XPSMCMC10804E(G)

Instruction Sheet

(Original Language)

BQT3608801.01
06/2024

https://www.go2se.com/ref=XPSMCMC10804E

www.se.com

Legal Information

The information provided in this document contains general descriptions, technical characteristics and/or recommendations related to products/solutions.

This document is not intended as a substitute for a detailed study or operational and site-specific development or schematic plan. It is not to be used for determining suitability or reliability of the products/solutions for specific user applications. It is the duty of any such user to perform or have any professional expert of its choice (integrator, specifier or the like) perform the appropriate and comprehensive risk analysis, evaluation and testing of the products/solutions with respect to the relevant specific application or use thereof.

The Schneider Electric brand and any trademarks of Schneider Electric SE and its subsidiaries referred to in this document are the property of Schneider Electric SE or its subsidiaries. All other brands may be trademarks of their respective owner.

Schneider Electric reserves the right to make changes or updates with respect to or in the content of this document or the format thereof, at any time without notice.

To the extent permitted by applicable law, no responsibility or liability is assumed by Schneider Electric and its subsidiaries for any errors or omissions in the informational content of this document, as well as any non-intended use or misuse of the content thereof.

Table of Contents

About the Book

Document Scope

This information is about the usage and configuration of the XPSMCMC10804E(G) Modular Safety Controller.

Validity Note

The characteristics of the products described in this document are intended to match the characteristics that are available on www.se.com. As part of our corporate strategy for constant improvement, we may revise the content over time to enhance clarity and accuracy. If you see a difference between the characteristics in this document and the characteristics on www.se.com, consider www.se.com to contain the latest information.

Available Languages of this Document

This document is available in these languages:

- English (BQT3608801)
- French (BQT3608802)
- German (BQT3608803)
- Italian (BQT3608804)
- Spanish (BQT3608805)
- Chinese (BQT3608806)
- Portuguese (BQT3608807)
- Turkisch (BQT3608808)

Trademark

Schneider Electric has made every effort to supply trademark information about company names, products, and services mentioned in this manual.

EtherCAT® is a registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.

PROFINET® is a registered trademark of the PROFIBUS NutzerOrganisation e.V. (PNO).

Product Related Information

The XPSMCM• can reach a maximum Safety Integrity Level (SIL) 3 as per IEC 61508:2010 and as per IEC 62061:2021, and a maximum Performance Level (PL) e, category 4, as per EN ISO 13849-1:2015.

The module must be configured in accordance with the application-specific risk analysis and all the applicable standards.

Pay particular attention in conforming to any safety information, different electrical requirements, and normative standards that would apply to your adaptation.

⚠WARNING

INSUFFICIENT SAFETY-RELATED FUNCTIONS

- Perform a risk assessment as per ISO 12100 and/or other equivalent assessment and appropriately consider all applicable regulations and standards that apply to your machine/process before using this software.
- In your risk assessment, determine all requirements regarding the Safety Integrity Level (SIL), the Performance Level (PL), and any other safety-related requirements and capabilities applicable to your machine/process.

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

Consult the specific product documentation and the relative product and/or application standards to use the modules connected to the XPSMCMC10804E(G) in your specific application.

⚠WARNING

UNAUTHENTICATED ACCESS AND SUBSEQUENT UNAUTHORIZED MACHINE OPERATION

- Evaluate whether your environment or your machines are connected to your critical infrastructure and, if so, take appropriate steps in terms of prevention, based on Defense-in-Depth, before connecting the automation system to any network.
- Limit the number of devices connected to a network to the minimum necessary.
- Isolate your industrial network from other networks inside your company.
- Protect any network against unintended access by using firewalls, VPN, or other, proven security measures.
- Monitor activities within your systems.
- Prevent subject devices from direct access or direct link by unauthorized parties or unauthenticated actions.
- Prepare a recovery plan including backup of your system and process information.

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

For more information on organizational measures and rules covering access to infrastructures, refer to ISO/IEC 27000 series, Common Criteria for Information Technology Security Evaluation, ISO/IEC 15408, IEC 62351, ISA/IEC 62443, NIST Cybersecurity Framework, Information Security Forum - Standard of Good Practice for Information Security and refer to Cybersecurity Guidelines for EcoStruxure Machine Expert, Modicon and PacDrive Controllers and Associated Equipment.

Information on Non-Inclusive or Insensitive Terminology

As a responsible, inclusive company, Schneider Electric is constantly updating its communications and products that contain non-inclusive or insensitive terminology. However, despite these efforts, our content may still contain terms that are deemed inappropriate by some customers.

