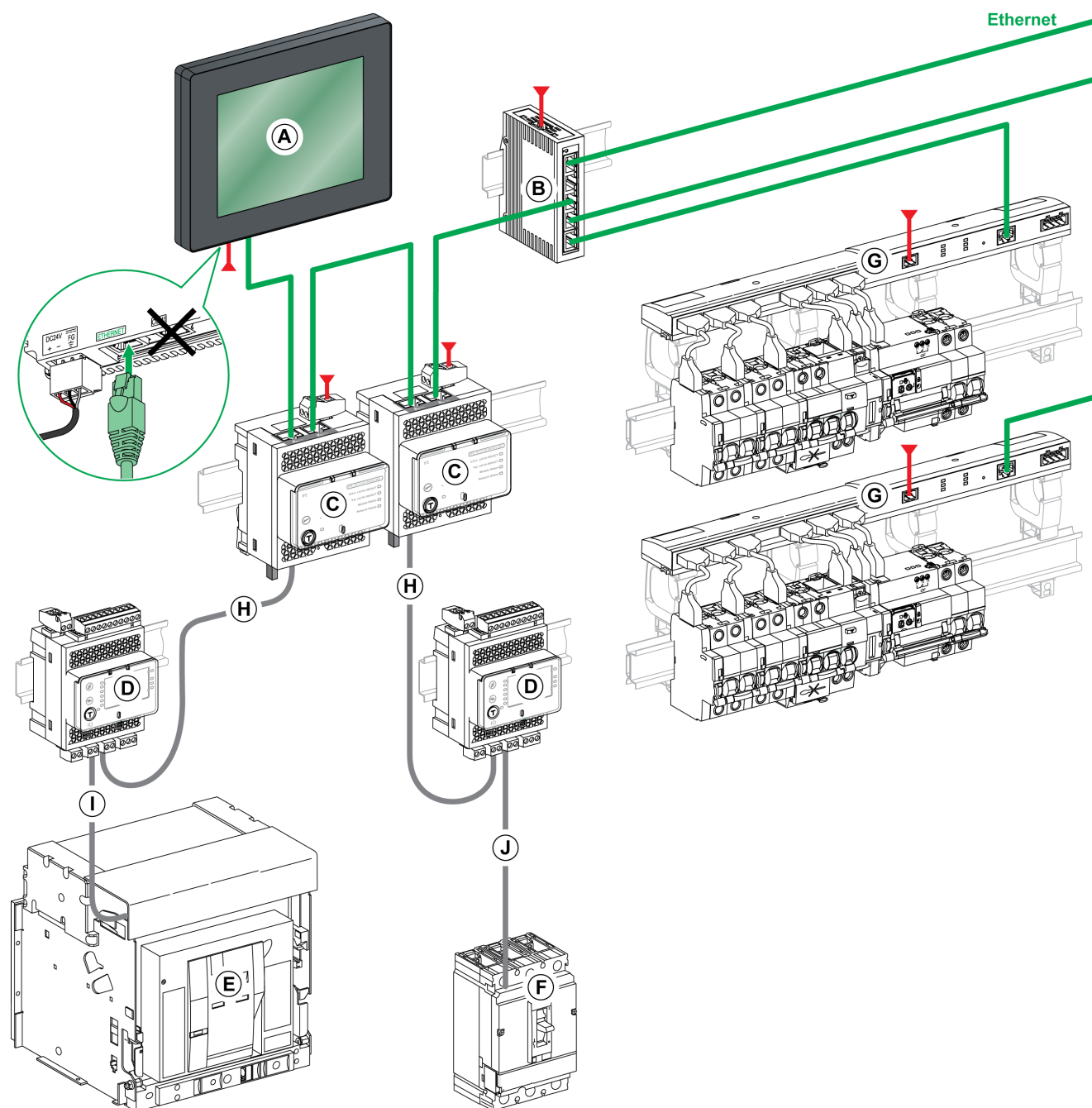
The following diagram is an example of a network architecture with a PowerLogic EGX300 Ethernet gateway:



- A** FDM128 display for 8 LV devices
- B** Switch Connexion
- C** EGX300 Ethernet gateway
- D** IFM Modbus-SL interface for LV circuit breaker
- E** FDM121 display for LV circuit breaker
- F** CCM Modbus cradle communication module
- G** Masterpact NT/NW circuit breaker
- H** Compact NSX, PowerPact H-, J-, or L-frame circuit breaker
- I** Acti 9 Smartlink Modbus
- J** ULP line terminator
- K** ULP cable
- L** Breaker ULP cord
- M** NSX cord
- Ethernet
- Modbus-SL
- 24 Vdc

FDM128 Connected to Several IFE or Acti 9 Smartlink Ethernet

The following diagram shows an IFE- and Acti 9 Smartlink-based network architecture:



- A** FDM128 display for 8 LV devices
- B** Switch Connexion
- C** IFE Ethernet interface for LV circuit breaker
- D** IO input/output interface module for LV circuit breaker
- E** Masterpact NT/NW circuit breaker
- F** Compact NSX, PowerPact H-, J-, or L-frame circuit breaker
- G** Acti 9 Smartlink Ethernet
- H** ULP cable
- I** Breaker ULP cord
- J** NSX cord
- Ethernet
- 24 Vdc

Component Part Numbers

The table below lists the part numbers for the components listed in the architecture diagrams:

Component	Description	Part Number
FDM128 display for 8 LV devices	–	LV434128
STU 5in7 front module spare part	–	HMIS85
IFE Ethernet interface for LV circuit breaker	Ethernet interface	LV434010
	Ethernet interface and gateway	LV434011
IFM Modbus-SL interface for LV circuit breaker	–	● TRV00210 (IEC) ● STRV00210 (UL)
FDM121 display for LV circuit breaker	–	● TRV00121 (IEC) ● STRV00121 (UL)
IO input/output interface for LV circuit breaker	–	LV434063
ULP line terminator	10 ULP line terminators	TRV00880
ULP cable	L = 0.3 m (0.98 ft), 10 cables	TRV00803
	L = 0.6 m (1.97 ft), 10 cables	TRV00806
	L = 1 m (3.28 ft), 5 cables	TRV00810
	L = 2 m (6.56 ft), 5 cables	TRV00820
	L = 3 m (9.84 ft), 5 cables	TRV00830
	L = 5 m (16.40 ft), 1 cable	TRV00850
Breaker ULP cord	L = 0.35 m (1.15 ft)	LV434195
	L = 1.3 m (4.26 ft)	LV434196
	L = 3 m (9.84 ft)	LV434197
NSX cord	L = 0.35 m (1.15 ft)	LV434200
	L = 1.3 m (4.27 ft)	LV434201
	L = 3 m (9.84 ft)	LV434202
Acti 9 Smartlink Ethernet	–	A9XMEA08
Acti 9 Smartlink Modbus	–	A9XMSB11
PowerLogic EGX300 Ethernet gateway	–	● EGX300 (Schneider Electric) ● EGX300SD (Square D)
iEM2000T energy meter	–	A9MEM2000T
iEM3110 energy meter	–	A9MEM3110
iEM3155 energy meter	–	A9MEM3155
iEM3210 energy meter	–	A9MEM3210
iEM3255 energy meter	–	A9MEM3255

