

INSTALLATION DATA SHEET





Part No. RL-24i 1kV Phase Indicator



The RL-24i Phase Indicator is a simple way to monitor 3 phase supplies, up to 1000 VAC. The door mounted Display Unit provides users with an indication of each phase and the correct phase sequence or failure(s). There is electrical isolation between the DIN rail mounted Monitoring Unit and the Display for maximum safety. Two versions of the RL-24i Phase Indicator are available – the Display Unit will indicate either Clockwise Correct or Anti-Clockwise Correct. Please ensure you have the correct display for your application.



CAUTION, RISK OF ELECTRIC SHOCK

-  **WARNING!** Do not fit the RL-24i Phase Indicator if the units are damaged in any way.
-  **IMPORTANT!** Live equipment can kill. Other safety procedures still apply. Test before touching.
-  **IMPORTANT!** If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.
-  **IMPORTANT!** This equipment should be installed by a competent person who is converse with local electrical regulations and standards.

GLOBAL TECHNICAL SUPPORT

Contact us: info@fortress-safety.com

Product FAQ: www.remlive.com/faqs/rl-24i-phase-indicator-faqs/

Connect the RL-24i Phase Indicator to the outgoing side of the Isolator / Circuit Breaker, making sure that the connections are electrically and mechanically sound and in accordance with current regulations for electrical installations. The RL-24i Phase Indicator has embedded 500mA fuse protection up stream of internal surge suppression.

Replace the RL-24i Phase Indicator unit if one of the two sets of two flashing indicators fail to flash once a second when a live supply is connected, unless they have been deliberately switched to the off position, in which case only the phase indication LED's should be operational.

If uncertain about any application or aspect of fitting or operating the RL-24i Phase Indicator, contact the supplier. No serviceable parts inside, in the event of failure please contact your supplier.

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INSTALLATION

To mechanically install the RL-24i Phase Indicator simply clip the Main Panel Unit onto Din Rail (Top Hat). Fit Door Unit via 30.5mm hole, secure with locking nut and plug the RJ45 connector into the Main Panel Unit front fascia socket.

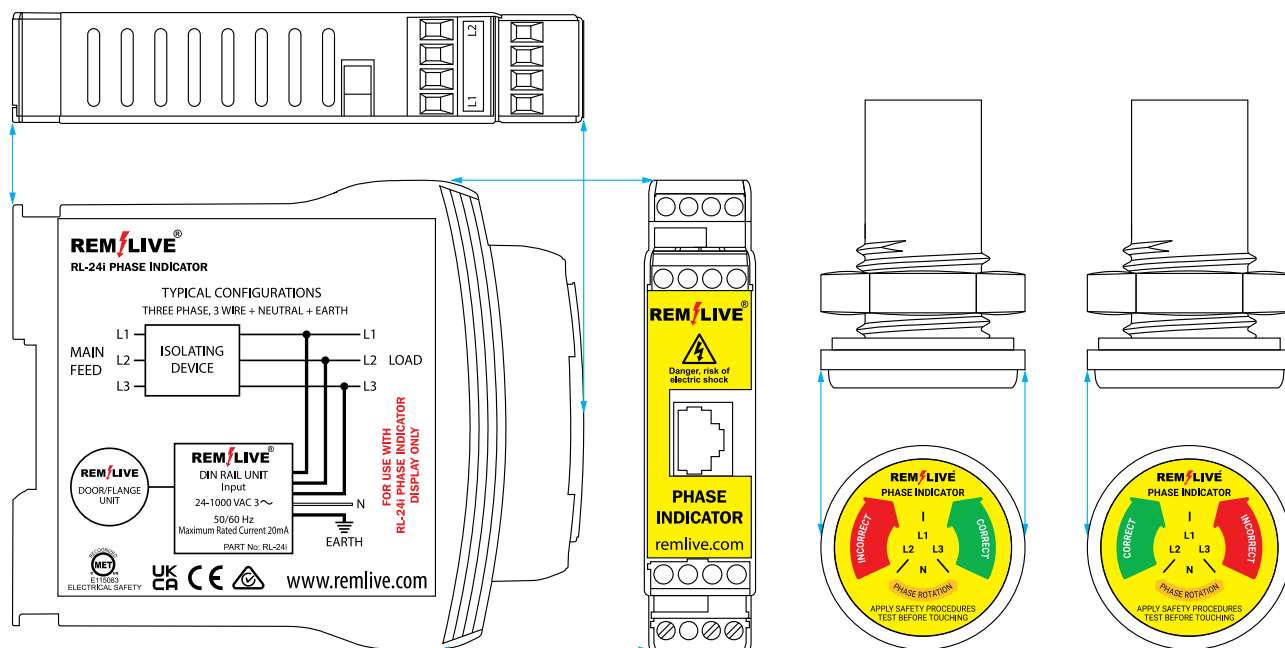
The equipment shall be connected to the supply using suitable wiring of at least 1mm², with insulation rated to the voltage of the system being monitored. Cables shall be coded or marked in accordance with local standards.

