

BROYCE
CONTROL

Passionate about protection and control



THREE PHASE RELAYS

NFC

PHASE/
NEUTRAL LOSS

PHASE REVERSAL

PHASE ASYMMETRY

UNDER VOLTAGE

OVER VOLTAGE

TIME DELAY

UL LISTED

THREE PHASE RELAYS

LPMRN/2

Programmable using Smartphone with NFC

Benefits:

- ✓ **User profiles** for quick/convenient setting up using app
- ✓ Real time monitoring of supply
- ✓ Compact size (only 17.5mm wide)
- ✓ Clone settings on further units
- ✓ Accuracy - **100% digital setting**
- ✓ Tamperproof
- ✓ Program **without** power applied

Key Features:

- Programmable functions for total flexibility
- Customisable
- Monitors own supply (3 and 4-wire)
- Configurable trip and time settings
- Multi-voltage supply options
- 2 x SPDT independent relays outputs assignable to various functions
- Intelligent LED indication



NEW

GET IT ON
Google Play

Dims: to DIN 43880
W. 17.5mm

LPRC/2

Under & Over Voltage, Phase Loss + Sequence

Key Features:

- True R.M.S. monitoring
- Selectable nominal voltages to suit most popular 3-wire/4-wire supply voltages
- Monitors own supply and measures phase to phase (3-wire monitoring) or phase to neutral (4-wire monitoring) voltages
- Detects if one or more phases exceed the set Under or Over voltage trip levels
- Detects incorrect phase sequence, phase and neutral loss¹
- Independent relay outputs - Under voltage and Over voltage monitoring
- 2 x SPDT relay output - 5A
- Green LED indication for supply status and individual Red LED indication for both relay statuses

¹ when 4-wire mode selected



Dims: to DIN 43880
W. 17.5mm

LPRT/2

Under Voltage, Phase Loss + Sequence

Key Features:

- True R.M.S. monitoring
- Selectable nominal voltages to suit most popular 3-wire/4-wire supply voltages
- Monitors own supply and measures phase to phase (3-wire monitoring) or phase to neutral (4-wire monitoring) voltages
- Detects an Under voltage condition on one or more phases
- Detects incorrect phase sequence, phase and neutral loss¹
- DPDT relay output - 5A
- Green LED indication for supply status
- Red LED indication for relay status

¹ when 4-wire mode selected



Dims: to DIN 43880
W. 17.5mm

LPRD/2

Under Voltage, Phase Loss, Sequence + Restart Delay

Key Features:

- True R.M.S. monitoring
- Selectable nominal voltages to suit most popular 3-wire/4-wire supply voltages
- Monitors own supply and measures phase to phase (3-wire monitoring) or phase to neutral (4-wire monitoring) voltages
- Detects an Under voltage condition on one or more phases
- Detects incorrect phase sequence, phase and neutral loss¹
- Delay to relay re-energising adjustable
- DPDT relay output - 5A
- Green LED indication for supply status and Red LED indication for relay status

¹ when 4-wire mode selected



Dims: to DIN 43880
W. 17.5mm

THREE PHASE RELAYS

LPMP/2 & LPRA/2

Phase Asymmetry, Under & Over Voltage, Phase Loss + Restart Delay

Key Features:

- True R.M.S. monitoring
- Selectable nominal voltages to suit popular 3-wire/4-wire supply voltages
- Monitors own supply
- Detects phase asymmetry/unbalance and if one or more phases exceed the fixed Under or Over voltage trip levels (LPRA/2 Under voltage trip level only)
- Detects incorrect phase sequence, phase and neutral loss¹
- Delay to relay re-energising adjustable (LPMP/2 only)
- DPDT relay output - 5A
- Green LED indication for supply status and Red LED for relay status

¹ when 4-wire mode selected



Dims: to DIN 43880
W. 17.5mm

PUVR44

Phase Under Voltage (High Immunity)

Key Features:

- Designed to withstand voltage overloads up to **125% (cont.)**, **150% (10s)**
- Selectable nominal voltages (**220, 230, 240, 254, 265, 277V (L>N)**)
- Monitors own supply and measures phase to neutral voltages
- Detects an Under voltage condition on one or more phases
- Adjustable Differential and Under voltage trip level
- Adjustable time delay
- DPDT relay output - 8A
- Green LED indication for supply status
- Red LED indication for relay status



Dims: to DIN 43880
W. 44mm

LXPRC/S & LXPRC/S-4W

Under & Over Voltage, Phase Loss + Sequence

Key Features:

- True R.M.S. monitoring
- Can be specified for **110, 208, 220, 380, 400 or 415V** supplies
- Monitors own supply and measures phase to phase voltages (phase to neutral on LXPRC/S-4W)
- Detects if one or more phases exceed the set Under or Over voltage trip levels
- Detects incorrect phase sequence and phase loss (plus neutral loss on LXPRC/S-4W)
- Adjustable Under and Over voltage trip levels
- Adjustable time delay to prevent nuisance tripping
- 1 x SPDT relay output - 8A
- Green LED indication for supply and Red LED for relay status