Recommendations

Critical Systems, Alarms, and Handling Requirements

Critical alarm indicators and system functions require independent and redundant hardware protection and/or mechanical interlocks.

If the FDM128 display for 8 LV devices, for any reason, becomes inoperative (for example, an inoperative backlight) it may be difficult or impossible to identify a function. Functions that may present a hazard if not immediately executed, such as an emergency stop, must be provided independently of the FDM128 display unit.

The design of the control system must take into account simultaneously:

- An inoperative FDM128 display unit.
- The operator inability to control the circuit breakers or to respond to detected errors by using the FDM128 display unit.

Handling the LCD Panel

The following characteristics are specific to the LCD panel and are considered normal behavior:

- LCD screen may show unevenness in the brightness of certain images. These images may appear differently when seen from outside the specified viewing angle. Extended shadows, or cross-talk, may also appear on the sides of screen images.
- LCD screen pixels may contain black and white-colored spots and color display may seem to have changed over time.
- When the same image is displayed for a long period, an after-image may appear when the image changes. If this happens, turn off the FDM128 display unit, wait 10 seconds, and then restart it.

NOTE: Do not display the same image for a long time, change the screen image periodically.

CAUTION

SERIOUS EYE AND SKIN INJURY

The liquid present in the LCD panel contains an irritant:

- Avoid direct skin contact with the liquid.
- Wear gloves when you handle a broken or leaking FDM128 display unit.
- Do not use sharp objects or tools in the vicinity of the LCD touch panel.
- Handle the LCD panel carefully to prevent puncture, bursting, or cracking of the panel material.

If the panel is damaged and any liquid comes in contact with your skin, immediately rinse the area with running water for at least 15 minutes.

If the liquid gets in your eyes, immediately rinse your eyes with running water for at least 15 minutes and consult a doctor.

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

Using Touch Panel Correctly

WARNING

UNINTENDED EQUIPMENT OPERATION

- Operate the touch panel with only one finger.
- Do not activate two or more points of the touch panel simultaneously.

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

Use only one finger to select an object on the touch panel.

If the touch panel receives pressure at two or more points at the same time, an unintended object could be selected.

Certifications and Standards

Introduction

Schneider Electric submitted this product for independent testing and qualification by third-party listing agencies. These agencies have certified this product as meeting the following standards.

The FDM128 display unit is certified by the Underwriters Laboratories according to UL 508 for Industrial Control Equipment.

The FDM128 display unit is designed to comply to merchant navy bridge and deck requirements (refer to the Schneider Electric website for installation guidelines).

For detailed information, contact your local distributor or see the catalog and marking on the product.

Compliance with Standards

The FDM128 display unit complies with the following standards:

- IEC 60947-1 general rules
- UL 508, Industrial Control Equipment
- CSA C22.2 No. 14-05 Industrial Control Equipment
- IACS E10

Hazardous Substances

The FDM128 display unit is designed for compliance with the following directives and standards:

- WEEE, Directive 2002/96/EC
- RoHS, Directive 2002/95/EC
- RoHS China, Standard SJ/T 11363-2006

UL Conditions of Acceptability for the FDM128 display unit

The FDM128 display unit is suitable for use in hazardous locations in accordance with Class 1, Division 2 standards. All relevant local, state, and regional codes must be followed.

CE Markings

This product conforms to the requirements for applying the  label.

WARNING

RISK OF EXPLOSION IN HAZARDOUS LOCATIONS

- Verify that the power, input, and output (I/O) wiring are in accordance with Class I, Division 2 wiring methods.
- Do not substitute components that could impair compliance to Class I, Division 2.
- Do not connect or disconnect equipment unless power has been switched off or the area is known to be non-hazardous.
- Securely lock externally connected units and each interface before turning on the power supply.
- Do not disconnect while the circuit is live.
- Front panel is a potential electrostatic charging hazard. Wipe the front panel of the terminal with a damp cloth before turning on.

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

General Specifications

Electrical Characteristics

Characteristic	Value
Rated input voltage	24 Vdc
Input voltage limits	20.4–28.8 Vdc
Acceptable voltage drop	≤ 7 ms
Power consumption	≤ 6.8 W
In-rush current	≤ 30 A
Voltage endurance between power terminal and functional ground (FG)	1,000 Vac 20 mA for 1 minute
Insulation resistance between power terminal and functional ground (FG)	10 MΩ or higher at 500 Vdc

Physical Characteristics

Characteristic	Value
Ambient operating temperature (cabinet interior and panel face)	–10 °C to +55 °C (14–131 °F)
Storage temperature	–40 °C to +85 °C (–40 °F to +185 °F)
Relative humidity	95 % without condensation (non-condensing, wet bulb temperature 55 °C (131 °F) or less)
Air purity (dust)	≤ 0.1 mg/m ³ (≤ 10 ^{–7} oz/ft ³) (non-conductive levels)
Corrosive gases	Free of corrosive gases
Atmospheric pressure	800–1,114 hPa (2000 m (6,500 ft) or lower)

Mechanical Characteristics

Characteristic	Value
Vibration immunity (operating)	IEC 60068-2-6 1 gn (1 g) 5–150 Hz (maximum 3.5 mm (0.13 in.))
Protection (front panel)	IP65 (IEC 60529)
Protection structure	Type 4X indoor, installed on a panel
Protection (rear panel)	IP20 (IEC 60529)
Shock immunity (operating)	IK05 (IEC 60068-2-75) 15 gn (1 g) 11 ms
Cooling method	Natural air circulation
Weight	0.25 kg (0.55 lb.)
Color	Front bezel: dark gray
Material	PC/PBT and PAA