XPSMCMC10804E(G) Modular Safety Controller

Safety-related Information

The safety-related function can be compromised if this equipment is not used for the intended purpose and in accordance with the instructions in the present document. This equipment must only be used as safety-related equipment on machines intended to protect persons, material, and installations.

⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Disconnect all power from all equipment including connected input devices, contactors, and drives prior to removing any covers or doors, or installing or removing any accessories, hardware, cables, or wires.
- Install and use this equipment only in locations known to be non-hazardous.
- Do not use the equipment described herein to supply external equipment.
- Always use properly rated voltage sensing equipment to confirm that the power is removed.
- Avoid contacting terminals with hand or tools until the power has been confirmed removed.
- Follow all electrical safety regulations and standards (for example, lockout/tag-out, phase grounding, barriers) to reduce the possibility of contact with hazardous voltages in the work area.
- Remove locks, tags, barriers, temporary ground straps, and replace and secure all covers, doors, accessories, hardware, cables, and wires and confirm that a proper ground connection exists before reapplying power to the unit.
- Complete thorough hardware tests and system commissioning to verify that line voltages are not present on the control circuits before using your hardware operationally.
- Use only the specified voltage when operating this equipment and any associated products.

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

⚠ DANGER

LOSS OF DESIGNATED SAFETY FUNCTION

- Install the equipment in an enclosure with a degree of protection of at least IP 54, according to IEC 60529.
- Use a Protective Extra Low Voltage (PELV) power supply according to IEC 60204-1.
- Do not directly connect the equipment to line voltage.

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

⚠ DANGER

POTENTIAL FOR EXPLOSION

Install and use the equipment in non-hazardous locations only.

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

The observation of operating limits and duty cycles is of particular importance for equipment designed to perform a safety-related function. If this module has been subjected to electrical, mechanical, or environmental stresses in excess of its stated limits, do not use it.

⚠ WARNING

UNINTENDED EQUIPMENT OPERATION

- Do not exceed any of the rated operating limits for the equipment specified in the present document.
- Immediately cease using and replace any equipment that has or might have been subjected to conditions in excess of its rated operating limits.

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

There are no user-serviceable parts in this equipment. For reasons of safety and compliance, only the manufacturer should perform repairs to this equipment.

⚠WARNING

LOSS OF SAFETY-RELATED FUNCTION

Do not attempt to repair or alter this equipment.

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

Qualified Personnel

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.

Modular Safety Controller

Key safety values	Value	Standard
Probability of a dangerous failure per hour (PFHd)	2.89E-08(3)	IEC 61508
Maximum Safety Integrity Level (SIL)	3	
Hardware Fault Tolerance (HFT)	1 (type B)	
Defined “Safe state”(1)	All outputs off	
Maximum Safety Integrity Level (SIL)	3	IEC 62061
Type	4	IEC 61496-1

Key safety values	Value	Standard
Performance Level (PL)(2)	e	ISO 13849-1
Diagnostic $Coverage_{avg}$	High	
Mean Time to Dangerous Failure (MTTFd)	125 years with Category 4 architecture, otherwise 100 years(3)	
Category(2)	4	
Maximum service life	20 years	

(1) The Modular Safety Controller and expansion modules are in the defined safe state when their safety-related outputs are deactivated. To exit the defined safe state condition, a combination of hardware inputs is required.

(2) The EN ISO 13849-1 performance level (PL) and safety category (Cat) of the overall system depend on multiple factors, including the selected modules, wiring practices, the physical environment, and the application.

(3) If expansion modules are added to the configuration, the PFHd and the MTTFd of the overall system are affected, refer to the SoSafe Configurable Project Report.

⚠WARNING

UNINTENDED EQUIPMENT OPERATION

- You must carry out a risk assessment in accordance with ISO 12100.
- Validate the entire system/machine in accordance with the required performance level and risk assessment.

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

Controller and Function Description

XPSMCMC10804E(G) is a Modular Safety Controller providing eight safety-related inputs and four solid-state safety-related outputs, which can be used as four single or two dual OSSDs (Output Signal Switching Devices), and can be configured using SoSafe Configurable. Industrial Ethernet based communication is embedded (Multi-protocol EtherCAT, Ethernet/IP, Modbus TCP and PROFINET). In addition, the Modular

Safety Controller can be combined with a number of expansion modules through the backplane expansion bus.

Configuration of the controller: The XPSMCMC10804E(G) Modular Safety Controller requires the SoSafe Configurable software version 1.9.0 or greater for configuration of the controller and the system. The controller has a USB 2.0 port with a USB-C socket for connection to the PC with the configuration software. The PC must provide a USB 2.0 port or greater. You need a matching cable to connect PC and controller.