Cables must be secured to a fixed point in such a way that they are unable to become loose through pulling, vibration or movement. Where cables enter the wider enclosure, a suitable cable gland or other appropriate restraint shall be used.

A suitable disconnect device shall be installed in a location readily accessible and visible to the user. The disconnect device must be rated according to the load present on the circuit monitored by the RL-24i Phase Indicator.

MEASUREMENT CATEGORY IV

The input circuit is designed to withstand transient overvoltages according to measurement category IV. The equipment should not be subjected to transient overvoltage exceeding 8kV L-E. The internal surge arrestors may begin to operate at 700Vrms L-E [1.2kVrms L-L], additional protection may be necessary in applications where there is a risk of temporary overvoltage in excess of this. For full details of voltage configurations supported, please see the table on page 4.



SUPPLY DETAILS

AC Voltages (50/60Hz)
(Continuous)

Min	Max
24	1,000

Maximum Rated Current 20mA

CONNECTION DETAILS

3 Phase & Earth

3 Phase, Neutral & Earth

DIMENSIONS

DIN Rail Module
22.5mm (W) x 100mm (H) x 122mm (D)

Door Display Unit
30.5mm mounting hole diameter. The indicator unit itself measures 57mm (Deep) x 26mm (Rear Diameter) / 41mm (Front Diameter).

Weight
232g total weight per RL-24i Phase Indicator unit

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LED ILLUMINATION SEQUENCE

The following sequences are related to the illumination and connection of the RL-24i Phase Indicator .

The banks of two light emitting diodes at either side of the door unit will flash if the RL-24i Phase Indicator detects the correct cyclic phase rotation sequence.

The four dual light emitting diodes towards the centre of the RL-24i Phase Indicator Door Unit, L1, L2, L3 and N will illuminate as follows:

THIS EQUIPMENT MUST BE EARTHED

The Neutral connection is Optional, however should two phases fail, the indicators will cease to operate if Neutral is NOT USED. We strongly recommend the use of NEUTRAL and / or EARTH connections to ensure 100% availability of the RL-24i Phase Indicator. If a Neutral connection is not available, the Neutral connection can be connected to Earth, however, advice from a qualified electrical engineer should be taken before connecting in this way.

With Neutral & Earth connected, the Neutral LED will illuminate when Neutral to Earth exceeds 24 volts, even with all phases off. Effectively monitoring the Neutral voltage when phases have been correctly isolated.

