StageSmarts Xr24 & Xr48

User Manual

StageSmarts

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Xr24, Xr48 User Manual version 1.3 (2026-07-22)
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Safety information

Warning! ***Read the following important safety information before connecting or using the StageSmarts Xr series unit. If you are in any doubt about how to use the unit safely or about the information in this user manual, contact StageSmarts for advice before applying power to the unit.***

The following symbols are used to identify important safety information in this user manual:

Warning! Safety hazard. Risk of severe injury or death.

Warning! Hazardous voltage. Risk of lethal or severe electric shock.

Warning! See user manual for important safety information.

Warning! Fire hazard.

Follow the safety precautions listed below and observe all warnings in this user manual and printed on the StageSmarts Xr series unit. Keep this manual for future use. Before connecting or using the Xr series unit, visit the StageSmarts website at http://www.stagesmarts.com and make sure that you have the latest user documentation for the unit.

The Xr24 or Xr48 must be used only by professional persons with technical training and a thorough understanding of power distribution systems and their potential hazards. The unit presents risks of severe or lethal electric shock, physical injury or fire.

Respect all locally applicable laws, codes and regulations when operating the Xr series unit.

Do not attempt to carry out any repairs on the Xr series unit. Refer all repairs and any service operation not described in this manual to StageSmarts or one of its authorized service partners. Do not try to carry out any repairs or unauthorized service yourself, as doing so may involve serious or lethal safety hazards. It may also cause damage or malfunction and may void your product warranty.

Do not try to modify the Xr series unit in any way not described in this user manual. Connect and operate the Xr series unit only as directed in this user manual, or you may create a serious or lethal safety hazard. You may also cause damage that is not covered by product warranties.

Electrical safety

- Make sure that the Emergency Stop button on the Xr series unit is easily accessible at all times so that it is possible to shut down power to the installation immediately in an emergency. Check that all professionals working on site know where the Emergency Stop button is located and that they can access the button.
- Do not expose the Xr series unit to moisture or allow it to become wet. Do not use or store the Xr series unit outdoors or in wet conditions.
- Use the Xr series unit only in a location that is inaccessible to members of the public.

- Display notices with recognized warning symbols such as the ones used in this user manual around the Xr series unit and the rest of the installation to give sufficient warning of the presence of high-voltage electrical hazards.
- Ensure that the Xr series unit is electrically connected as described in this user manual to a protective earth (ground) that has been tested and complies with BS 7909, EN 50110-1 or the local equivalent standard for temporary electrical installations.
- Use only a source of AC power that complies with local electrical codes and has overload protection.
- Make sure that all cables used for power input, throughput and output are of a suitable type for their application and have suitable electrical ratings for their load. Use only power cables that comply with BS 7909 or the local equivalent standard for temporary electrical installations.
- Protect the Xr24/Xr48 and all power cables from the possibility of damage. Locate them inside protective enclosures if necessary.
- Use only connectors of the types specified in this user manual.
- Before using the Xr series unit, check that all connectors are correctly engaged. If connectors have a locking mechanism, check that they are correctly locked.
- Before using the Xr series unit – and at regular intervals – check that all power distribution equipment and cables are in perfect condition. Isolate the fixture from power immediately if any circuit breaker, cable, connector or other component appears to be damaged, defective, deformed, wet or showing signs of overheating. Contact StageSmarts for advice on having repairs carried out. Do not reapply power until repairs have been completed.
- Test the earth leakage protection on all outputs at least once per month as a scheduled safety routine.
- Test all temporary electrical installations on site immediately after assembly on site. Test installations at shows, exhibitions and similar events in accordance with IEC 60364-6-61.

Fire safety

- Ensure that there is free and unobstructed airflow around the Xr series unit. Provide a minimum clearance of 100 mm (4 in.) around all air vents.
- Do not use the Xr series unit if the ambient temperature exceeds 45° C.
- Keep flammable materials well away from the unit.
- Do not modify the Xr series unit in any way that is not described in this user manual.
- Do not install any parts in the Xr series unit that are not supplied or authorized by StageSmarts.

Physical safety

- Observe all locally applicable workplace safety regulations.
- Use the Xr series unit only when securely mounted in a 19-inch rack.

Introduction

The Xr series units from StageSmarts are 19-inch rackmount (12U for Xr24 and 18U for Xr48) power distribution unit that represents the latest in event power distribution and is designed and manufactured to meet the latest EN norms and the highest standards.

The Xr series unit uses industrial grade (EN 60947-2) circuit breakers and are designed to withstand dusty conditions. All circuit breakers are of the magnetic-hydraulic type, offering temperature-stable operation and superior reliability.

All internal circuits use halogen-free wiring and crimped or screwed connections.