Dims: to DIN 43880
W. 17.5mm

LXPRC & LXPRC-4W

Under & Over Voltage + Phase Loss

Key Features:

- True R.M.S. monitoring
- Can be specified for **110, 208, 220, 380, 400 or 415V** supplies
- Monitors own supply and measures phase to phase voltages (phase to neutral on LXPRC-4W)
- Detects if one or more phases exceed the set Under or Over voltage trip levels
- Detects phase loss (and neutral loss on LXPRC-4W) and operates irrespective of phase sequence
- Adjustable Under and Over voltage trip levels
- Adjustable time delay to prevent nuisance tripping
- 1 x SPDT relay output - 8A
- Green LED indication for supply and Red LED for relay status



Dims: to DIN 43880
W. 17.5mm

THREE PHASE RELAYS

LXPRT & LXPRT-4W

Under Voltage, Phase Loss + Sequence

Key Features:

- True R.M.S. monitoring
- Suits key global supply voltages
- Monitors own supply and measures phase to phase voltages (phase to neutral on LXPRT-4W)
- Detects an Under voltage condition on one or more phases
- Detects incorrect phase sequence and phase loss (plus neutral loss on LXPRT-4W)
- Adjustable Under voltage trip level
- Adjustable time delay to prevent nuisance tripping
- 1 x SPDT relay output - 8A
- Green LED indication for supply status
- Red LED indication for relay status



Dims:
to DIN 43880
W. 17.5mm



LXPRF & LXPRF-4W

Phase Loss + Sequence

Key Features:

- True R.M.S. monitoring
- Suits key global supply voltages
- Monitors own supply and measures phase to phase voltages (phase to neutral on LXPRF-4W)
- Detects an Under voltage condition on one or more phases
- Detects incorrect phase sequence and phase loss (plus neutral loss on LXPRF-4W)
- Fixed Under voltage trip level
- Fixed time delay
- 1 x SPDT relay output - 8A
- Green LED indication for supply status
- Red LED indication for relay status



Dims:
to DIN 43880
W. 17.5mm



LXPRC/S/RD

Under & Over Voltage, Loss, Sequence + Restart Delay

Key Features:

- True R.M.S. monitoring
- Selectable nominal voltages
- Two ranges available:
 - 208/220V
 - 380/400/415/440/460V
- Monitors own supply and measures phase to phase voltages
- Detects if one or more phases exceed the fixed Under or Over voltage trip levels
- Detects incorrect phase sequence and loss
- Fixed Under/Over voltage trip levels (+/-10% of selected nominal)
- Adjustable Restart time delay (1 - 500s)
- 1 x SPDT relay output - 8A
- Green LED indication for supply status
- Red LED indication for relay status



Dims:
to DIN 43880
W. 17.5mm



LXPRC/S/F

Under & Over Voltage, Phase Loss + Sequence

Key Features:

- True R.M.S. monitoring
- Designed primarily for 400/415V supplies
- Monitors own supply and measures phase to phase voltages
- Detects if one or more phases exceed the fixed Under or Over voltage trip levels
- Detects incorrect phase sequence and phase loss
- Fixed Under/Over voltage trip levels
- Adjustable time delay to prevent nuisance tripping
- 1 x SPDT relay output - 8A
- Green LED indication for supply status/fault condition
- Red LED indication for relay status



Dims:
to DIN 43880
W. 17.5mm



NOTE: Many other versions and options available which can be customised to suit your requirements!



NFC

PROGRAMMABLE

SINGLE FUNCTION

MULTI-FUNCTION

MULTI-VOLTAGE

SLIMLINE HOUSING

UL LISTED



TIMERS

LNPT/2

Programmable using Smartphone with NFC

Benefits:

- ✓ Dual Timer capability
- ✓ Easy to set-up
- ✓ Cloning - Duplicate settings on further units
- ✓ Accuracy - 100% digital setting
- ✓ Tamper proof
- ✓ Reduces stocked variants
- ✓ Can be programmed **without** power

Key Features:

- 22 functions
- Customisable
- Use as counter option
- Adjustable time delay (0.1s to 999h)
- Multi-voltage supply (12 - 230V AC/DC)
- 2 x SPDT independent relays outputs
- LED indication showing timing status
- Conforms to IEC 61812



NEW



GET IT ON
Google Play

Dims: to DIN 43880
W. 17.5mm

LMMT

Multifunction

Key Features:

- 7 selectable functions
- 7 selectable time ranges (0.1s to 100h)
- Fine adjustment of selected time range
- Multi-voltage supply (12 - 230V AC/DC)
- 1 x SPDT relay output - 8A
- LED indication showing supply, timing and relay status
- Conforms to IEC 61812