Optional memory card: An optional backup memory card can be installed in the XPSMCMC10804E(G) Modular Safety Controller and used to store the software configuration parameters.

NOTE: The XPSMCMC10804E(G) Modular Safety Controller must be the module furthest to the right in an installation of other modules, due to the position of the bus connection. If this is not suitable, use the TBUS adapter available from Phoenix Contact, part number 2201756, ME 22.5 TBUS ADAPTER KMGY, to connect expansion modules to the right of the controller.

Safety-Related Inputs

The XPSMCMC10804E(G) Modular Safety Controller provides eight digital inputs for connection of safety-related input devices such as emergency stop push-buttons, magnetic switches, light curtains.

Input *RESTART_FBK* (*RST_FBK*)

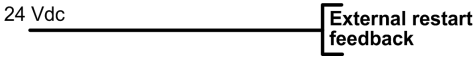
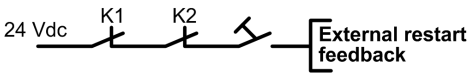
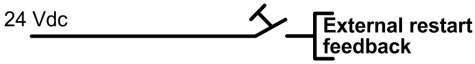
The *RESTART_FBK (RST_FBK)* signal input allows the XPSMCMC10804E(G) controller to verify an EDM (External Device Monitoring) feedback signal (series of contacts) from external contactors, and to monitor manual/automatic operation.

⚠WARNING

UNINTENDED EQUIPMENT OPERATION

- The *RESTART* command device must be installed outside the zone of operation in a position where the zone of operation and the entire work area concerned are clearly visible.
- It must not be possible to operate the *RESTART* command device from inside the zone of operation.

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

Operation mode	EDM	`Restart_fbk`
Automatic	With `K1_K2` control	
	Without `K1_K2` control	
Manual	With `K1_K2` control	
	Without `K1_K2` control	

Output *STATUS* (SIL 1/PL c in Accordance with Standard IEC 61508:2010)

The status outputs are configurable digital diagnostic outputs that indicate the status of safety-related inputs and/or outputs.

Four status outputs are available on the XPSMCMC10804E(G) Modular Safety Controller. The status outputs are shared with the feedback/ restart inputs of the OSSDs.

NOTE: To use the status outputs, the corresponding OSSD must be used with automatic reset without external feedback monitoring. For example, to use the *RESTART_FBK1/STATUS1* as *STATUS* (Terminal 7), you must configure *OSSD1* (by means of SoSafe Configurable) with automatic reset without K feedback monitoring.

The status outputs are SIL 1/PL c outputs.

⚠WARNING

INSUFFICIENT SAFETY-RELATED FUNCTIONS

Do not use status outputs for safety-related purposes greater than SIL 1/PL c (IEC 61508:2010).

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

Output *TEST*

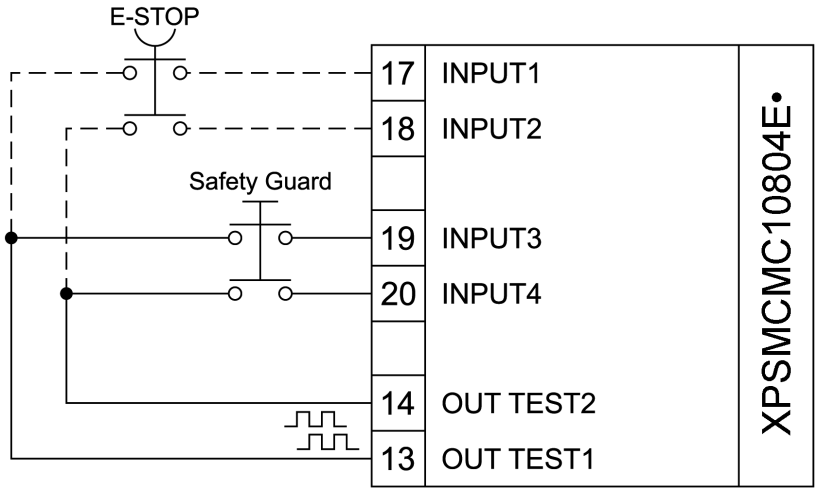
The *TEST* outputs are to be used with the input circuits of the Modular Safety Controller.

The *TEST* outputs must be used to monitor the presence of cross circuits or short-circuits on the inputs. Connecting the test outputs helps to reach PL e in accordance with ISO 13849-1 and maximum SIL 3 in accordance with IEC 62061.