Xr series

The Xr series consists of the following models:

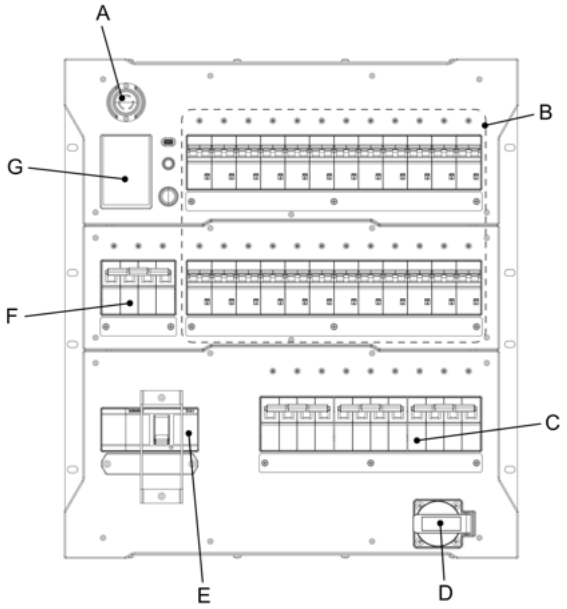
	Xr24	**Xr48**
Main output channels	24	48
X-slots	Up to 4	Up to 6
Output channels sensor option	Yes	
Output channel relay option	Yes	
Convenience socket output	1	
GPIO option	Yes (4 out, 2 in)	
Independent Ethernet ports	2	
Standard output module options	4x Socapex 18 8x Socapex 18 (double) 3x Harting 16 (1-2 pinning) 3x Harting 16 (1-9 pinning) 4x Harting 16 (1-2 pinning) 4x Harting 16 (1-9 pinning) 24x powerCON TRUE1	
X-slot output options	2x powerCON TRUE1 + Outlet socket (1 phase outputs) CEE 16A CEE 32A CEE 63A Wilco 32 Wilco 40 Wilco 50	
Outlet socket options (for X-slot and convenience socket)	Schuko 16A FR 16A UK 13A IT 16A AU 15A CH T23 16A	

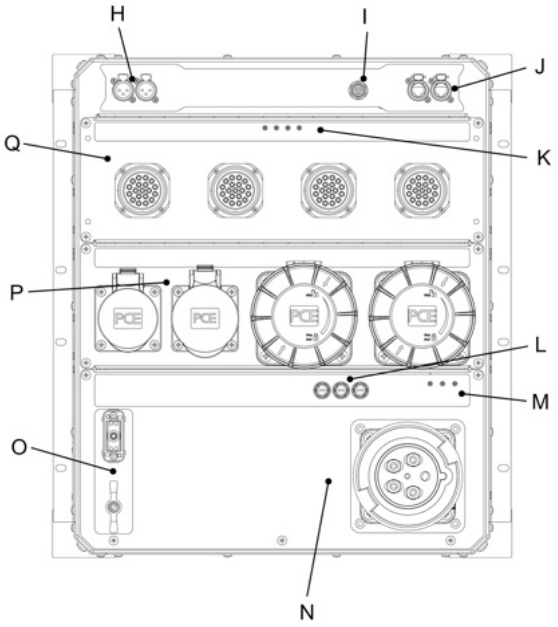
Preparing for use

Before you begin using the Xr24 or Xr48:

- Read the safety information section of this user manual.
- Make sure that professionals working at the site will have good access, especially to the Emergency Stop button on the front panel.