Dims: to DIN 43880
W. 17.5mm

LMMT/2

Multifunction

Key Features:

- 7 selectable functions
- 7 selectable time ranges (0.1s to 100h)
- Fine adjustment of selected time range
- Multi-voltage supply (12 - 230V AC/DC)
- 1 x DPDT relay output - 8A
- LED indication showing supply, timing and relay status
- Conforms to IEC 61812



Dims: to DIN 43880
W. 17.5mm

LEDO & LEDO/2

Delay On Operate

Key Features:

- Supply initiated, Delay On timing function
- 7 selectable time ranges (0.1s to 100h)
- Fine adjustment of selected time range
- Multi-voltage supply (12 - 230V AC/DC)
- 1 x SPDT (LEDO) or 1 x DPDT (LEDO/2) relay output - 8A
- LED indication showing supply, timing and relay status
- Conforms to IEC 61812



Dims: to DIN 43880
W. 17.5mm

LART & LART/2

Asymmetrical Recycling

Key Features:

- Recycling "On/Off" function or "Off/On" (when external link fitted)
- Separate adjustments for "on" and "off" ranges
- 7 selectable time ranges (0.1s to 100h)
- Fine adjustment of selected time range
- Multi-voltage supply (12 - 230V AC/DC)
- 1 x SPDT (LART) or 1 x DPDT (LART/2) relay output - 8A
- LED indication showing supply, timing and relay status
- Conforms to IEC 61812



Dims: to DIN 43880
W. 17.5mm

LRTM/2

Asymmetrical Recycling/Delayed Pulse

Key Features:

- Recycling "Off/On" function or "Delayed Pulse" (when external link fitted)
- Separate adjustments for "on" and "off" ranges
- 7 selectable time ranges (0.1s to 100h)
- Fine adjustment of selected time range
- Multi-voltage supply (12 - 230V AC/DC)
- 1 x DPDT relay output - 8A
- LED indication showing supply, timing and relay status
- Conforms to IEC 61812



Dims: to DIN 43880
W. 17.5mm

LEIN

Interval

Key Features:

- Supply initiated, Interval timing function
- 7 selectable time ranges (0.1s to 100h)
- Fine adjustment of selected time range
- Multi-voltage supply (12 - 230V AC/DC)
- 1 x SPDT relay output - 8A
- LED indication showing supply, timing and relay status
- Conforms to IEC 61812



Dims: to DIN 43880
W. 17.5mm

LESW

Switch Initiated Delay Off

Key Features:

- Switch initiated (Constant supply), Delay Off timing function
- 7 selectable time ranges (0.1s to 100h)
- Fine adjustment of selected time range
- Multi-voltage supply (12 - 230V AC/DC)
- 1 x SPDT relay output - 8A
- LED indication showing supply, timing and relay status
- Conforms to IEC 61812



Dims: to DIN 43880
W. 17.5mm

TIMERS

LEDF

True Delay Off

Key Features:

- True Delay Off timing function
- Adjustment of time delay range
- Choice of 4 time ranges (0.5 - 10s, 1 - 30s, 2 - 60s or 0.5 - 10m)
- Dual-voltage input (24V AC/DC // 110V AC or 24V AC/DC // 230V AC)
- 1 x SPDT relay output - 8A
- Green LED indication for supply status



Dims: to DIN 43880
W. 17.5mm



LEYD/A

Star/Delta

Key Features:

- Star/Delta Start timing function
- 7 Selectable time ranges (0.1s – 100h)
- Fine adjustment of selected time range
- Selectable “Dwell” time (40 - 160ms)
- Multi-voltage input (12 - 230V AC/DC)
- 1 x SPDT relay output - 6A
- LED indication showing supply, timing and relay status
- Conforms to IEC 61812



Dims: to DIN 43880
W. 17.5mm



LEDK

Delay On Operate with Instantaneous Contact

Key Features:

- Delay On Operate with Instantaneous Contact timing function
- 7 Selectable time ranges (0.1s – 100h)
- Fine adjustment of selected time range
- Multi-voltage input (12 – 230V AC/DC)
- 2 x SPDT relay outputs - 8A
- LED indication showing supply, timing and relay status
- Conforms to IEC 61812



Dims: to DIN 43880
W. 17.5mm



LMAT

Multi-Attempt to Start

Key Features:

- Multi-Attempt to Start timing function
- Separate adjustments for “on” and “off” time ranges
- 7 Selectable “Start Attempts” (2 - 8)
- Multi-voltage input (12 – 48V AC/DC)
- Wide voltage tolerance (+10/-30%)
- 2 x SPDT relay outputs - 8A
- LED indication showing supply, timing and relay status
- Conforms to IEC 61812



Dims: to DIN 43880
W. 17.5mm



NOTE: Many other versions and options available which can be customised to suit your requirements!