NOTE: These safety levels can also be obtained by applying other means of fault exclusion as described in ISO 13849-2.

NOTE: The test outputs of a specific module can only be linked to the inputs of the same module.

Each test output is able to drive a maximum of four inputs in parallel.



Interface Type C, class 3 according to "ZVEI CB24I Ed.2" with a maximum test pulse duration of 120 µs.

Solid-State Safety-Related Output (*OSSD*)

⚠WARNING

UNINTENDED EQUIPMENT OPERATION

Do not connect any equipment to an OSSD unless the OSSD is appropriately configured with SoSafe Configurable.

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

The four *OSSD* safety-related outputs are short-circuit protected.

The outputs are able to supply:

- In the ON condition: (Uv - 0.75 V)...Uv (24 Vdc ± 20%);
- In the OFF condition: 0...2 Vrms (root mean square)

The maximum load current of 400 mA (per OSSD). The minimum resistive load is 60 Ω.

The maximum capacitive load is 0.82 µF.

The maximum inductive load is 2 mH.

Interface Type C, class 3 according to "ZVEI CB24I Ed.2" with a maximum test pulse duration of 120 µs.

Different output configurations (configurable with SoSafe Configurable) can be set:

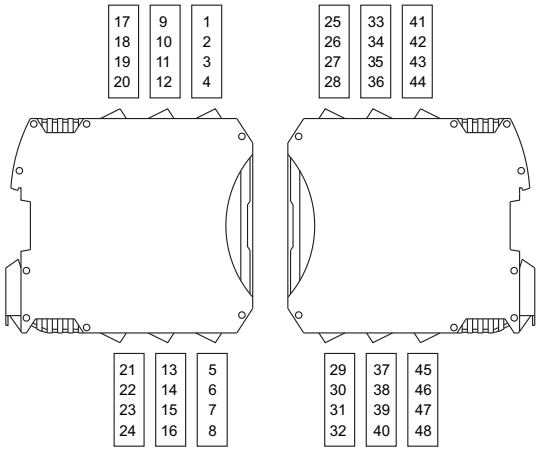
- 4 single channels (1 safety-related output per channel with its corresponding feedback input).
- 2 dual channels (2 safety-related outputs with their corresponding feedback input per channel).
- 1 dual channel and 2 single channels.

The following table indicates how each *OSSD* output can be configured:

Automatic	The output is activated according to the configurations set by the SoSafe Configurable software, only if the corresponding *RESTART* input is connected to Uv (24 Vdc ± 20%).
Manual	The output is activated according to the configurations set by the SoSafe Configurable software, only if the level at the corresponding *RESTART* input changes from 0 Vdc to Uv (24 Vdc ± 20%).
Monitored	The output is activated according to the configurations set by the SoSafe Configurable software, only if the level at the corresponding *RESTART* input changes from 0 Vdc to Uv (24 Vdc ± 20%) and back to 0 Vdc.

Terminals

Terminal numbers



Terminal	Signal	LED	Type	Description	Operation
1	24 VDC	PWR	-	24 Vdc power supply	-
2	N.C.	–	–	–	–
3	N.C.	–	–	–	–
4	0 VDC	PWR	-	0 Vdc power supply	-
5	OSSD1	OSSD 1	Output	Safety-related output 1	PNP active at Uv (24 Vdc ± 20%).
6	OSSD2	OSSD 2	Output	Safety-related output 2	
7	RESTART_FBK1/ STATUS1	RST_ FBK/ STATUS 1	Input/ output	Feedback/ Restart 1 for OSSD1	Input type 3 according to IEC 61131-2. Maximum resistance 1.2 kΩ.
				Configurable output 1	Configurable output (SIL 1/PL c in accordance with IEC 61508:2010)

Terminal	Signal	LED	Type	Description	Operation
8	RESTART_FBK2/ STATUS2	RST_ FBK/ STATUS 2	Input/ output	Feedback/ Restart 2 for OSSD2	Input type 3 according to IEC 61131-2. Maximum resistance 1.2 kΩ.
				Configurable output 2 for OSSD2	Configurable output (SIL 1/PL c in accordance with IEC 61508:2010)
9	OSSD3	OSSD 3	Output	Safety-related output 3	PNP active at Uv (24 Vdc ± 20%).
10	OSSD4	OSSD 4	Output	Safety-related output 4	
11	RESTART_FBK3/ STATUS3	RST_ FBK/ STATUS 3	Input/ output	Feedback/ Restart 3 for OSSD3	Input type 3 according to IEC 61131-2. Maximum resistance 1.2 kΩ.
				Configurable output 3 for OSSD3	Configurable output (SIL 1/PL c in accordance with IEC 61508:2010)
12	RESTART_FBK4/ STATUS4	RST_ FBK/ STATUS 4	Input/ output	Feedback/ Restart 4 for OSSD2	Input type 3 according to IEC 61131-2. Maximum resistance 1.2 kΩ.
				Configurable output 4 for OSSD2	Configurable output (SIL 1/PL c in accordance with IEC 61508:2010)
13	OUT_TEST1	-	Output	Test output for detection of short circuits/ cross circuits in input circuits	PNP active at 24 Vdc.
14	OUT_TEST2	-			
15	OUT_TEST3	-			
16	OUT_TEST4	-			