Overview Xr24

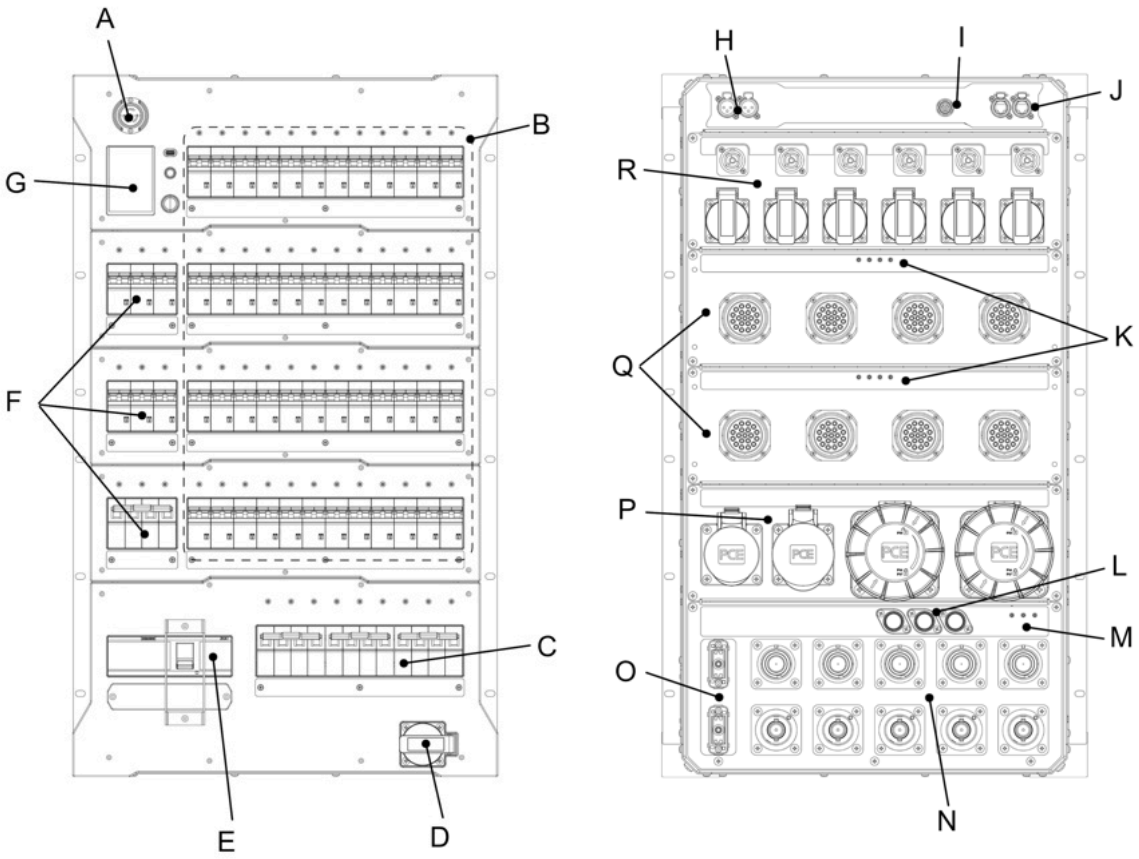




Key

A	Emergency stop	I	GPIO (optional)
B	Standard outputs breakers and monitor	J	Ethernet ports
		K	Connector load indicators
C	X-slot 2-4 breakers	L	Main electronics fuses
D	Convenience outlet	M	Mains input indicators
E	Main switch disconnector	N	Mains input panel
F	X-slot 1 breaker(s)	O	Protective earth (ground) terminal
G	Graphical user interface	P	X-slot output panel
H	Worklight outputs	Q	Standard output channels panel

Overview Xr48



Key

A	Emergency stop	J	Ethernet ports
B	Standard outputs breakers and monitor	K	Connector load indicators
		L	Main electronics fuses
C	X-slot 4-6 breakers	M	Mains input indicators
D	Convenience outlet	N	Mains input panel
E	Main switch disconnector	O	Protective earth (ground) terminal
F	X-slot 1-3 breakers	P	X-slot 3-6 output panel
G	Graphical user interface	Q	Standard output channels panel
H	Worklight outputs	R	X-slot 1-2 output panel
I	GPIO (optional)		

Emergency Stop

Warning! Make sure that the Emergency Stop button is easily accessible at all times.

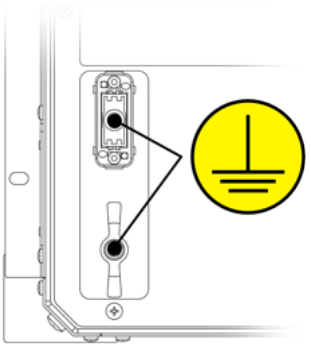
The Xr24/Xr48 has an Emergency Stop button on the top left of the front panel (see illustration on right). Pressing the button trips the switch disconnector immediately, shutting down power to all of the unit's outputs.

To reapply power after an emergency stop:

1. Make sure that the installation is in a safe condition and that reapplying power presents no hazard.
2. Twist the Emergency Stop button clockwise to reset it.
3. Move the main switch disconnector to the ON position.

Protective Earth bonding

Warning! Connect the PE terminal as directed below before applying power to the Xr unit.



The Xr series units have a PE (Protective Earth) bonding terminal at the bottom of the rear mains input panel (see illustration on right).

Before applying power to the Xr series unit, make the following connections to the PE bonding terminal:

- Connect the PE bonding terminal to an electrical earth (ground) that has been tested and complies with BS 7909 or the local equivalent.
- Connect the PE bonding terminal to the equipotential bonding link that interconnects conductive materials in the installation (equipotential bonding is a legal requirement in some regions and is recommended in all cases to reduce the risk of electric shock).

Main switch disconnector

The Xr series units have a 4-pole (three Phases + Neutral) switch disconnector that can be used as a power ON/OFF switch to shut down power at all of the outputs.
Depending on the user options of the unit, there might be a 125A or 250A MCCB in the system.

Important! Check that all loads are switched off before shutting down or applying power at the switch disconnector.

The switch disconnector trips automatically in the following situations:

- Loss of Neutral line at the power input connector (if enabled).
- Over- or undervoltage at the power input connector (if enabled).
- Activation of the Emergency Stop.

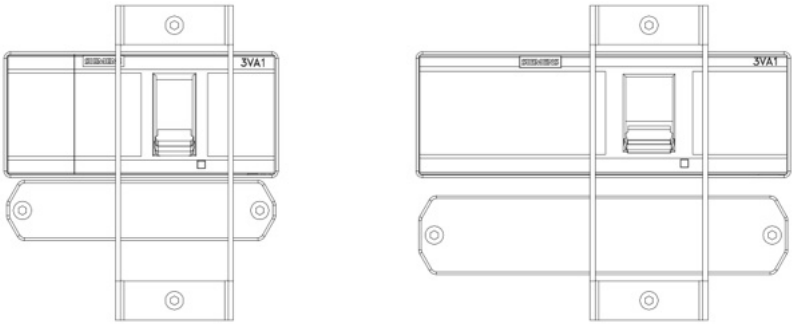


Figure: Main circuit breakers

The 125A version is a disconnect breaker, while the 250A breaker also has overload protection. Settings for the 250A MCCB can be found if the small metal plate below the breaker is removed. Under the cover there are dials for setting overload and short-circuit protection currents.