Electrical Environment Specifications

Characteristic	Value
Noise immunity	Noise voltage: 1,000 Vp-p Pulse width: 1 μ s Rising time: 1 ns
High energy surges	2 kV CM, 0.5 kV DM on DC power supply 2 kV CM on shielded cables
Electrical fast transient burst	2 kV CM, 2 kV DM on DC power supply 1 kV on shielded cables
Radiated radio frequency electromagnetic field	10 V/m / 80 MHz to 2 GHz Sinus amplitude modulated 80 % 1 kHz + internal clock frequency
Electrostatic discharge immunity	8.8 kV direct contact 12 kV air contact
Power frequency magnetic field	100 A/m continuous
Grounding	D-type grounding (SG-FG connected)
CM: Common Mode DM: Differential Mode	

Functional Specifications

Display Characteristics

Characteristic	Description
Type	Color TFT LCD
Resolution (pixels)	320 x 240 (QVGA)
Active display area (W x H)	115.2 x 86.4 mm (4.53 x 3.40 in.)
Display colors	65,536 colors
Backlight	LED backlight
	Lifetime: 50,000 hours before dimmed to 50 % brightness Ambient temperature: 25 °C (77 °F)
	Non-exchangeable
Brightness adjustment	16 levels of adjustment available via touch panel in the General settings menu.
Brightness on LCD surface	White LED: 350 cd/m ² (33 cd/ft ²) maximum
View angle	● 80 degrees: left, right ● 70 degrees: up ● 70 degrees: down (Test condition: contrast ratio > 2)

Clock

Variations in operating conditions can cause a clock shift from -380 seconds to +90 seconds per month.

Touch Panel

Characteristic	Description
Type	Analog resistance film type (metal tab, golden plated)
Lifetime	1 million touches or more

Interface Specifications

USB1 Interface (USB Peripherals)

HOST Interface Characteristic		Value
Transmission speed	High speed	480 Mbps
	Full speed	12 Mbps
	Low speed	1.5 Mbps
Maximum current supplied		250 mA
Maximum transmission distance		5 m (16.40 ft) at 12 Mbps
Connector		USB Type-A V2.0

Ethernet Interface

LED	Description
Green 1	Link state
Green 2	Activity

Chapter 2

Presentation

What Is in This Chapter?

This chapter contains the following topics:

Topic	Page
Screen	26
Menu Structure	27
Browsing	28

Screen

Overview

The following figure describes the display area:



- A Header
- B Title bar
- C Headpiece
- D Right area
- E Left area
- F Footer

Header

The header (A) is composed of the following elements:

- Current date and time
- 4 direct-access icons to the main functions (**General view**, **Editing devices**, **Communication settings**, and **General settings**)

Title Bar

The title bar (B) contains the title of the screen or name of the selected device.

Main Area

The main area includes the headpiece (C), the right area (D), and the left area (E).

The following table describes the parts of the main display area:

Position	Description	Use
Headpiece (C)	Right area title	Navigate through the submenus items.
Right area (D)	Information	Displays information of the selected submenu or submenu item. Information screens depend on the device.
Left area (E)	Submenus, if applicable	Navigate through the submenus. Various contents depending on the device.

Footer

The footer (F) contains some navigation icons depending on the selected screen.

For more information, refer to the icon list ([see page 53](#)).

If there is more than one page in the selected submenu, the screen number is displayed. The screen number format is X/Y, with X that is the current screen number and Y is the total screen number.

Menu Structure

Menu Types

FDM128 menus are divided into two types:

- Settings menus: blue title bar background
- Operation menus: green title bar background

Settings Menus

Settings menus are composed of two sequences:

- General settings sequence
- Devices settings sequence: communication settings, autodiscovery, and editing devices

The setting wizard ([see page 31](#)) of the FDM128 display unit guides you through these sequences.

General View

The **General view** menu is used to monitor up to 8 devices at the same time.

For further information, refer to the general view topic ([see page 36](#)).

Device View

Device view menus are only accessible from the **General view** menu.

The **Device view** menu is composed of the following submenus:

- **Quick view** ([see page 38](#))
- **Measures** ([see page 38](#))
- **Alarm history** ([see page 39](#))
- **Control** ([see page 39](#))
- **Maintenance** ([see page 40](#))
- **I/O1 and I/O2** ([see page 40](#))

Browsing

Navigate Through the Screens

In a menu or a submenu, you can navigate through the screens by using the footer icons.

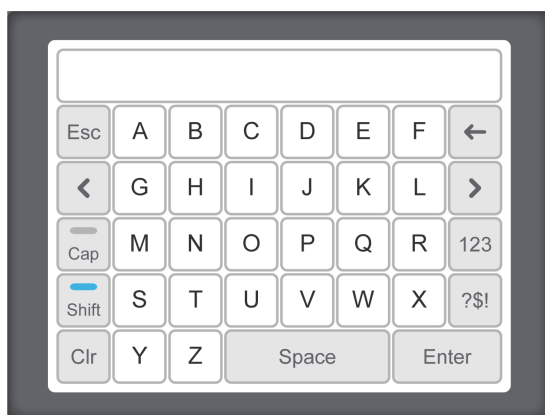
The browsing actions are executable by pressing the icons. Refer to the icon list ([see page 53](#)) to get the meaning of each of them.

The icons are available depending on the network configuration, the selected menu, and the possible actions.

NOTE: A gray icon means that the option or action is not available in the actual context.

Data Entry

When an action requires an alphanumeric entry (for example, typing a designation), the following touch keyboard is displayed:



When an action requires a numeric entry (for example, typing an IP address), the numeric keyboard is displayed.

NOTE: You can also display the numeric keyboard by pressing the **123** key on the alphanumeric keyboard.

Chapter 3

Configuration

What Is in This Chapter?

This chapter contains the following topics:

Topic	Page
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Setting Wizard	31

Prerequisites

Ethernet Network

The Ethernet connections of the IP gateways (EGX300, IFE, Acti 9 Smartlink Ethernet) in the Ethernet network must be correctly installed and configured. The Ethernet devices must be in the same subnet. For further information, refer to the corresponding user guides.