AC VOLTAGES	ILLUMINATION					
	L1	L2	L3	N	Phase Rotation (Left)	Phase Rotation (Right)
When a clockwise three phase connection is made:	ON	ON	ON	OFF	ON	OFF
When an anti-clockwise three phase connection is made:	ON	ON	ON	OFF	OFF	ON
NOTE: If a single phase is lost, the LED associated with that phase will go off and the Neutral LED will illuminate. The Phase indication LEDS will switch off. Example: L2 fails:	ON	OFF	ON	ON	OFF	OFF
If two phases are lost, the LED's associated with those two phases will go off and the Neutral LED will illuminate. The Phase indication LEDS will switch off. Example: L1 and L2 fail:	OFF	OFF	ON	ON	OFF	OFF
NOTE: If Neutral and Earth are connected and the Neutral line has in excess of 24 volts active, the Neutral LED will be illuminated, even with all phases off.	OFF	OFF	OFF	ON	OFF	OFF

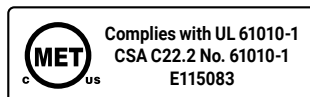
STANDARDS AND CERTIFICATIONS

The updated RL-24i Phase Indicator has undergone independent testing to demonstrate compliance with the European harmonised standards necessary to apply the CE and UKCA marks. These are EN 61326-1:2013 relating to electromagnetic compatibility and EN 61010-2-030:2017 relating to the safety of electrical equipment.

The RL-24i Phase Indicator meets all the requirements of the MET Mark for the United States and Canada. The MET Mark for product safety indicates compliance to federal regulations for safe use in the workplace. It also complies with UL 61010-1 and CSA C22.2 No. 61010-1.

The RL-24i Phase Indicator has been designed to support compliance with IEC 60204 – Safety of Machines. There is an internal diode connection to earth which allows the device to report the presence of hazardous voltages upon a failure of the neutral conductor. When performing insulation resistance tests please ensure that the negative terminal of your test equipment is connected to the earth conductor in order to reverse bias this diode.

REMLIVE Ltd is committed to demonstrating the highest standard of global environmental management. Our dedication is demonstrated by our compliance efforts as they apply to the European Union Directive 2011/65/EU – Restriction of Hazardous Substances (RoHS) Directive and Commission Delegated Directive (EU) 2015/863.



LIMITATIONS OF USE

The RL-24i Phase Indicator is housed in a robust UL94 V-0 flame retardant enclosure, which has been selected for its durability and protective, insulation and zero halogen properties. The RL-24i Phase Indicator Main Panel Unit has been designed to fit into enclosures having a suitable IP Rating for the environment in which the installation will normally operate and should ALWAYS be fitted in accordance with the manufacturer's recommendations. The RL-24i Phase Indicator Door Unit has been designed to meet with IP66 requirements. This equipment is tested and certified for use at ambient temperature between -35°C to 55°C and below 5000m altitude.

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NOMINAL VOLTAGE OF INSTALLATION

The RL-24i Phase Indicator supports the following configurations. If you have any questions regarding supported voltage configurations, please contact info@fortress-safety.com

VAC – 3 PHASE

Nominal voltage	Voltage L-N	Voltage L-L	OVC
690V	400V	690V	Cat IV
1000V	590V	1000V	Cat III

Note: No single conductor may be more than 625VAC in normal operating conditions.

SURGE / IMPULSE WITHSTAND

(1.2/50, 8/20µs according to IEC 61000-4-5 & IEC 61180-1)

Mode of Impulse	Amplitude (+/-)
Line - Earth	8kV
Line - Neutral	2.4kV
Line - Line	2.4kV

TEMPORARY OVERVOLTAGE

Duration	Voltage	Trise
1s	2000V	30K
5s	1800V	80K
60s	1500V	20K
Indefinite*	1200V	5K

***Note:** Permanent operation may impair performance.

VOLTAGE TOLERANCES

Range	Maximum	Minimum
Nominal Voltage	+10%	-11%

Note: Under normal operating conditions. Utilization voltage range in accordance with IEC 60038:2012

INSULATION RESISTANCE

Phase to Earth
>20Mohm

Note: Resistance in accordance with AS/NZS 2081.4

CURRENT / POWER

Maximum rated current	Maximum power dissipation
20mA	20W