Protection in case of loss of Neutral

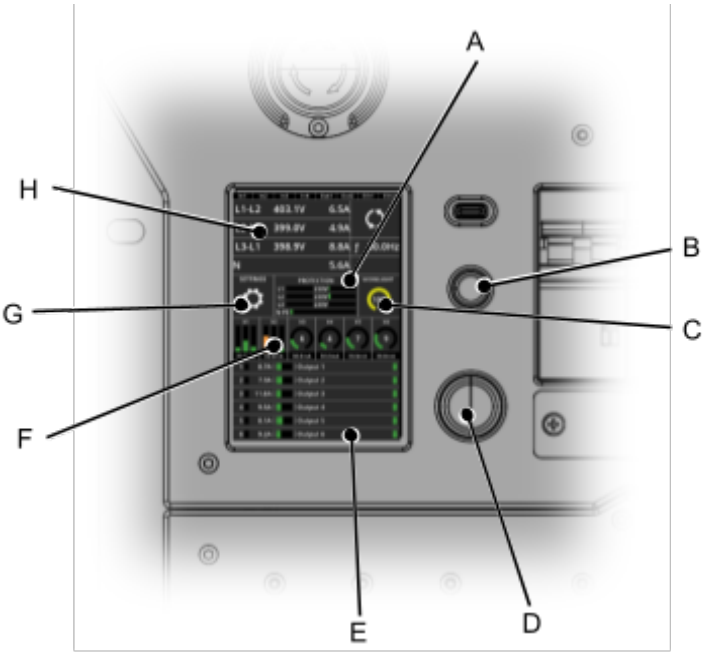
Loss of the Neutral line at the power input connector is a potentially disastrous situation since it causes Phase line voltages to move away rapidly from their nominal 230 V. This usually results in serious damage to a large portion of the connected equipment.

The Xr24 and Xr48 have a protection device that immediately trips the switch disconnector in case of a lost Neutral line.

If the switch disconnector trips because of a lost Neutral line, a full inspection of the wiring from the power source to the Xr series unit must be performed and the fault must be corrected before the switch disconnector is moved to the ON position. Inspection and repair must be undertaken by a qualified electrician only. If no fault is found in the power source or source wiring but the switch disconnector still trips, contact StageSmarts for assistance.

Graphical user interface

The Xr24 and Xr48 has a touch screen graphical user interface that both gives an overview of the device status, such as input voltages and currents, output load and leakage currents, etc, as well as allowing for configuration of the unit.



Key

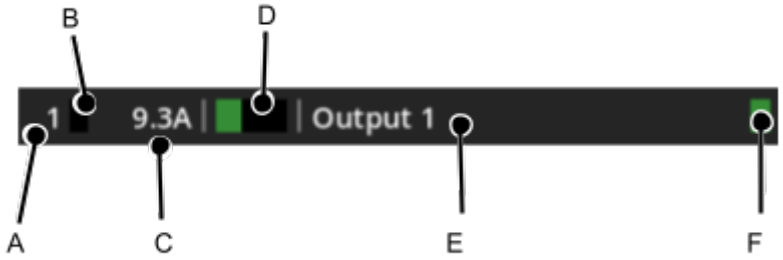
A	Protection module data	E	Standard output channels data
B	Return button	F	X-slot output channels data
C	Worklight intensity	G	Settings menu button
D	Control knob	H	Mains input meter data

In the base screen of the GUI, pressing the control knob toggles focus between Worklight intensity and scrolling the output channel list.

Making settings

It is possible to make settings of the Xr series device in the GUI.
To make general settings such as network settings, indicator, settings, etc, go into the Settings menu available directly from the front page.
For settings related to specific sub-systems such as protection module, X-slots, etc press the widget for the desired sub-system and available settings will be shown.

Standard channel monitoring

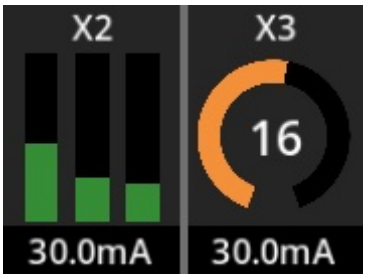


Key

A	Output channel number	D	Output leakage (0-30mA)
B	Output load warning indicator	E	Channel name
C	Output load (A)	F	Relay status

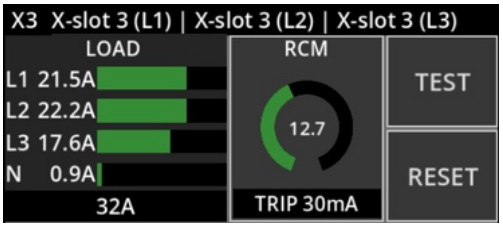
X-slot monitoring

There are two different types of displays for X-slots depending on if they are one-phase or three-phase outputs. The displays shows the leakage current and the currently configured trip level.