Terminal	Signal	LED	Type	Description	Operation
17	INPUT1	IN 1	Input	Safety-related input 1	Input type 3 according to IEC 61131-2. Maximum resistance 1.2 kΩ.
18	INPUT2	IN 2		Safety-related input 2	
19	INPUT3	IN 3		Safety-related input 3	
20	INPUT4	IN 4		Safety-related input 4	
21	INPUT5	IN 5		Safety-related input 5	
22	INPUT6	IN 6		Safety-related input 6	
23	INPUT7	IN 7		Safety-related input 7	
24	INPUT8	IN 8		Safety-related input 8	

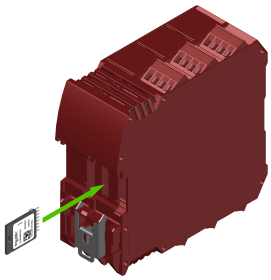
⚠WARNING

UNINTENDED EQUIPMENT OPERATION

Do not connect wires to unused terminals and/or terminals indicated as "No Connection (N.C.)" or Not Connected.

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

Optional Configuration Memory Card

Presentation	Rear view of the controller
The XPSMCMME0000 memory card can be installed in the Modular Safety Controller and is used to save/ restore the hardware/software configuration. The XPSMCMME0000 memory card is specific to the XPSMCMC10804E(G) controller, and therefore, only this reference can be used within the controller. The memory card is only written to using SoSafe Configurable software during download of the configuration. If the memory card is inserted without any configuration, the XPSMCMC10804E(G) controller continues to operate usually with the previously loaded configuration held in its non-volatile memory. If a memory card is inserted with a configuration which does not match the one contained in the controller, the configuration on the memory card will overwrite that which is in the controller, erasing definitively the previous configuration therein. That is, all data (password included) previously contained in XPSMCMC10804E(G) controller will be overwritten.	

⚠WARNING

UNINTENDED EQUIPMENT OPERATION

- First remove power from the Modular Safety Controller before attempting to insert or remove the memory card.
- Each time the memory card is used, carefully verify that the loaded configuration is the one that was intended for the particular system.
- Conduct a full functional test (see *Validation* in the *Modular Safety Controller User Guide*) of the system, composed of the Modular Safety Controller plus all input and output hardware connected to it, after using the memory card to overwrite your safety-related application.

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

Multiple load function: To perform the configuration of several XPSMCMC10804E(G) Modular Safety Controllers without using a PC and the USB connector, you can save the desired configuration on a

single memory card and then use it to download data on the XPSMCMC10804E(G) Modular Safety Controllers.

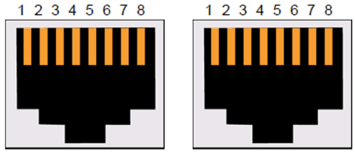
Restore function: If the XPSMCMCP0802(G) or XPSMCMC10804(G) controller is to be replaced, replace it with a new XPSMCMCP0802(G) or XPSMCMC10804(G) Modular Safety Controller. When the memory card has been used, remove the memory card from the previous controller, insert the memory card in the new controller, and apply power. The configuration of the memory card is automatically loaded into the new controller.

Embedded Communication Interface

The embedded communication interface supports four protocols (Modbus TCP, Ethernet IP, EtherCAT, and PROFINET).

Selection of the protocol and setup of the fieldbus parameters can be done using SoSafe Configurable 1.9.0 or greater. Refer to the *Modular Safety Controller, Software and Library Guide*, for details about the configuration software. Refer to the *Modular Safety Controller, Communication Guide* for details about the data mapping.