Modbus Serial Line Network

The devices in the Modbus serial line network must be correctly installed and configured with the following Modbus parameters:

Parameter	Value
Modbus address (slaves only)	The Modbus address of each monitored device must be unique. The range of Modbus addresses is 1–30.
Physical interface	RS-485 2-wire
Transmission mode	RTU (Automatic)
Communication speed	The communication speed must be the same for all devices.
Parity	The parity must be the same for all devices.
Response time-out	1 second

To check the Modbus parameters of each monitored device, refer to:

- The *BCM ULP Breaker Communication Module Installation Manual*
- The *IFM Modbus-SL Interface for LV Breaker - Instruction Sheet*
- The *Acti 9 Smartlink Modbus Communication System User Manual*

Setting Wizard

Wizard Presentation

A setting wizard is automatically launched at first power-on to help you setup the FDM128 display unit.

The setting wizard guides you through three main configuration parts:

1. The FDM128 display unit general settings
2. The communication settings depending on the network architecture: IFE- or Acti 9 Smartlink Ethernet-based architecture, EGX-based architecture, or several IFE or Acti 9 Smartlink Ethernet architecture
3. The editing devices function

Each configuration part is described further in this section.

In addition, you have direct access to the **Communication settings** screen, the **Editing devices** screen, and the **General settings** menu with the three upper right icons. Refer to the icon list in appendices for a description of each icon.

Each time you modify the communication network, it is recommended to update the communication settings.

General Settings

The following table describes the steps you go through with the setting wizard to configure the FDM128 display unit general settings:

Step	Screen	Action
1	Welcome	Touch the screen to start the wizard.
2	Language selection	Press the desired language. In the footer, press the down arrow icon to access the next step.
3	Date	Press the up/down arrows icons to set the current year, month, and day. In the footer, press the down arrow icon to access the next step.
4	Time	Press the up/down arrows icons to set the current hour and minute. In the footer, press the down arrow icon to access the next step.
5	Phase ID	Press one of the two possible ways to represent the phases 1,2,3,N, or A,B,C,N. In the footer, press the down arrow icon to access the next step.
6	Units of measurement	Select the units of measurement for the analog input of the IO modules: • The unit of temperature (°C or °F) • The unit of volume (m³ or gallon US or gallon UK)
7	Brightness	Press the +/- icons to adjust the brightness level of the display. In the footer, press Finish . The setting wizard displays the Selection of the communication architecture screen to allow you to set up the FDM128 communication. Follow the communication settings procedure that corresponds to your network architecture.

Communication Settings for IFE Gateway- or Acti 9 Smartlink Ethernet Gateway-based Architecture

This procedure is applicable when:

- The FDM128 display unit is connected to an IFE gateway ([see page 13](#)).
- The FDM128 display unit is connected to an Acti 9 Smartlink Ethernet gateway ([see page 14](#)).

The FDM128 setting wizard guides you through the following steps:

Step	Action
1	In the Selection of the communication architecture screen, select IFE-based architecture or Acti 9 Smartlink IP-based architecture .
2	Configure the FDM128 display unit within the network. Set the following parameters: • The FDM128 IP address • The subnet mask • The subnet default gateway

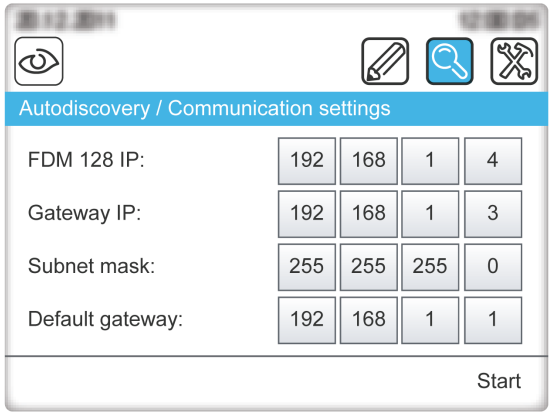
Step	Action
3	Press YES to indicate that the FDM128 display unit is connected to an IFE gateway or Acti 9 Smartlink Ethernet gateway.
4	Set the IP address of the IFE gateway or Acti 9 Smartlink Ethernet gateway.
5	Press Start to launch the autodiscovery sequence. Up to 16 devices are displayed.
6	Select up to eight devices among the devices displayed.
7	If you selected fewer than 8 devices among the devices displayed, you can configure manually extra IFE or Acti 9 Smartlink Ethernet devices.
8	Press Finish . The FDM128 display unit can now monitor the list of selected devices. The setting wizard displays the Editing devices screen to allow you to edit the label and name of the devices.

The setup of Acti 9 Smartlink devices is not included in the wizard. To set up an Acti 9 Smartlink device, open its Device view ([see page 41](#)) and press the **Setup** button.

Communication Settings for EGX Gateway-based Architecture

This procedure is applicable when the FDM128 display unit is connected to a PowerLogic EGX300 gateway ([see page 16](#)).

The FDM128 setting wizard guides you through the following steps:

Step	Action
1	In the Selection of the communication architecture screen, select EGX300-based architecture .
2	Configure the FDM128 display unit with the EGX300 gateway Ethernet parameters. Set the following parameters: • The FDM128 IP address • The EGX300 gateway IP address • The subnet mask • The subnet default gateway 
3	Press Start to launch the autodiscovery sequence. Up to 16 devices are displayed.
4	Select up to eight devices among the discovered devices.
5	Press Finish . The FDM128 display unit can now monitor the list of selected devices. The setting wizard displays the Editing devices screen to allow you to edit the label and name of the devices.

The setup of Acti 9 Smartlink devices is not included in the wizard. To set up an Acti 9 Smartlink device, open its Device view ([see page 41](#)) and press the **Setup** button.

Communication Settings for Several IFE or Acti 9 Smartlink Ethernet Architecture

The procedure corresponds to the FDM128 display unit connected to several IFE or Acti 9 Smartlink Ethernet (see page 16).

The FDM128 setting wizard guides you through the following steps:

Step	Action
1	In the Selection of the communication architecture screen, select IFE-based architecture or Acti 9 Smartlink IP-based architecture .
2	Configure the FDM128 display unit within the network. Set the following parameters: • The FDM128 IP address • The subnet mask • The subnet default gateway
3	Press NO to indicate that there is no gateway.
4	Configure manually up to 8 IFE or Acti 9 Smartlink Ethernet devices.
5	Press Finish . The FDM128 display unit can now monitor the list of selected devices. The setting wizard displays the Editing devices screen to allow you to edit the label and name of the devices.

The setup of Acti 9 Smartlink devices is not included in the wizard. To set up an Acti 9 Smartlink device, open its Device view (see page 41) and press the **Setup** button.

