ETAL120.0X90-1

User's manual

Version: **1.00 (December 2020)**
Order no.: **User's manual**

Translation of the original documentation

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Chapter 1 • Introduction

1 Manual history

Version	Date	Change
1.00	December 2020	First version

1.1 INFOBOX: Current user's manual

Information:

B&R makes every effort to keep documents as current as possible. The most current versions can be downloaded from the B&R website (www.br-automation.com).

2 Intended use

These products are developed and produced exclusively for training and development in the area of automation. Any use beyond this is not permitted, in particular the integration of these products or parts thereof in machines, systems or other devices and processes. B&R does not assume liability for damages of any kind that occur when using the products outside of training and development or for harm that results from modifying the products. Expansions using products from the ETA system or ETA light system series are permitted.

In addition, the products are only permitted to be used in closed rooms (such as laboratories, offices and classrooms) that do not require separate protective equipment. Trainers shall inform the trainees of the relevant safety guidelines and precautions before using the product.

3 Organization of notices

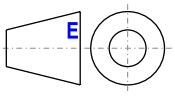
Safety guidelines

Contain **only** information that warns of dangerous functions or situations.

Signal word	Description
Danger!	Failure to observe these safety guidelines and notices will result in death, severe injury or substantial damage to property.
Warning!	Failure to observe these safety guidelines and notices can result in death, severe injury or substantial damage to property.
Caution!	Failure to observe these safety guidelines and notices can result in minor injury or damage to property.
Notice!	Failure to observe these safety guidelines and notices can result in damage to property.

Contain **useful** information for users and instructions for avoiding malfunctions.

Signal word	Description
Information:	Useful information, application tips and instructions for avoiding malfunctions.



European dimension standards apply to all dimension diagrams.

All dimensions in millimeters.

Unless otherwise specified, the following general tolerances apply:

Nominal dimension range	General tolerance per DIN ISO 2768 medium
Up to 6 mm	±0.1 mm
Over 6 to 30 mm	±0.2 mm
Over 30 to 120 mm	±0.3 mm
Over 120 to 400 mm	±0.5 mm
Over 400 to 1000 mm	±0.8 mm

4 Safety notices

4.1 Safety notices

Warning!

Observe safety notices

Disregarding safety notices can result in serious damage to property and personal injury.

The safety notices on the product and in the documentation must be observed.

Products that cannot be ensured as safe due to damage, for example, are not permitted to be started up under any circumstance. Disturbances that impair general safety must be eliminated immediately.

4.2 Usage

This product is designed and manufactured for training and development. General safety guidelines must be observed at all times.

Caution!

Risk of injury

Disregarding safety notices can result in serious damage to property and personal injury.

The data sheets of components and the safety notices contained therein must be observed.
For a list of the components used, see the technical data of this product.

4.2.1 Power supply

The product was manufactured and developed to be used on ETA light system products. The operating and display elements used do not provide sufficient protection against contact with live parts and parts that could become live in the event of error. The power supply must be provided by a PELV power supply unit from the ETA light system portfolio in order to ensure the safety of the user.

Danger!

Electric shock

Electric shocks may occur if unsuitable power supplies are used.

The product is only permitted be operated on modules and devices that are supplied by the power supply units (PELV) available in the ETA light system accessories!

Danger!

Dangerous voltages

Using the product on modules and devices with unsuitable power supply may result in electric shock.

The product is equipped with color-coded (gray) and mechanically keyed terminal blocks to prevent a connection to X20 modules that are not compatible with the terminal blocks.

The product is only permitted be operated on modules and devices that are supplied by the power supply units (PELV) available in the ETA light system accessories!

4.3 Responsibilities of the operator

The operator is the person who operates the product or who provides it for use/application by a 3rd party while carrying legal product responsibility for the protection of the user, personnel or other 3rd parties.

- The operator is obliged to know and implement the applicable industrial safety regulations.
- The operator is obliged to know and implement national, local and plant-specific regulations.
- The operator is obliged to clearly define and manage responsibilities for installation, operation, fault correction, maintenance and cleaning.
- The operator is obliged to ensure that responsible personnel have read and understood this user's manual.