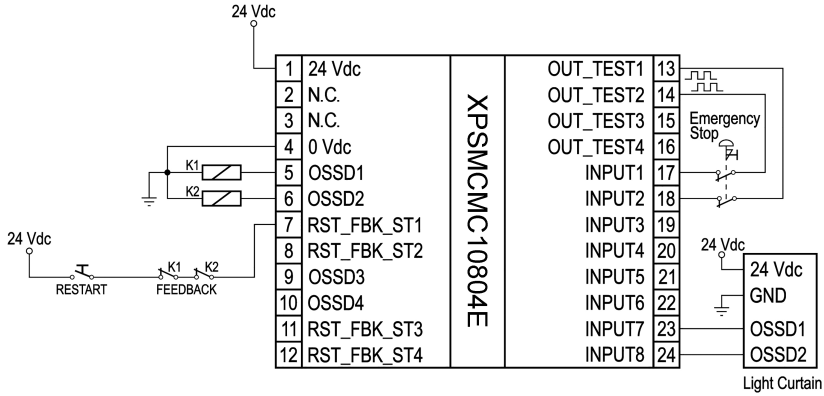
Communication Ports Characteristics

Ports and PIN number	ETH 1 and ETH 2 (Ethernet/IP, EtherCat, Modbus TCP and PROFINET)  RJ45 - female
Wiring	PIN/Signal 1/ Tx+ 2/ Tx- 3/ Rx+ 4/ not used 5/ not used 6/ Rx- 7/ not used 8/ not used
Baud rate	10/100 Mbit/s (full duplex)

Wiring Example

Category 4 wiring for XPSMCMC10804E(G) with feedback of the contactors K1 and K2:

- With use of the dedicated feedback input of the (double) OSSD



NOTE: Best practice dictates the use of fusing on the incoming 24 Vdc power, and sized appropriately for the requirements of the module.

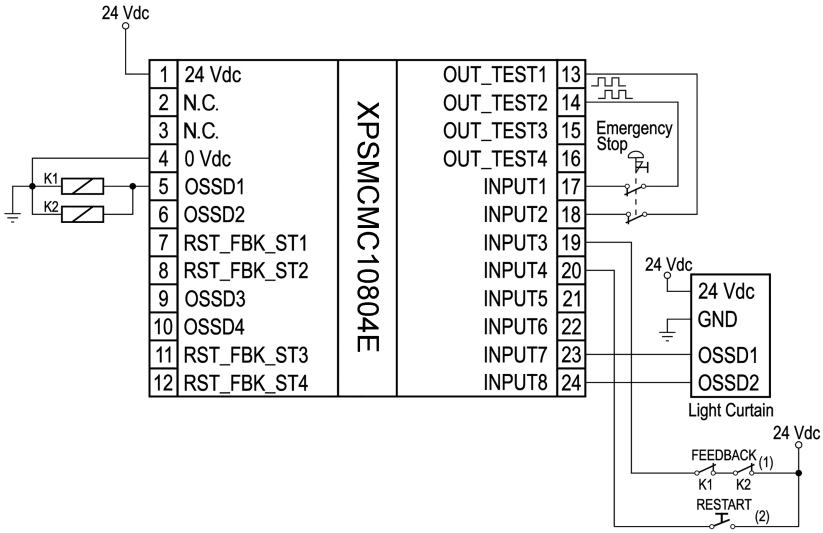
⚠WARNING

UNINTENDED EQUIPMENT OPERATION

Do not connect wires to unused terminals and/or terminals indicated as "No Connection (N.C.)" or Not Connected.

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

- With single OSSD and use of general inputs and dedicated function blocks for EDM and restart configuration



(1) Inputs connected to the *OSSD EDM* functional block

(2) Inputs connected to the *USER RESTART MANUAL, USER RESTART MONITORED or MACRO RESTART MANUAL, MACRO RESTART MONITORED* function block.

NOTE: Best practice dictates the use of fusing on the incoming 24 Vdc power, and sized appropriately for the requirements of the module.

To achieve Performance Level PL e, according to standard EN 13849-1, the OSSD safety-related outputs must be independent.

Reduce Common Cause Failures (CCF) of OSSD safety-related outputs by separating cable paths (refer to ISO 13849-2 for event exclusion).

⚠WARNING

UNINTENDED EQUIPMENT OPERATION

Run single channel, dual wiring in separate cabling.