Autodiscovery

The autodiscovery sequence detects up to 16 devices on the network. These devices are displayed sorted in ascending address order, with the address indicated in the first column.

NOTE: The 16 detected devices are those with the 16 first addresses.

Among the detected devices, you can select a maximum of eight devices.

The FDM128 display unit guides you through the following autodiscovery procedure:

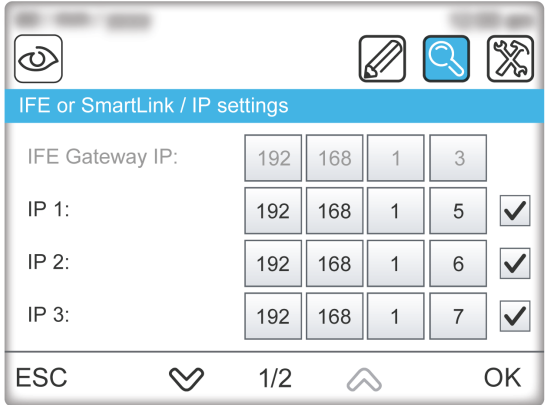
Step	Action
1	The autodiscovery sequence is started during the communication settings procedure. A progress bar is displayed during the autodiscovery sequence. The sequence duration is around 5 minutes.
2	In the list of the discovered devices: • Press the crossed check box to deselect unwanted devices. • Press the empty check box to select wanted devices.
3	Press Finish . The Editing devices screen appears.

NOTE: By default, the eight devices with the 8 first addresses are selected.

Manual Configuration

You configure manually devices either after an autodiscovery sequence, or if you do not have a IFE or Acti 9 Smartlink gateway.

To configure devices manually during the device settings sequence, proceed as follows:

Step	Action
1	On the configuration screen, tick the check boxes of the number of IFE or Acti 9 Smartlink devices to configure. 
2	For each selected device, set its IP address.
3	Press OK .

Editing Devices

When the communication network is configured, you can use the FDM128 display unit to:

- Provide a label to each device. The label is defined in **ID** field and is only displayed in the FDM128 display unit.
- Rename a device. The name is defined in **Name** field and is the actual name of the device. Renaming a device may require to use the password of the device.

The **ID** field contains up to 4 characters.

The **Name** field contains up to 12 characters.

NOTE: Press **OK** to validate the communication settings and reach the operation mode.

Power Loss

In case of power loss, the FDM128 display unit retains the settings.

At power recovery, the FDM128 display unit displays a screen to set date and time. The rest of the configuration remains set.

General Settings During Operation

During operation, you can access the **General settings** menu by pressing .

Chapter 4

Operation

What Is in This Chapter?

This chapter contains the following topics:

Topic	Page
General View	36
Real-Time Alarms	37
Device View for Circuit Breakers	38
Device View for Acti 9 Smartlink Devices	41

General View

Overview

The **General view** menu allows you to monitor up to 8 selected devices through summarized information.

There are two display modes:

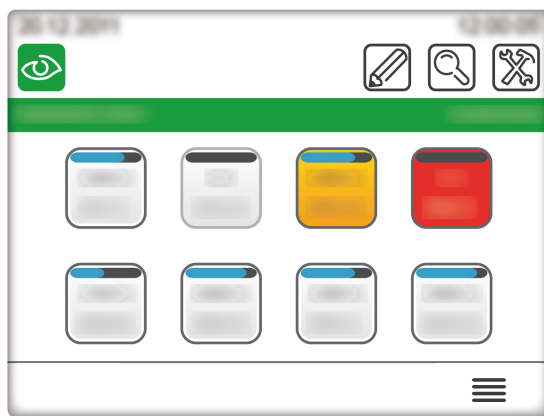
- Icon
- List

You can switch between the two modes by pressing the corresponding icon in the lower right corner of the screen.

From this menu, you can reach the **Device view** screens of the monitored devices:

- Device view for circuit breakers, dedicated to Compact, PowerPact, Masterpact circuit breakers ([see page 38](#)).
- Device view for Acti 9 Smartlink devices ([see page 41](#)).

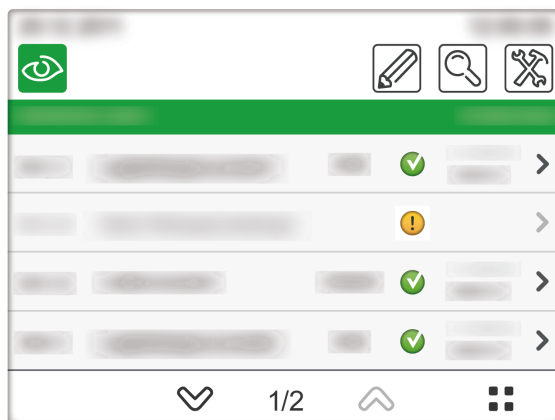
Icon Mode



In the icon mode, the eight devices are displayed on one screen, each one by an icon.

To reach a **Device view**, press the corresponding icon.

List Mode



In the list mode, four devices are displayed per screen, one per line.

To reach **Device view**, press the ➤ icon on the corresponding line.

Real-Time Alarms

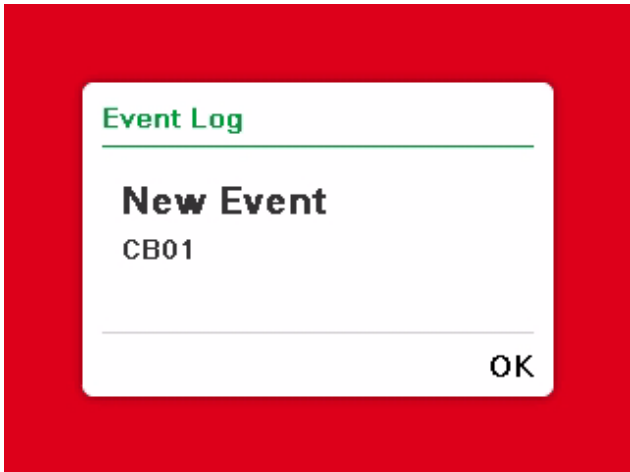
Overview

Alarms are displayed differently according to their priority level.

NOTE: The alarms must be acknowledged on the circuit breakers. There is no acknowledgement from the FDM128.