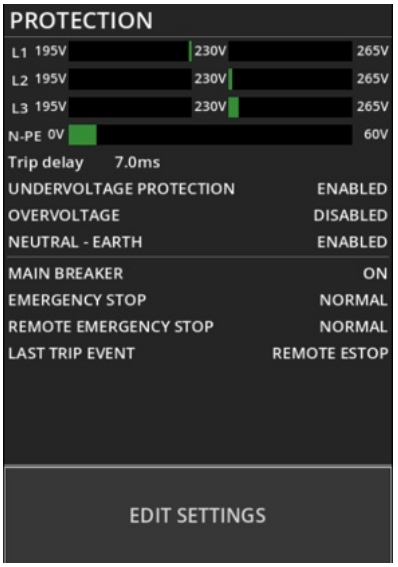
Setting trip levels and testing RCM

Clicking an X-slot display brings up the X-slot menu. Here you can change the set trip-levels and test the RCM for the three-phase X-slot outputs.



Configuring protection module

Pressing the Protection display on the base screen brings up the Protection module menu. Here it is possible to see and change the settings for overvoltage protection, undervoltage protection, and other settings related to loss of neutral protection.



Output monitoring and breakers on the front panel

Each one of the standard output channels (1-24 on Xr24, 1-48 on Xr48) is protected by a 2-pole RCBO (combined overcurrent and earth leakage circuit breaker) on the front panel. The breakers are labelled to match the output numbers.

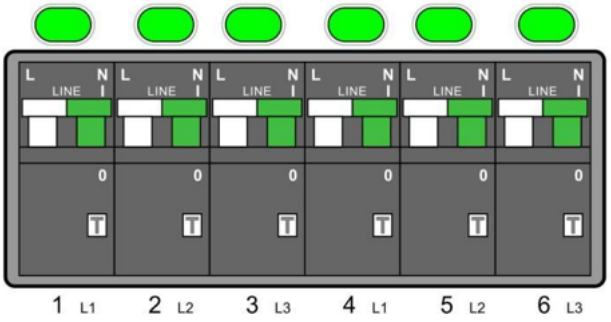


Figure: Output circuit breakers group

Each breaker has a trip current of 16 A. Breaker 1 will trip if the current draw at Output 1 exceeds 16 A, and so on.

Because all the breakers are magnetic-hydraulic type, the outputs can be loaded at full (16 A) capacity indefinitely and at all permissible operating temperatures. You do not need to factor in ambient temperature etc. and add a ‘safety margin’ to avoid nuisance tripping.

Any issues with earth leakage currents will only affect the output where there is earth leakage, not a group of outputs. All RCBOs for the standard outputs have a 30mA trip current for residual currents.

Standard outputs

The Xr24 has 24 monitored main outputs labelled 1-24. Each output is rated 16 A.

The main output connectors are situated on rear panels (the Xr24 has one with 24 channels, Xr48 has two with 24 channels each). The output connector type fitted depends on customer specification.

Main output load sensor LEDs

Above each breaker on the front panel is an indicator LED. The LEDs light to indicate the presence of a connected load on that breaker's output:

- If the load is within the 16 A rating for the output, the LED lights green.
- If a slight overload is detected, the LED flashes red slowly.
- If a serious overload is detected, the LED flashes red quickly.

If the overload exceeds the safety limit for that 16 A output, the breaker trips.

Main output RCBO test buttons

Each breaker on the front panel has a test button labelled **T** that lets you test earth leakage protection on that breaker's output. A momentary push on the test button should immediately trip the breaker. Use the test buttons to make sure that earth leakage protection operates correctly each time you connect a load to an output. Test earth leakage protection on all outputs frequently – we recommend a check at least once per month – as a scheduled safety routine.

If at any time you press a breaker's test button while power is applied to the breaker and the breaker does not trip immediately, stop using that output. Have the Xr series unit inspected and serviced StageSmarts or an authorized StageSmarts service agent as soon as possible. Do not use the output until the problem has been resolved.

Convenience socket

The Xr series has a convenience socket, a consumer-type earthed socket, on the front. It can be used to connect laptop chargers, power tools, or other mains powered devices a technician may need.

The convenience socket shares RCBO with standard output channel 1.

One-phase X-slot

The Xr series can optionally be equipped with one triple one-phase X-slot output. These phases are protected by the same RCBO as the standard output channels.

Three-phase X-slots

The Xr series can optionally be equipped with three-phase X-slot outputs (up to 4 on Xr24 and up to 6 on Xr48).

The three-phase X-slots are protected by two devices:

- A 4-pole MCB (magnetic-hydraulic circuit breaker) on the front panel.
- An adjustable RCM (Residual Current Monitor) internal to the unit.

The MCB provides overcurrent protection and the RCM monitors earth leakage and will trip the

MCB if a leakage current exceeds the threshold set for the particular RCM.

As with the main outputs, the use of a magnetic-hydraulic breaker means that the X-slot outputs can be loaded to full capacity indefinitely at all permissible operating temperatures.

RCM protection for X-slots

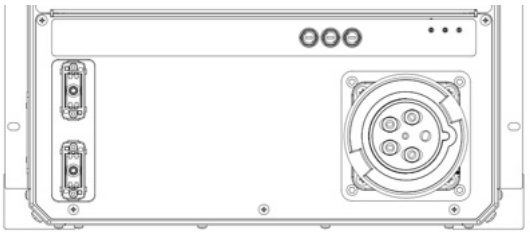
Warning! It is the responsibility of the user of the Xr series to ensure that the overall level of earth leakage protection meets all applicable legal and safety requirements at all times.