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

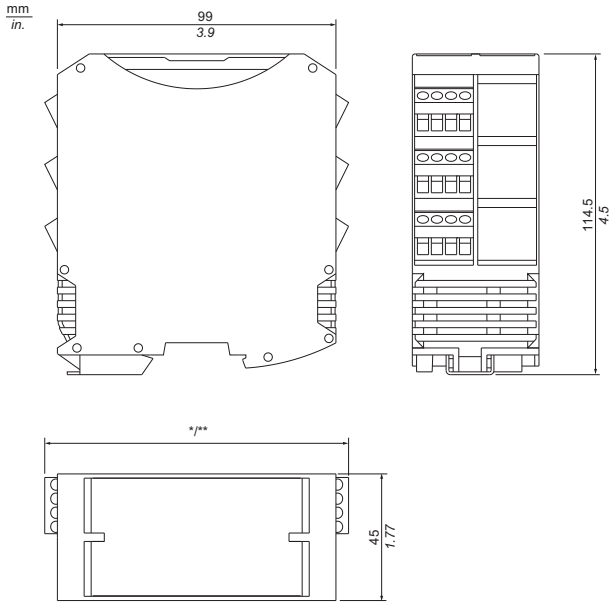
⚠WARNING

UNINTENDED EQUIPMENT OPERATION

Do not connect wires to unused terminals and/or terminals indicated as "No Connection (N.C.)" or Not Connected.

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

Dimensions



***** Screw terminals 108 mm (4.25 in)

****** Spring terminals 118 mm (4.67 in)

Mount the modules (Modular Safety Controller and any I/O expansion modules) in an electric cabinet with an IP54 degree of protection. The minimum clearance below and above the controller is 40 mm (1.57 in). Allow at least 100 mm (3.93 in) distance between the cabinet door and the front face of the module(s). There are no clearances required on the left or right side of the module(s), but for XPSMCMDO00042A(G) module an additional distance to adjacent modules is mandatory (see Modular Safety Controller, Hardware Guide). Other equipment in proximity may require larger distances and those clearances must also be taken into account.

Technical Data

Cable types and wire sizes

for a 5.08 pitch removable **screw** terminal block

mm / in. 7 / 0.28								
mm^2	0.2…2.5	0.2…2.5	0.25…2.5	0.25…1.5	2 x 0.2…1	2 x 0.2…1.5	2 x 0.25…1	2 x 0.5...1.5
AWG	*24…14*	*24…14*	*23...14*	*23...16*	*2 x 24…18*	*2 x 24…16*	*2 x 23…18*	*2 x 20...16*

Ø 3,5 mm (*0.14 in.*)	C	N•m	0.5
		lb-in	*4.42*

for a 5.08 pitch removable **spring** terminal block (used by XPSMCM•••G).

mm / in. 10 / 0.39					
mm^2	0.2…2.5	0.2…2.5	0.25…2.5	0.25…2.5	2 x 0.5...1
AWG	*24…14*	*24…14*	*23...14*	*23...14*	*2 x 20...18*

The following instructions concerning connection cables must be observed:

- Use 60/75 °C copper (Cu) conductor only. Maximum cable length 100 m (328 ft).
- Cables used for connections of longer than 50 m (164 ft) must have a cross-section of at least 1 mm^2 (AWG 16).

Mechanical Characteristics	
Housing material	Polyamide
Housing degree of protection	IP20

Mechanical Characteristics	
Terminal blocks degree of protection	IP2x
Mounting	35 mm DIN rail according to IEC 60715
Mounting position	Vertical or horizontal
Dimensions (h x l x d)	• with screw terminals: 108 x 45 x 114.5 mm (4.25 x 1.78 x 4.5 in) • with spring terminals: 118.5 x 45 x 114.5 mm (4.67 x 1.78 x 4.5 in)
Weight	0.225 kg (7.93 oz)

General characteristics	
Rated voltage	24 Vdc ± 20 % (PELV supply according to IEC 60204-1)
Dissipated power	4 W maximum
Overvoltage category	II
Ambient operating temperature	-10...+55 °C (14...131 °F), for vertical or horizontal mounting position
Storage temperature	-20...+85 °C (-4...185 °F)
Relative humidity	10...95%
Maximum operation altitude	2000 m (6562 ft)
Pollution degree	2
Vibration resistance (IEC 61496-1)	+/- 0.35 mm (0.014 in) 10...55 Hz
Bump resistance (IEC 61496-1)	10 g (16 ms half-sine)