Alarms for Circuit Breakers

The circuit breaker pre-defined alarms are displayed on the FDM128 display unit as follows:

Alarm Priority	Description
High	When a high-priority alarm occurs, the FDM128 screen shows a pop-up window. The following window represents an example of an alarm on circuit breaker CB01.  You must close this window before returning to the General view. This alarm also appears as a red icon on the General view screen and on the title bar of the Device view screen.
Medium	When a medium-priority alarm occurs, an orange icon appears on the General view screens and on the title bar of the Device view screens.
Low	Low-priority alarms are only registered in the alarm history and viewable in the Alarm history submenu.

NOTE: The circuit breaker alarms configured with the customer engineering tool are only registered in the alarm history and viewable in the Alarm history submenu. For information about a customer engineering tool, refer to the circuit breaker documentation.

Alarms for Circuit Breakers Connected to Acti 9 Smartlink Devices

Alarms are raised depending on the type of circuit breaker:

- Acti 9 circuit breakers: when an alarm occurs, the FDM128 screen shows a pop-up window. You must close this window before returning to the **General view**. This alarm also appears as a red icon on the **General view** screen and in the corresponding Acti 9 Smartlink **Device view (Status)**.
- Other circuit breakers: an alarm appears as a red icon on the **General view** screen and in the corresponding **Device view (Status)**.

An example of this type of circuit breaker is the item C in the schema FDM128 display unit connected to an Acti 9 Smartlink Ethernet ([see page 14](#)).

Device View for Circuit Breakers

Overview

For each submenu selected in the left tab of the main area, a headpiece allows you to navigate through the tabs. Press the corresponding tab title to display it.

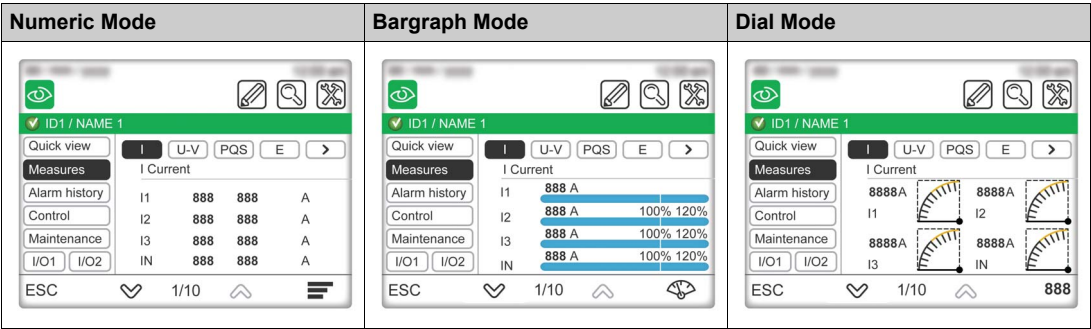
Data displayed in the **Device view** screen depends on the circuit breaker and the type of Micrologic trip unit installed. Refer to the relevant *Micrologic user guides*.

Measure Display Modes

The measures can be displayed in three modes:

- Numeric mode
- Bargraph mode
- Dial mode

You can switch between the three modes by pressing the corresponding icon in the lower right corner of the screen.



Quick View

The **Quick view** submenu displays the status and main measures of a single circuit breaker.

There is no tab in this submenu.

Measures

The **Measures** submenu displays the measures of a single circuit breaker.

NOTE: You can reset the minimum and maximum values by pressing the **R** icon.

The tabs are the following:

- **I**
- **V**
- **PQS**
- **E**
- **F-PF-Cosφ**
- **THD**

Alarm History

The **Alarm history** submenu gives access to the various histories of the circuit breaker.

The table presents the description and number of records of each history according to the circuit breaker.

Tab	Description	Compact NSX and PowerPact H-, J-, and L-Frame Circuit Breakers Number of Records	Masterpact NT/NW, Compact NS and PowerPact P- and R-Frame Circuit Breakers Number of Records
Trip	Trip history	17	10
Alarm	Alarm history	10	–
Mainten.	Operation history	10	–
BSCM	BSCM event history	10	–

Each record is summarized on three lines:

- Code
- Date and time of event occurrence and completion
- Designation

Control

DANGER

HAZARD OF ELECTRIC SHOCK

- Check that the downstream electrical equipment is safe.
- Check that you control the appropriate circuit breaker.

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

CAUTION

HAZARD OF CLOSING ON ELECTRICAL FAULT

Do not close the circuit breaker again without first inspecting and, if necessary, repairing the downstream electrical equipment.

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

Before controlling a circuit breaker, you have to:

- Ensure that Masterpact NT/NW, Compact NS, or PowerPact P-frame circuit breakers are equipped with a BCM ULP and communicating coils MX and XF or a communicating motor mechanism.
- Ensure that Compact NSX or PowerPact H-, J-, and L-frame circuit breakers are equipped with a BSCM and a communicating motor mechanism in automatic mode.
- Ensure that the circuit breaker is in remote control mode.
- Ensure that you know the circuit breaker password. The password is set with the customer engineering tool of the circuit breaker.
- When the circuit breaker is connected to an IFE or IFM, ensure that the IFE or IFM locking pad points to the unlocked position.

The **Control** submenu allows you to check the status and to execute actions remotely to actuate the circuit breaker.

The table presents the possible actions depending on the circuit breaker:

Action	Circuit breaker
Open	All circuit breakers
Close	All circuit breakers
Reset	Compact NSX and PowerPact H-, J-, and L-frame circuit breakers only

The FDM128 display unit takes you through the following sequence:

Step	Action
1	In the submenu Control , press the action for the target circuit breaker. A password popup is displayed.
2	Enter the circuit breaker password. A confirmation popup is displayed.
3	Press YES . The following operations occur: 1. The command is sent to the circuit breaker. 2. The circuit breaker executes the command. 3. When the execution of the command is finished, a result popup is displayed with a failure or success message.
4	Press OK to close the result popup.

Maintenance

The table presents the use of each tab of the **Maintenance** submenu:

Tab	Use
Information	Displays the contact wear rate, load profile, and the circuit breaker counter values.
Product ID	Displays the identification data of all ULP modules of the intelligent modular unit.
Reset	Resets the maximum values, minimum values, and energy counters of all ULP modules of the intelligent modular unit.

I/O1 and I/O2

For each connected IO module, the **I/O1** and **I/O2** submenus allow you to:

- Check the status of its inputs.
- Control its outputs.
- Read its pulse counters.