The RCM for the X-slots conforms to EN 62020 and provides leakage protection for the outputs. Setting of the trip current as well as testing the RCM is done via the Xr unit's GUI.

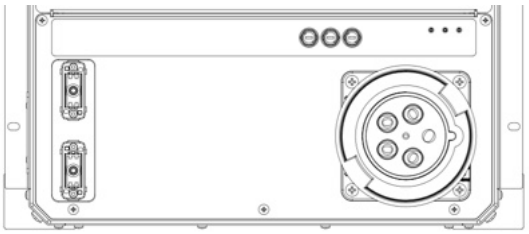
Include a monthly test of this RCM in your safety check schedule. Press the RCM's Test button in the GUI and check that the RCM trips. If it does not trip, stop using the corresponding X-slot. Have the Xr unit inspected and serviced as soon as possible by StageSmarts or one of its authorized service agents.

Connecting to incoming power

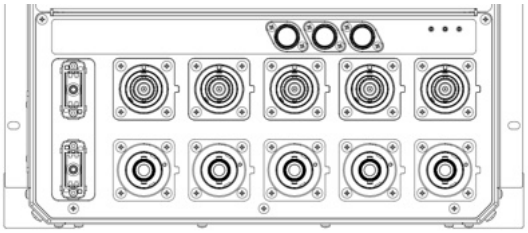
The Xr24 and Xr48 can be ordered with different mains input connections. Depending on the specification of the particular Xr series unit the power input may be via CEE 63A, CEE 125A, Powerlock 400A or Powerlock 750A connections.



CEE 63A



CEE 125A



Powerlock 400A / 750 A

Making power input connections

Before you make connections, visually inspect the connectors for wear or damage. While the connectors are designed for harsh use, they can be damaged due to misuse or overloading. A damaged connector can create a fire hazard due to heat buildup.

Electronics fuses

Important! Remove the three fuses L1, L2 and L3 at the rear mains input panel before performing a high-voltage insulation test.

Three 1 AT (slow-blow) fuses L1, L2 and L3 are located in fuseholders at the rear mains input panel. Each fuse protects one of the three phases going to the unit's internal measurement and monitoring hardware.

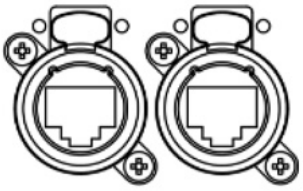
If you have no voltage detected on the unit's main meter but you know that the Xr series unit is connected to power and there is voltage on that phase, that fuse may have blown. To replace the meter fuse:

- Set the master MCCB to OFF and then open the fuseholder cap with a flat-bladed screwdriver.
- Replace the fuse with a new one of the same type and rating.
- Reinstall the fuseholder cap and then set the master MCBB to ON.

If the unit still does not detect all three phases, the new fuse that you have just installed may have blown. Remove the fuse and test it for continuity to confirm whether it has blown again. A fuse that blows repeatedly indicates a problem. There may be overvoltage at a power input connector, or there may be a wiring fault. Disconnect the Xr series unit from power and investigate the problem. If you suspect that a Xr series unit may be faulty, stop using it immediately and contact StageSmarts or an authorized dealer for assistance.

Ethernet interfaces

The Xr24 and Xr48 have two independent Ethernet interfaces on the rear panel. The two interfaces can be configured to operate at separate networks, for instance if there is one dedicated control network and one monitoring/admin network.
Both interfaces uses touring friendly EtherCON connectors, but are also fully compatible with any standard Cat5e or Cat6 cables.



Network settings

The Xr series products has two network interfaces, and they are configured individually. The following settings can be done per port;

- Dynamic IP assignment via DHCP
- Static IP configuration
    - IP address
    - Netmask
    - Gateway
    - DNS server

When DHCP is used, the unit will fall back to using the following network addresses if DHCP assignment fails: 172.30.1.3 (interface N1), 172.30.2.3 (interface N2)

Remote monitoring with Ampacity

Ampacity is StageSmarts remote monitoring and configuration tool that can be run on Windows or macOS computers. It lets you monitor entire systems from one or several computers. For more information on Ampacity software, visit StageSmarts' website at www.stagesmarts.com

Using Streaming ACN

The Xr series unit can receive control data from a controller supporting *ANSI E1.31 - Lightweight streaming protocol for transport of DMX512 using ACN*, or simply *Streaming ACN*, or *sACN* in short. If the Xr series unit is equipped with the optional relay modules, simply set the desired sACN universe and the DMX start address to control the outputs from for instance the console.

For controlling relays, the following DMX slot values applies:

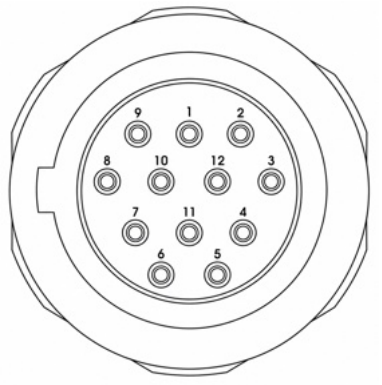
DMX value	Function
0-9	Dead zone (no action)
10-123	Relay off
124-132	Dead zone (no action)
133-245	Relay on
246-255	Dead zone (no action)

The Xr series units can receive sACN data from multiple controllers at once. If there is more than one source of data the source is selected based on the sACN priority of the source. On equal priority data from the sources is merged with HTP (highest takes precedence).