Chapter 2 • System characteristics

1 General information

The ETAL120.0X90-1 is used as the power supply for the ETAL210.0X90-1. In addition, operating and display elements are integrated to implement different exercises.

This product is prepared for connection to ETAL210.0X90-1.

ETAL120.0X90-1 - Keypad module, prewired for X90CP174.48-xx

- Completely wired, ready to go.
- No additional power supply required.
- 1 button, 1 maintained button
- 1 green and one yellow illuminated actuator
- 1 Emergency stop
- Potentiometer for analog value input

2 Order data

Model number	Short description	Figure
	Simulation and input devices	
ETAL120.0X90-1	Keypad module with RAFI built-in elements, 1 selector switch, 1 illuminated key, 1 illuminated actuator, 1 emergency stop, 1 potentiometer drive, prewired on CMC header for ETAL210.0X90-1	

Table 1: ETAL120.0X90-1 - Order data

Chapter 3 • Technical data

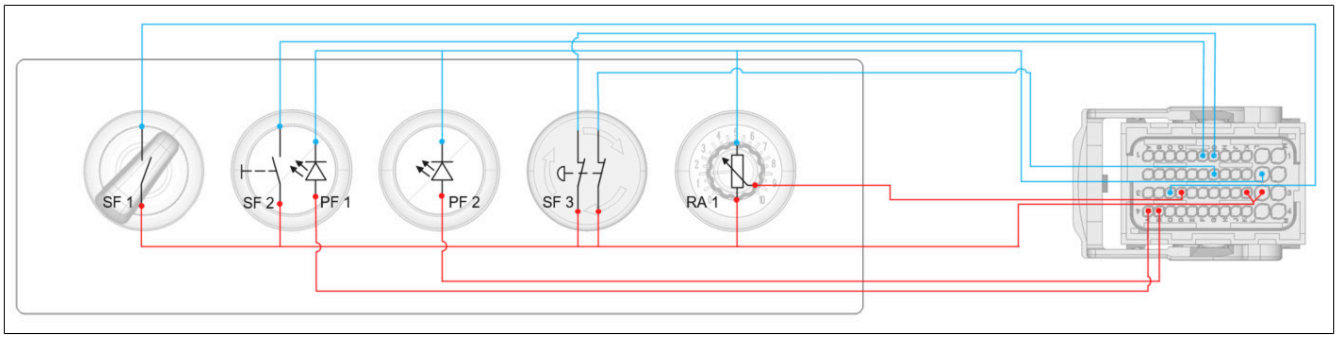
Model number	ETAL120.0X90-1
Features	
Pushbuttons	
Quantity	1
Type	RAFIX 22 FS+ illuminated
Selector switch	
Quantity	1
Type	RAFIX 22 FS+ selector switch 1x90°, maintained
Emergency switch-off	
Quantity	1
Type	RAFIX 22 FS, emergency switching-off device, not illuminated, tamper-proof per DIN EN ISO 418, non-blocking
Potentiometer	
Quantity	1
Type	RAFIX 22QR potentiometer drive
Optional operating elements	
Quantity	1
Type	RAFIX22 FS+ illuminated actuator yellow
Mechanical properties	
Dimensions	
Width	300 mm
Height	90 mm
Depth	70 mm