Before controlling an IO module output, you have to:

- Ensure that the output is assigned with the customer engineering tool of the circuit breaker.
- Ensure that you know the IO module password. The password is set with the customer engineering tool of the circuit breaker.
- When the IO module is connected to an IFE or IFM, ensure that the IFE or IFM locking pad points to the unlocked position.

The **Control** submenu allows you to check the status and to execute actions remotely to actuate the IO module output.

The possible actions are to open or close the output.

The FDM128 display unit takes you through the following sequence:

Step	Action
1	In the submenu Control , press the action for the target output. A password popup is displayed.
2	Enter the IO module password. A confirmation popup is displayed.
3	Press YES . The following operations occur: 1. The command is sent to the output. 2. The output executes the command. 3. When the execution of the command is finished, a result popup is displayed with a failure or success message.
4	Press OK to close the result popup.

Device View for Acti 9 Smartlink Devices

Overview

For each submenu selected in the left tab of the main area, a headpiece allows you to navigate through the tabs. Press the corresponding tab title to display it.

Data displayed in the **Device view** screen depends on the Acti 9 Smartlink device. Refer to the relevant user guides.

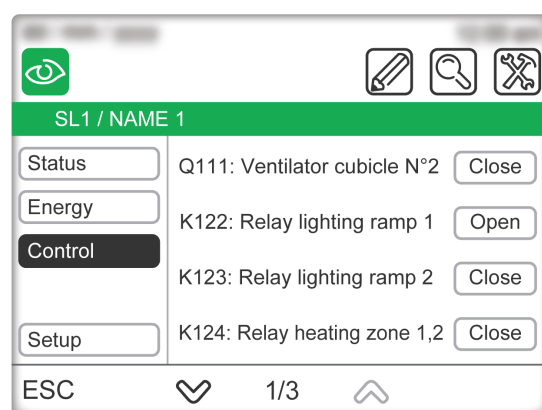
Each Acti 9 Smartlink device concentrates data from connected devices on its channels.

Monitoring Information

Depending on the type of the connected device, the **Device view** displays:

- The status of the device
- The energy measured by the device
- Buttons to control other devices connected to the device

The layout of the **Device view** for an Acti 9 Smartlink device is as follows:



Control

DANGER

HAZARD OF ELECTRIC SHOCK

- Check that the downstream electrical equipment is safe.
- Check that you control the appropriate circuit breaker.

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

CAUTION

HAZARD OF CLOSING ON ELECTRICAL FAULT

Do not close the circuit breaker again without first inspecting and, if necessary, repairing the downstream electrical equipment.

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

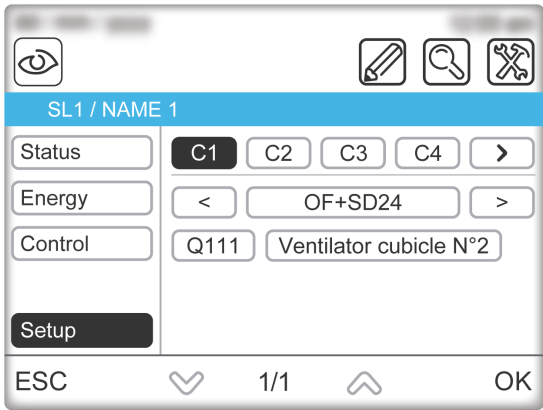
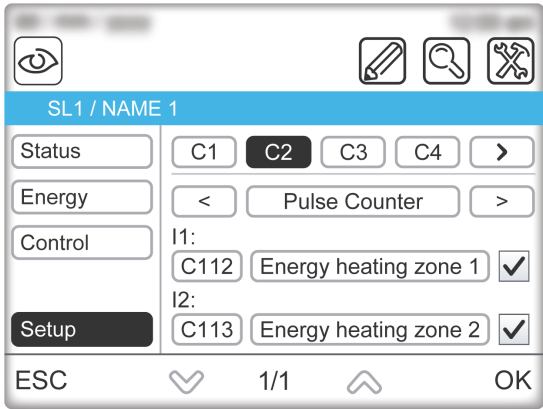
The procedure to control an Acti 9 Smartlink device is as follows:

Step	Action
1	In the submenu Control , press the action (Open or Close) for the target device. A confirmation popup is displayed.
2	Press YES . The following operations occur: 1. The command is sent to the device. 2. The device executes the command. 3. When the execution of the command is finished, a result popup is displayed with a detected failure or success message.
3	Press OK to close the result popup.

Setup

The **Setup** view allows you to configure the channels of an Acti 9 Smartlink device.

For each channel to configure:

Step	Action
1	In the Setup menu, select the channel C• .
2	Select the type of the device connected on this channel. Examples of types: OF+SD24, Pulse Counter, iACT24.  NOTE: The selection of a device type not corresponding to the connected device can lead to misleading information.
3	If you selected the type Pulse Counter, check the box of the input pulse counters for this channel. Edit the label and name for each checked pulse counter. 
4	Edit the label and name of the associated device.
5	Once you have configured all channels, press OK to exit the Setup menu.

Chapter 5

Update and Maintenance

What Is in This Chapter?

This chapter contains the following topics:

Topic	Page
Software Update	44
Monitored LV Device Update	46
Regular Cleaning	47
Troubleshooting Checklists	48
Protecting the Environment	49

Software Update

Prerequisites

To update the FDM128 display for 8 LV devices software, you have to get a USB stick.

This USB stick must be:

- Formatted in FAT32 system format
- Empty

DANGER

HAZARD OF ELECTRICAL SHOCK

- Ensure that the zone is safe before connecting or disconnecting the USB key.
- Use the USB connector for a temporary connection during maintenance and configuration of equipment.

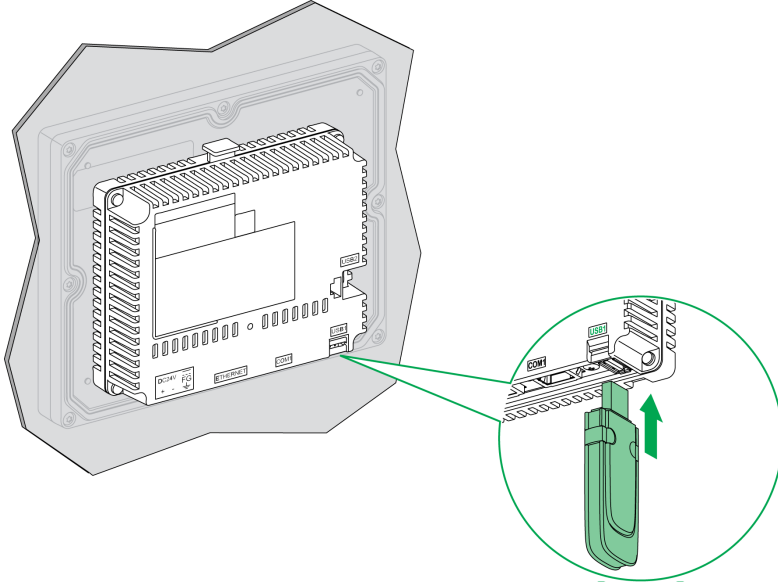
Failure to follow these instructions will result in death or serious injury.