GPIO (General Purpose Input / Output)

The Xr series has an optional GPIO module that can be programmed to trigger relay actions on up to four input signals and to indicate statuses and events on the two outputs. The GPIO module also provides the possibility for an external remote E-stop loop.

Connector pinout



Pin	Name	Description
1	R_ESTOP_A	Remote E-stop loop
2	R_ESTOP_B	Remote E-stop loop
3	OUT1_A	Output 1
4	OUT1_B	Output 1
5	OUT2_A	Output 2
6	OUT2_B	Output 2
7	IN1_A	Input 1 anode (+)
8	IN2_A	Input 2 anode (+)
9	IN1/2_K	Input 1/2 common cathode (-)
10	IN3_A	Input 4 anode (+)
11	IN4_A	Input 3 anode (+)
12	IN3/4_K	Input 3/4 common cathode (-)

Remote E-stop

When Remote E-stop is disabled in the settings, the GPIO module has an internal loopback enabled. When the Remote E-stop is enabled the loop between pin 1 and 2 shall be normally closed. E-stop buttons shall break this loop.
E-stop will be triggered whenever this loop is broken, meaning that if the cable is disconnected it is not possible to engage the main breaker.

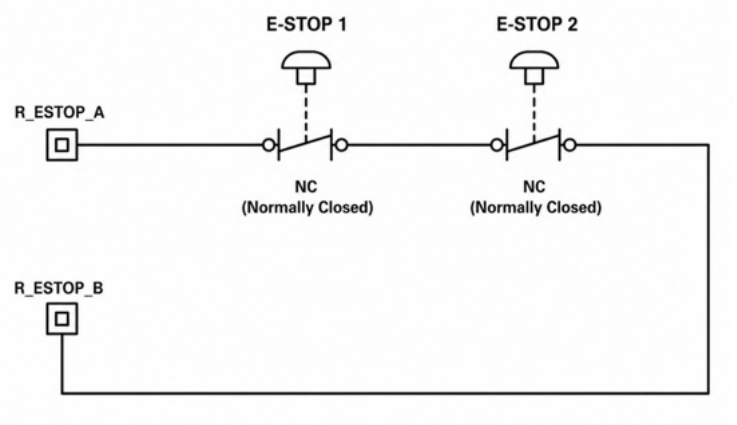


Figure: Example remote e-stop loop

Outputs

The outputs are solid state relays between A and B pins for each output. When output is active the relay is closed. **Note: Voltage must not exceed 30V.**

Each output can be controlled from one or more internal status sources. These can be combined in different ways though boolean logic.

Each selected source is OR:ed together. For example: *Out1 = N1 Link **OR** N2 Link*
By using inverting the signals it is possible create AND function, for example:
*Out1 = **INVERT**(**INVERT**(N1 Link) **OR INVERT**(N2 Link))* is equal to *Out1 = N1 Link **AND** N2 Link*

As boolean logic can be complex sometimes, StageSmarts support can help in creating the logic functions you need in your application.

Figure: Output configuration screen

Inputs

The inputs accept a voltage of **12-24V DC**. The edge event of the signal will trigger relay actions (on or off) as set up in the input's settings. It is possible to have any number of the Xr unit's relays connected to an input.

Figure: Input configuration screen

Safety checks and maintenance

Carry out the following scheduled safety tasks at these suggested intervals:

- Monthly: Check the correct operation of the RCBOs for outputs on the front panel by pressing the test button and the RCMs for X-slot outputs by pressing their software test buttons. Power shall be applied to the Xr series unit when performing the test. Check that pressing the Test button causes the breakers to trip immediately.
- Regularly: Check all components, connectors and cables for signs of damage or overheating.

Important: Inspect the air vents at regular intervals. If you see signs of dirt or dust buildup, clean the vents with a soft brush and vacuum cleaner.

Compliance information

The Xr series of products complies with all relevant EU Directives. A full Declaration of Conformity is available upon request from the manufacturer.

StageSmarts

December 18, 2025

EU Declaration of Conformity

We, StageSmarts AB, as the manufacturer, hereby declare that Xr series (Xr24, Xr48) complies with the following directives;

2014/30/EU *Directive of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility.*
2014/35/EU *Directive of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits.*
2011/65/EU *Directive of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment + **2015/863/EU** Delegated Directive of 31 March 2015 amending Annex II to Directive 2011/65/EU*

The conformance of the products stated above with the provisions of the applied directives is demonstrated by compliance with the following standards;

EN IEC 61000-6-2:2019 *Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity standard for industrial environments*
EN IEC 61000-6-4:2019 *Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments*
EN IEC 61439-1:2021/AC1:2022 *Low-voltage switchgear and controlgear assemblies - Part 1: General rules*
EN 61439-4:2013 *Low-voltage switchgear and controlgear assemblies - Part 4: Particular requirements for assemblies for construction sites (ACS)*

This declaration of conformity is issued under the sole responsibility of the manufacturer.