Passionate about protection and control



CONTROL RELAYS

AC/DC VOLTAGE
MONITORING

AC/DC CURRENT
MONITORING

BATTERY VOLTAGE

LOGIC/
ALTERNATING RELAY

THERMISTOR

UL LISTED

CONTROL RELAYS

LR44/5N

Logic Relay - 3 Outputs



NEW

Benefits:

- ✓ Pre-defined profiles
- ✓ Quick to set up using app^
- ✓ Fully programmable
- ✓ Mini PLC operation using gate logic (AND, NAND, NOR, OR)
- ✓ Clone settings on further units
- ✓ Program **without** power applied
- ✓ Customisable
- ✓ Suits applications requiring multiple pump control

Key Features:

- Built-in NFC
- Accepts up to 5, Voltage-free, N.O. contacts
- Adjustable time setting
- Wide auxiliary operating supply voltage (85 – 265V AC/DC)
- 3 x SPNO relays outputs - 5A
- Green LED indication for supply and NFC status
- Individual Red LED indication for relay status



Dims: to DIN 43880 W. 44mm

^ App available from:



LR44/2 & LR44/3

Logic Relay - 2 or 3 Outputs

Key Features:

- Designed to balance the operation between motors, compressors, generators, etc
- "Help" function
- Accepts up to 3, Voltage-free, N.O. contacts
- Microprocessor based
- Isolated power supply
- Wide auxiliary operating supply voltage (85 - 265V AC/DC)
- 2 x SPNO relay outputs - 5A (LR44/2)
- 3 x SPNO relay outputs - 5A (LR44/3)
- Green LED indication for supply status
- Individual Red LED indication for relay status
- Other logic/switching patterns available on request



Dims: to DIN 43880
W. 44mm

LTMR

Thermistor Relay

NEW

Key Features:

- Monitors for over temperature in motor windings, etc
- Used with PTC (Positive Temperature Coefficient) Thermistors
- Fixed operate/release resistance (in accordance with DIN 44081)
- Wide operating supply voltage (100 - 230V AC/DC)
- 1 x SPDT relay output - 5A
- Green LED indication for supply status
- Red LED indication for relay status



Dims: to DIN 43880
W. 17.5mm

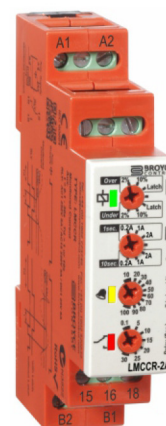
CONTROL RELAYS

LMCCR-2A

Multifunction, Combined Current Monitoring

Key Features:

- True R.M.S. monitoring
- 3 Selectable monitoring ranges (0.02 - 0.2, 0.1 - 1, 0.2 - 2A AC/DC)
- Selectable Under or Over current monitoring
- Selectable hysteresis, latch and power up delay options
- Adjustable trip level and time delay
- Isolated Auxiliary Supply (12 - 60V or 24 - 230V AC/DC)
- 1 x SPDT relay output - 8A
- Green LED indication for supply status, Red LED for relay and Yellow for alarm



Dims: to DIN 43880
W. 17.5mm

LMCCR-10A

Multifunction, Combined Current Monitoring

Key Features:

- True R.M.S. monitoring
- 3 Selectable monitoring ranges (0.2 - 2, 0.5 - 5, 1 - 10A AC/DC)
- Selectable Under or Over current monitoring
- Selectable hysteresis, latch and power up delay options
- Adjustable trip level and time delay
- Isolated Auxiliary Supply (12 - 60V or 24 - 230V AC/DC)
- 1 x SPDT relay output - 8A
- Green LED indication for supply status, Red LED for relay and Yellow for alarm



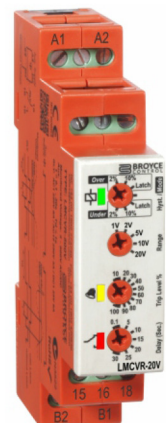
Dims: to DIN 43880
W. 17.5mm

LMCVR-20V

Multifunction, Combined Voltage Monitoring

Key Features:

- True R.M.S. monitoring
- 5 Selectable monitoring ranges (0.1 - 1, 0.2 - 2, 0.5 - 5, 1 - 10, 2 - 20V AC/DC)
- Selectable Under or Over voltage monitoring
- Selectable hysteresis or latch option
- Adjustable trip level and time delay
- Isolated Auxiliary Supply (12 - 60V or 24 - 230V AC/DC)
- 1 x SPDT relay output - 8A
- Green LED indication for supply status, Red LED for relay and Yellow for alarm



Dims: to DIN 43880
W. 17.5mm

LMCVR-500V

Multifunction, Combined Voltage Monitoring

Key Features:

- True R.M.S. monitoring
- 5 Selectable monitoring ranges (2 - 20, 5 - 50, 10 - 100, 20 - 200, 50 - 500V AC/DC)
- Selectable Under or Over voltage monitoring
- Selectable hysteresis or latch option
- Adjustable trip level and time delay
- Isolated Auxiliary Supply (12 - 60V or 24 - 230V AC/DC)
- 1 x SPDT relay output - 8A
- Green LED indication for supply status, Red LED for relay and Yellow for alarm



Dims: to DIN 43880
W. 17.5mm

CONTROL RELAYS

LMWVR

Multifunction, Windowed Voltage Monitoring

Key Features:

- True R.M.S. monitoring
- 7 Selectable Nominal voltage ranges (12 - 240V AC/DC)
- Window operation Under and Over voltage monitoring
- Adjustable Under and Over voltage trip levels
- Adjustable time delay
- Isolated Auxiliary Supply (12 - 60V or 24 - 230V AC/DC)
- 1 x SPDT relay output - 8A
- Green LED indication for supply status
- Red LED indication for relay status and Yellow for Under or Over voltage alarm



Dims: to DIN 43880
W. 17.5mm



LXCVR

Under and Over Voltage

Key Features:

- True R.M.S. monitoring
- Monitors own supply
- Adjustable Under and Over voltage trip levels
- Adjustable time delay
- 1 x SPDT relay output - 8A
- Green LED indication for supply status
- Red LED indication for relay status



Dims: to DIN 43880
W. 17.5mm



LCVR/2

Under and Over Voltage

Key Features:

- True R.M.S. monitoring
- Selectable nominal voltages to suit most popular single phase voltages
- Monitors own supply
- Adjustable Under and Over voltage trip levels
- Adjustable time delay
- 2 x SPDT relay output - 5A
- Green LED indication for supply status
- Red LED indication for relay status



Dims: to DIN 43880
W. 17.5mm



LBVR/A

Battery Voltage Monitoring

Key Features:

- DC voltage monitoring
- 8 - 30V voltage range
- Adjustable Under voltage trip level
- Adjustable time delay
- 1 x SPDT relay output - 8A
- Green LED indication for supply status
- Red LED indication for relay status



Dims: to DIN 43880
W. 17.5mm



NOTE: Many other versions and options available which can be customised to suit your requirements!



ELINKS PAKISTAN

BROYCE
CONTROL

Passionate about protection and control



LV ELECTRICAL SOLUTIONS

*MONITORING, CONTROL
& PROTECTION SOLUTIONS
FOR*

SWITCHBOARDS

DISTRIBUTION
PANELS

MOTOR CONTROL
CENTRES

CONTROL PANELS

ATS PANELS

WIRING SYSTEMS
& BUSBARS

APPLICATION NOTES



MONITOR



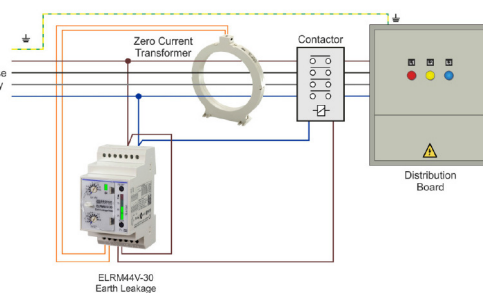
CONTROL



PROTECT

Distribution board circuit protection

Full protection of an electrical distribution board is possible using an Earth Leakage Relay. As the ELR is monitoring the main incoming supply, the toroid /zero current transformer is sized according to the amperage of the supply i.e. 250A, 400A, etc. In this example, the Earth Leakage Relay would be typically set to a trip setting of 300mA or higher to **protect mainly against fire and other faults**



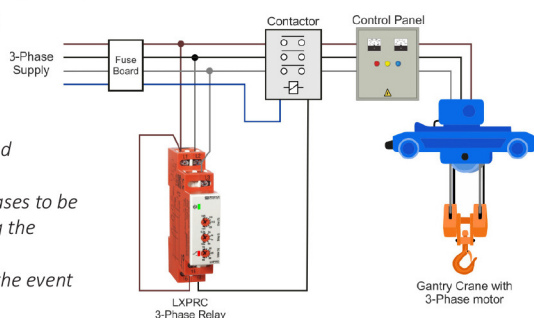
Gantry crane 3-phase voltage monitoring and protection

Protecting the crane motor against **single-phasing** (phase loss/blown fuse), **stalling** (under voltage) and **overheating** (voltage imbalance or over voltage).

The 3-phase monitoring relay ensures the voltage supplied to the motor is kept within pre-determined limits to ensure damage is prevented.

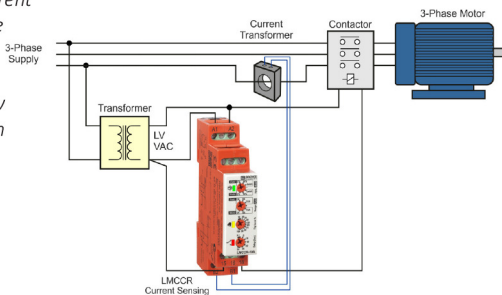
This particular relay is used as it allows for the phases to be reversed which is required for raising and lowering the crane.