Table 2: ETAL120.0X90-1 - Technical data

Chapter 4 • Wiring

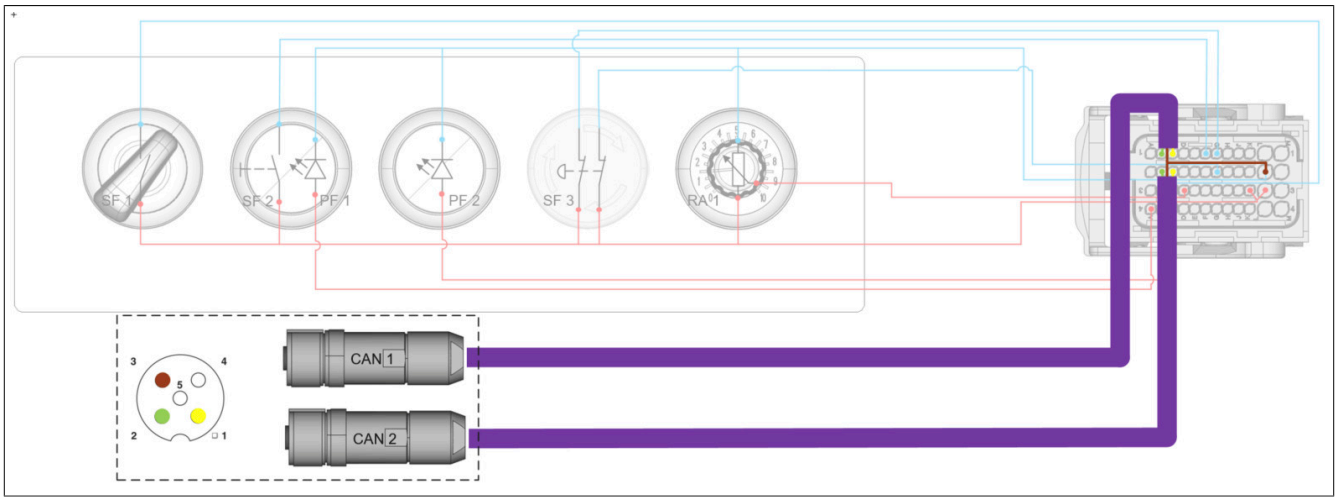
1 Circuit

I/O connection



Sensor/Actuator	Signal designation	Terminal name	Configuration
X1.A			
Selector switch (SF 1)	Enable pin	X1.A - C3	None
Button (SF 2)	MF-DI 1	X1.A - F1	Digital input in sink configuration 9 kΩ input resistance
Emergency stop (SF 3)	MF-DI 3	X1.A - G1	Digital input in sink configuration 9 kΩ input resistance
Emergency stop (SF 3)	MF-DI 4	X1.A - G2	Digital input in sink configuration 9 kΩ input resistance
Signal lamp (PF 1)	MF-DO 4A 1	X1.A - B4	Digital output
Signal lamp (PF 2)	MF-DO 4A 2	X1.A - A4	Digital output
Potentiometer (RA 1)	MF-AI 1	X1.A - D3	Analog input 0-32 V

CAN interfaces



Interface	Signal	Color	Terminal name
CAN 1			
	CAN_Low	Green	X1.A - B2 / connector pin 2
	CAN_High	Yellow	X1.A - C2 / connector pin 1
	Ground	Brown	X1.A - L2 / connector pin 3
CAN 2			
	CAN_Low	Green	X1.A - B1 / connector pin 2
	CAN_High	Yellow	X1.A - C1 / connector pin 1
	Ground	Brown	X1.A - L2 / connector pin 3

2 Compatibility

This product is intended to be used with the ETAL210.0X90-1. Using this product in combination with other X90 components is possible in principle, but requires a thorough examination of whether the I/O configuration matches the wiring of this product.

Information:

Check whether the terminal block can be used on the desired device. For additional information, see the data sheet of the product used.

Warning!

If the wiring of the product does not match the X20 components used, personal injury and damage to property may occur.

Chapter 5 • Maintenance

The following chapter describes the maintenance work that can be carried out by a qualified and trained end user.

Information:

Only components approved by B&R are permitted to be used for maintenance work.

1 Repairs/Complaints and replacement parts

Danger!

Unauthorized opening or repair of a device may result in personal injury and/or serious damage to property. Repairs are therefore only permitted to be carried out by authorized qualified personnel at the manufacturer's premises.

To process a repair/complaint, a repair order or complaint must be created via the B&R Material Return Portal on the B&R website (www.br-automation.com).

Chapter 6 • Environmentally friendly disposal

All programmable logic controllers, operating and monitoring devices and uninterruptible power supplies from B&R are designed to have as little impact on the environment as possible.

1 Separation of materials

To ensure that devices can be recycled in an environmentally friendly manner, it is necessary to separate out the different materials.

Component	Disposal
Programmable logic controllers Operating and monitoring devices Uninterruptible power supplies Batteries and rechargeable batteries Cables	Electronics recycling
Paper/Cardboard packaging	Paper/Cardboard recycling
Plastic packaging material	Plastic recycling

Disposal must be carried out in accordance with applicable legal regulations.

Publishing information

Publishing information

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