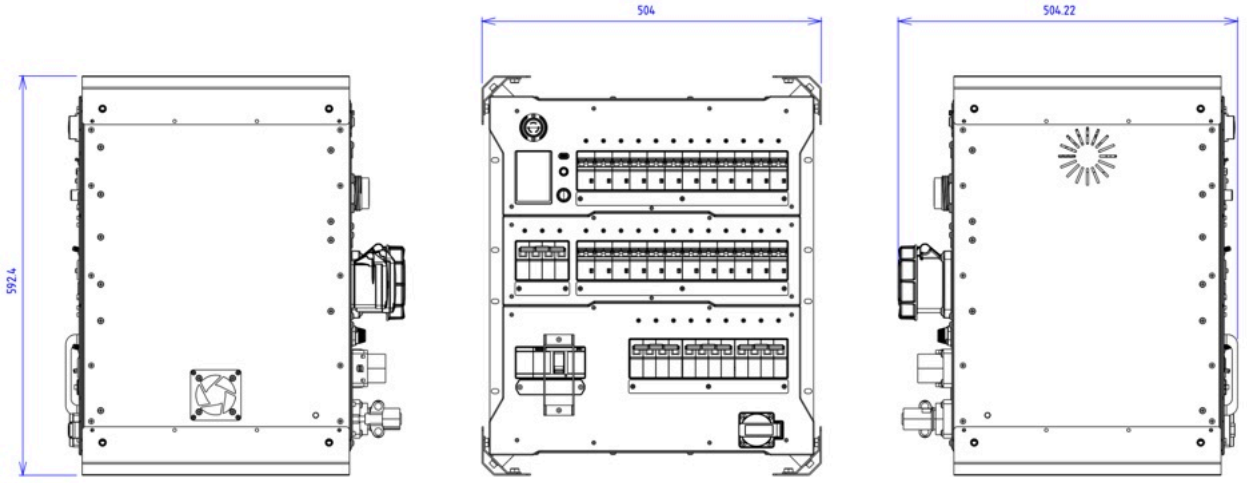
On behalf of StageSmarts AB:
Malmö, 2025-12-18

Fredrik Cedmert
CEO

[DQCE-G000162] EU Declaration of Conformity for Xr series

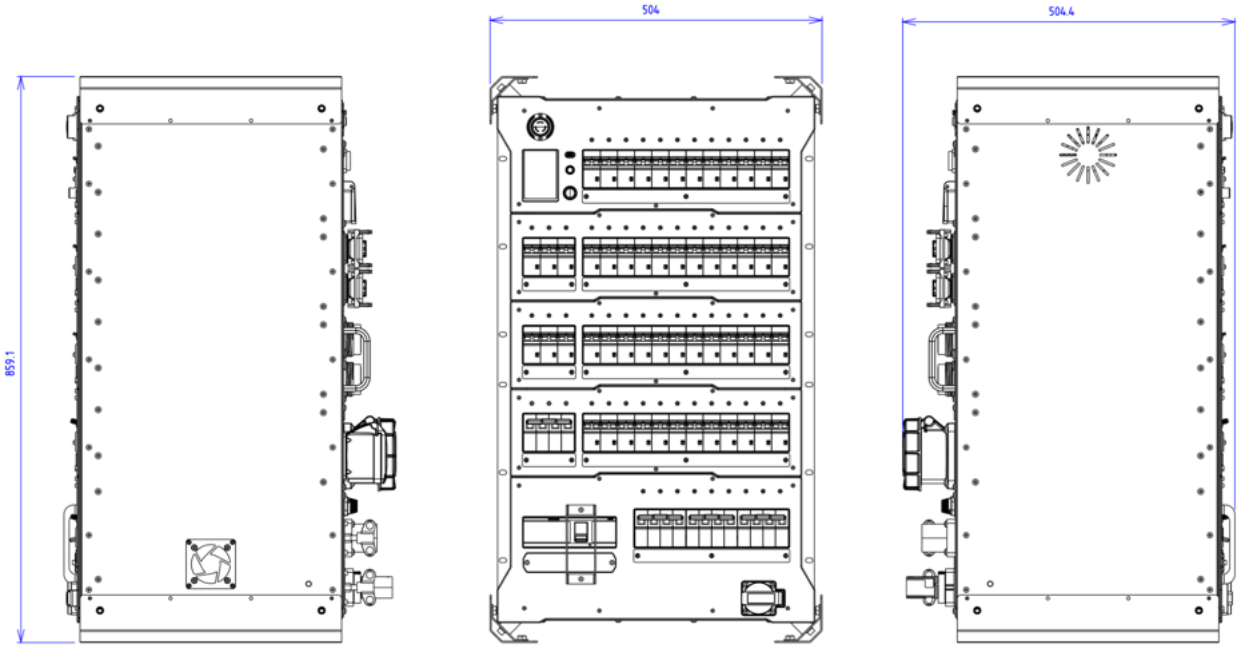
Dimensions

Xr24



Dimensions given in millimetres

Xr48



Dimensions given in millimetres

StageSmarts