Adjustable time delay avoids nuisance tripping in the event of a momentary dip in the supply.



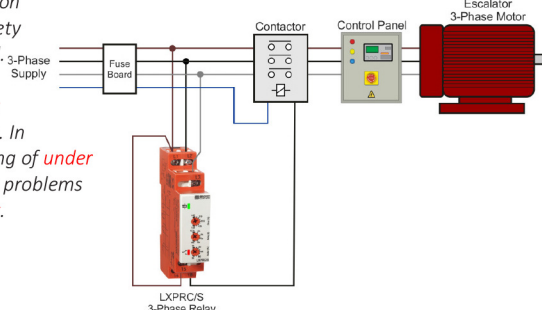
3-Phase Motor current monitoring

A simple current monitoring example whereby current is only sensed in one of the 3-phases. Based on the assumption that the current is always balanced between phases, this example ensures protection of the **motor against under current** (caused by low voltage) or **over current** conditions (caused by high voltages).



Escalator 3-Phase motor protection

Allowing an escalator to run in the wrong direction due to reversal of phases can lead to serious safety concern - especially where people are concerned. Prevention of such an event can be guaranteed by the use of a **3-phase voltage monitoring relay** which monitors the supply for reversal of phases. In addition, the relay can also include the monitoring of **under voltage** and **over voltage** which itself can lead to problems with the motor either **stalling** or running **too fast**.





CONTROL
PANELS



DISTRIBUTION
BOARDS



ATS
PANELS



MOTOR
CONTROL
CENTRES

EARTH LEAKAGE & THREE PHASE

ELRM44V-30

FIND ME ONLINE: www.broycecontrol.com

Earth Leakage Protection (Type A)

Key Features:

- Selectable trip level and time delay allowing for discrimination between several units
- Dual relay outputs for connecting to switching devices i.e. shunt trips, under voltage releases, contactors
- Suitable for monitoring single and three-phase supplies

Benefits:

- ✓ Protects both personnel and equipment
- ✓ DIN rail mounting for easy integration in to distribution boards, consumer units, etc
- ✓ Compliant with IEC 60755



EARTH
LEAKAGE
MONITORING

Dims: to DIN 43880
W. 44mm

BZCT & BZCTR

FIND ME ONLINE: www.broycecontrol.com

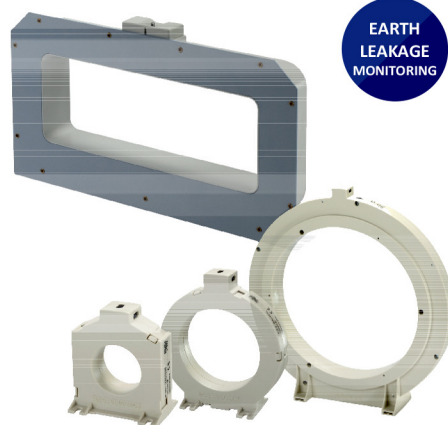
Circular and Rectangular Toroids

Key Features:

- Choice of sizes - depending on installation and circuit ratings
 - Circular toroids: 6 sizes - 35, 50, 70, 120, 160 and 210mm
 - Rectangular toroids: 3 sizes - 115 x 305, 150 x 350 and 160 x 470mm
- Optional mounting methods
- Compatible with all Broyce Earth Leakage Relays

Benefits:

- ✓ No setting up required



EARTH
LEAKAGE
MONITORING

LXPRC/S

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3-Phase Voltage Monitoring

Key Features:

- Safeguards equipment against phase loss, phase reversal and under/over voltage deviations
- Protects against uneven load distribution if a phase fails
- Choice of voltages to suit global applications
- User adjustable settings allowing unit to be tailored to application

Benefits:

- ✓ Minimises the risk of costly damage to equipment
- ✓ DIN rail mounting for easy integration in to distribution boards, consumer units, etc
- ✓ Compact dimensions



3-PHASE
MONITORING

UL LISTED

Dims: to DIN 43880
W. 17.5mm

LXPRT

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3-Phase Monitoring

Key Features:

- Protects equipment against phase loss, phase reversal and undervoltage
- Ideal for motor applications to protect against single-phasing and motors rotating in the wrong direction

Benefits:

- ✓ Monitors own supply - does not require any auxiliary connections
- ✓ Easy to install



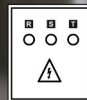
3-PHASE
MONITORING

UL LISTED

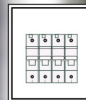
Dims: to DIN 43880
W. 17.5mm

FURTHER SOLUTIONS

IDEAL FOR.....