Timing characteristics			
XPSMCMC10804E(G) Response time (ms) The response time depends on the following parameters: • Number of expansion modules installed • Number of operators • Number of OSSD outputs • Status outputs For the overall system response time, refer to the one calculated by SoSafe Configurable (see project report). T_{Input_filter} = filtering time set in the project for the inputs. For details, refer to the Input functions (see Modular Safety Controller, Library and Programming Guide).	Controller (XPSMCM-C10804E(G))	13.95...19.95	+ T_{Input_filter}
	Controller + 1 expansion module	15.03...40.16	+ T_{Input_filter}
	Controller + 2 expansion modules	16.11...42.32	+ T_{Input_filter}
	Controller + 3 expansion modules	17.19...44.48	+ T_{Input_filter}
	Controller + 4 expansion modules	18.27...46.64	+ T_{Input_filter}
	Controller + 5 expansion modules	19.35...48.80	+ T_{Input_filter}
	Controller + 6 expansion modules	20.43...50.96	+ T_{Input_filter}
	Controller + 7 expansion modules	21.51...53.12	+ T_{Input_filter}
	Controller + 8 expansion modules	22.59...55.28	+ T_{Input_filter}
	Controller + 9 expansion modules	23.67...57.44	+ T_{Input_filter}
	Controller + 10 expansion modules	24.75...59.60	+ T_{Input_filter}
	Controller + 11 expansion modules	25.83...61.76	+ T_{Input_filter}
	Controller + 12 expansion modules	26.91...63.92	+ T_{Input_filter}
	Controller + 13 expansion modules	27.99...66.08	+ T_{Input_filter}
	Controller + 14 expansion modules	29.07...68.24	+ T_{Input_filter}

Controller and system specific characteristics	
Maximum number of inputs of a complete MCM system	128
Maximum number of OSSD safety-related outputs of a complete MCM system	32
Maximum number of expansion modules (excluding XPSMCMER00••(G))	14
Maximum number of expansion modules of the same reference (excluding XPSMCMER00••(G))	4
Safety-related input (number / description)	8 / Input type 3 according to IEC 61131-2. Maximum resistance 1.2 kΩ.
Restart input (optional to status output) (number / description)	4 / For start means and EDM (External Device Monitoring), inputs type 3 according to IEC 61131-2. Maximum resistance 1.2 kΩ. Possible automatic restart function or manual operation with restart pushbutton.
Status outputs (optional to restart input) (number / description)	4 / SIL 1/PL c in accordance with standard IEC 61508:2010. Maximum current per output: 100 mA, nominal voltage 24 Vdc.
Test output (number / description)	4 / For cross circuit/short circuit monitoring, maximum current 100 mA, nominal voltage 24 Vdc.
Controller to controller connection by use of the Network function	Maximum 10 Modular Safety Controllers with distance of up to 100 m (328 ft) between each controller.

Controller and system specific characteristics	
Solid-state safety-related output (OSSD)	4 / solid-state safety-related outputs PNP active high • Interface type C class 3 (ZVEI CB24I Ed.2) • The outputs are able to supply: ◦ In the ON condition: (Uv-0.6 Vdc)...Uv (24 Vdc ± 20 %) ◦ In the OFF condition: 0...2 Vrms (root mean square) • The maximum load current of 400 mA (per OSSD) corresponds to a minimum resistive load of 60 Ω. ◦ The maximum capacitive load is 0.82 µF. ◦ The maximum inductive load is 2 mH. • Test pulses are used to detect short circuits and interruptions of wire continuity. The switch-off test pulse interval is every 600 ms, the maximum test pulse duration is 120 µs.
Connection to PC	Controller side: USB 2.0, no isolation, USB type C socket. PC side: USB 2.0 or greater, maximum cable length: 3 m (9.84 ft).
Connection to expansion modules	5-way backplane expansion
Slot for memory card	Yes
Supported fieldbus protocols	EtherNet/IP, MODBUS/TCP, PROFINET, EtherCAT

Checklist After Installation

The following must be verified:

Step	Action
1	Conduct a full functional test of the system (see *Validation* in the *Modular Safety Controller Library and Programming Guide*.)
2	Verify that all the cables are correctly inserted and the terminal blocks are within correct torque for screw terminals.
3	Verify that all the LED indicators are correctly illuminating for the inputs and outputs used.
4	Verify the positioning and function of all input and output sensors and actuators used with the XPSMCM•.
5	Verify the correct mounting of XPSMCM• to the DIN rail.
6	Verify that all the external indicators (lamps/beacons/sirens) are correctly functioning.

⚠WARNING

UNINTENDED EQUIPMENT OPERATION

- Use shielded cables for communication signals and any I/O that may be susceptible to electromagnetic radiation.
- Ground cable shield at a single point(1).
- Route communication and I/O cables separately from power cables.

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

[1]Multipoint grounding is permissible (and in some cases inevitable) if connections are made to an equipotential ground plane dimensioned to help avoid cable shield damage in the event of power system short-circuit currents.

Schneider Electric Automation GmbH
Schneiderplatz 1
97828 Marktheidenfeld
Germany

+ 33 (0) 1 41 29 70 00

www.se.com

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

BQT3608801.01