Software Download

Step	Action
1	Go to the Schneider Electric home page www.schneider-electric.com .
2	In the Search box, type the reference of the FDM128 display unit (LV434128) or the name of the product offer (FDM128). • Do not include leading or trailing blank spaces in the search string. • To get information on similar modules, use asterisks (*).
3	If you entered the reference, go to the Product datasheets search results. If you entered the name of the product offer, go to the Product Offer search results. Click the link of the FDM128 display unit product.
4	Click Documents & Downloads , then click Software/Firmware . The list of available software for the FDM128 display unit is displayed.
5	Click the link FDM128xxx.zip or the download icon  of the FDM128 software version you want to download. Save the .zip file on your computer.

Installation

After downloading the software, update the FDM128 display unit as follows:

Step	Action
1	Extract files from the .zip file.
2	Load the extracted files in the USB memory key.
3	Plug the USB key to the FDM128 display unit in the USB1 port. 
4	Follow the instructions displayed on the FDM128 screen.

Monitored LV Device Update

Adding New LV Devices

Step	Action
1	Ensure that settings of the new LV devices are compliant with the prerequisites (see page 30).
2	Press the  icon to update the FDM128 communication settings (see page 33).

Removing Selected LV Devices

Step	Action
1	Disconnect the LV devices from the network.
2	Press the  icon to update the FDM128 communication settings (see page 33).

Replacing Micrologic

After replacing a Micrologic trip unit, press the  icon to update the FDM128 communication settings ([see page 33](#)).

Adding or Removing a Device Connected to an Acti 9 Smartlink Device

Step	Action
1	Depending on your needs: ● Connect the device to the Acti 9 Smartlink device. ● Disconnect the device from the Acti 9 Smartlink device.
2	Open the Acti 9 Smartlink Device view (see page 41) and press the Setup button.
3	Select the channel of the device to add or remove.
4	If you are: ● Adding a device, set the device type and enter the label and the name of the device. ● Removing a device, set the device type to Not configured.

Regular Cleaning

Cleaning the Display

NOTICE

EQUIPMENT DAMAGE

- Power off the FDM128 before cleaning it.
- Do not use hard or sharp objects to operate the touch panel since it can damage the panel surface.
- Do not use paint thinner, organic solvents, or a strong acid compound to clean the FDM128.

Failure to follow these instructions can result in equipment damage.

When the surface or the frame of the display gets dirty, soak a soft cloth in water with a neutral detergent, wring the cloth tightly, and wipe the display.

Troubleshooting Checklists

Introduction

DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel.
- Before working on the equipment, ensure that you are working in a safe area

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

When a problem is detected, go through the checklist and follow the instructions given.

Possible problems that could occur when using a FDM128 display unit are:

- Panel display is blank.
- Connected equipment cannot be used.
- Panel does not respond or responds slowly.
- Panel beeps when powered on.
- Cannot change the date or time.

NOTE: Contact your local Schneider Electric vendor or your local distributor.

Panel Display Is Blank

If the display is blank, perform the following check steps:

Step	Check/Operation	Solution
1	Is the FDM128 display unit using the correct rated voltage?	Verify the power supply connections and levels.
2	Is the power supply off or disconnected?	Follow the instructions in the Instruction Sheet to reconnect the power supply.
3	Is the backlight lit?	Potential detected problem with the FDM128 display unit. Contact your local Schneider Electric distributor.
4	Is the problem resolved?	If none of the previous steps fixed the blank panel display detected problem, then verify the hardware.

Display Replacement

The FDM128 display can be replaced by the spare part reference HMIS85.

Connected Equipment Cannot Be Used

If the FDM128 display unit does not communicate with connected equipment, perform the following check steps:

Step	Check/Operation	Solution
1	Is the power supply off or disconnected?	Verify the power supply connections and levels.
2	Is the communication cable connected correctly?	Refer to the FDM128 display for 8 LV devices <i>Instruction Sheet</i> for information about cable diagrams.
3	Is the problem resolved?	If none of the previous steps fixed the communication problem, then check the hardware.

Protecting the Environment

Recycling Packaging

The packaging materials from this equipment can be recycled. Please help protect the environment by recycling them in appropriate containers.

Thank you for playing your part in protecting the environment.

End-of-Life Recycling

At end of life, the FDM128 display unit has been optimized to decrease the amount of waste and valorize the components and materials of the product in the usual end of life treatment process.

The design has been achieved so components are able to enter the usual end-of-life treatment processes as appropriate: depollution if recommended, reuse and/or dismantling if recommended to increase the recycling performances, and shredding for separating the rest of materials.

Appendices



Appendix A

FDM128 Icons

Icon List

Header Icons

Icon	Description
	Go to General view menu
	Go to Editing devices menu
	Go to Communication settings menu
	Go to General settings menu

Footer Icons

Icon	Description
	Go to next screen
	Go to previous screen
	Switch to bargraph mode
	Switch to numeric mode
	Switch to dial mode

Action Icons

Icon	Description
	Reset measures or counters
	Reset circuit breaker
	Decrease level
	Increase level
	Display next tabs
	Display previous tabs

Alarm Status Icons

Icon	Description
	Circuit breaker status is OK
	Circuit breaker is offline
	Medium priority alarm is occurring
	High priority alarm is occurring

Circuit Breakers Status Icons

Icon	Description
	Circuit breaker is charged
	Circuit breaker is discharged
	Circuit breaker is closed
	Circuit breaker is open
	Withdrawable circuit breaker is connected
	Withdrawable circuit breaker is disconnected
	Capacitive load
	Inductive load
	Test active
	Test disabled



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As standards, specifications and designs change from time to time, please ask for confirmation of the information given in this publication.

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