CONTROL
PANELS



DISTRIBUTION
BOARDS



ATS
PANELS



MOTOR
CONTROL
CENTRES



Monitoring

Voltage and Current

Monitoring relays for under or over voltage and current sensing.

Benefits:

- ✓ Protect circuits and loads from potential faults
- ✓ Multi-voltage supply



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UL US LISTED

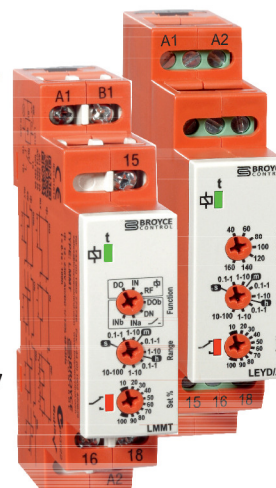
Timing

Single or Multifunction

Choice of timing relays for control of lighting circuits, fans, motors, etc.

Benefits:

- ✓ Key timing functions available (Delay On, Interval, Delay Off, Star/Delta)
- ✓ Multi-voltage supply
- ✓ Compact dimensions
- ✓ Easy to install



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UL US LISTED

Further Product Options

Phase Presence Indicator

Benefits:

- ✓ Provides clear visual indication of a 3-phase supply
- ✓ Indicates a fault i.e. phase missing or phases reversed

Surge Protection

Benefits:

- ✓ Protects circuits against voltage spikes, transients, etc

Consult Sales for further information

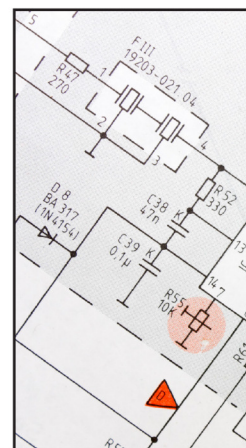
Bespoke

Customised Solutions

Need something different for your application? We can customise and offer a solution to meet your requirements.

Benefits:

- ✓ Product operates as you require
- ✓ Keeps product simple
- ✓ Option to brand for your company



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Inspired by over 50 years of exceptional customer service



Passionate about protection and control



EARTH LEAKAGE RELAYS

NFC

PROGRAMMABLE

FIXED OR
ADJUSTABLE
SETTINGS

DIN RAIL MOUNT

PANEL MOUNT

CIRCULAR &
RECTANGULAR
TOROIDS

EARTH LEAKAGE RELAYS

ELR01PN & ELR30PN

Programmable using Smartphone with NFC



NEW

Benefits:

- ✓ Pre-defined profiles for quick setting up
- ✓ Tailored for particular markets:
 - Petrochemical, Medical, Entertainment, Leisure
Using **10mA** setting for these high sensitivity applications
 - Radio/TV masts, Traffic Lights, Street Lighting
Auto-reclosure feature provides protection for unmanned locations
 - Airports, Mining
Selectable **Frequency filter** can be enabled where high immunity required
- ✓ Easy to clone settings on additional units
- ✓ Display actual leakage current in the system
- ✓ Can be programmed **without** power applied

Key Features:

- Two ranges available:
 - (6mA - 1A) ELR01PN
 - (30mA - 30A) ELR30PN
- Programmable user settings/adjustments
- Customisable with option to select toroid ratio, trip method, relay logic and filter
- LED indication for supply, leakage current and trip status
- Multi-voltage supply (**24 - 230V AC/DC**)
- 2 Relay outputs - user configurable
- Compliant with IEC 60947-2 / Annex M



Dims: to DIN 43880 W. 44mm



LELRF & ELRM44F

Type A with fixed trip and time delay

Key Features:

- True R.M.S. measurements
- Fixed trip level options - 30mA, 100mA or 300mA
- Instantaneous tripping (0s)
- Connection facility for remote "Test" and "Reset" push buttons or N.O. contacts (ELRM44F only)
- Toroid open detection forces unit to trip
- Standard Output (S.O.) relay operation
- SPDT relay output

LELRF Additional Features:

- Compact dimensions for product type (17.5mm wide)
- Single button for Test/Reset operation
- Compliant with IEC 60947-2 / Annex M



Dims: to DIN 43880

ELR01P & ELR30P

Type A with selectable trip and time delay settings

Key Features:

- Selectable Trip level and Time delay using front mounted adjustments
- Two ranges available 6mA - 1A (ELR01P) and 30mA - 30A (ELR30P)
- True R.M.S. measurements
- Single, combined "Test/Reset" push button
- Connection facility for remote "Test" and "Reset" push buttons or N.O. contact
- Toroid open and short-circuit detection forces unit to trip
- 2 Relay outputs - Relay 1 (SPDT) and Relay 2 (SPNO)
- Wide auxiliary operating supply voltage (**24 - 230V AC/DC**)
- LED indication of Supply status and fault condition after unit has tripped
- Compliant with IEC 60947-2 / Annex M



Dims: to DIN 43880 W. 44mm

EARTH LEAKAGE RELAYS

ELRM44V & ELRM44V/2

Type A with selectable trip and time delay settings

Key Features:

- True R.M.S. measurements
- Designed to monitor and detect earth fault currents in conjunction with a separate Toroid (CBCT)
- LED bargraph provides constant indication of any leakage current
- 3 current ranges available (3A, 10A and 30A)
- Selectable Trip level ($I_{\Delta n}$) and Time delay
- Separate "Test" and "Reset" push buttons
- Connection facility for remote "Test" and "Reset" push buttons or N.O. contacts
- Toroid open circuit detection forces unit to trip (Red LED flashes)
- Output relay configuration:
 - ELRM44V - Standard Output (1 x SPDT) and Positive Safety Output (1 x SPNO)
 - ELRM44V/2 - Standard Output (2 x SPNO)
- LED indication of Supply status and fault condition after unit has tripped



Dims: to DIN 43880 W. 44mm

ELRP48V

Type A with selectable trip and time delay settings

Key Features:

- True R.M.S. measurements
- Panel mounting with pluggable connectors located at the rear of the unit and supplied with mating, re-wireable sockets
- Designed to monitor and detect earth fault currents (up to 30A) in conjunction with a separate Toroid (CBCT)
- LED bargraph provides constant indication of any leakage current
- Microprocessor controlled with internal monitoring (self-checking)
- Selectable Trip level ($I_{\Delta n}$) - 30mA to 30A
- Selectable Time delay (Δt) - 0 (instantaneous) to 10 seconds
- Separate "Test" and "Reset" push buttons
- Connection facility for remote "Test" and "Reset" push buttons
- Toroid open circuit detection forces unit to trip (Red LED flashes during this condition)
- 2 Relay outputs - Standard Output (S.O.) and Positive Safety Output (P.S.O)



Dims:
W x H. 48 x 48mm
L. 96mm

ELR-IF

Type A with integral toroid, fixed trip and time delay

Key Features:

- True R.M.S. measurements
- DIN Rail or Surface mount enclosure
- Integral Toroid - 25mm \varnothing
- Designed to monitor and detect earth fault currents
- Protected against nuisance tripping
- Microprocessor controlled
- Three versions available - 30mA (instantaneous), 100mA (100mS) or 300mA (100mS)
- Separate "Test" and "Reset" push buttons
- SPDT relay output - 5A
- Green LED indicates presence of power supply
- Red LED indicates fault current is >50% of $I_{\Delta n}$ if flashing, or relay has tripped if permanently illuminated



Dims:
W. 70mm
H. 110mm
D. 37mm

EARTH LEAKAGE RELAYS

Key Features:

- Used with all Broyce "Type A" Earth Leakage Relays
- 1000:1 ratio
- Circular versions available intended for cables
- Rectangular versions available intended for bus-bar systems

BZCT070

70mm Ø



BZCT035

35mm Ø



BZCT120

120mm Ø



BZCT160

160mm Ø



BZCT050

50mm Ø



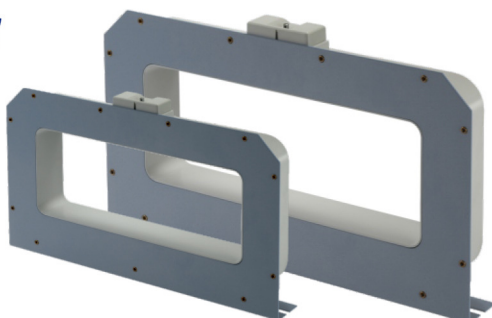
BZCT210

210mm Ø



BZCTR305 & 350

305 and
350mm



BZCTR470

470mm



Smaller sizes
coming soon



ELINKS PAKISTAN

**BROYCE
CONTROL**

Passionate about protection and control



HVAC SOLUTIONS

*MONITORING, CONTROL
& PROTECTION SOLUTIONS
FOR*

SCROLL/SCREW
COMPRESSORS

AIR HANDLING
UNITS

CHILLERS

ROOFTOP SYSTEMS

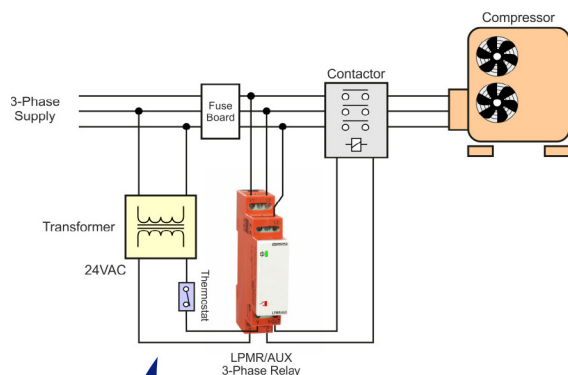
HEAT PUMPS

REFRIGERATION
SYSTEMS

APPLICATION NOTES

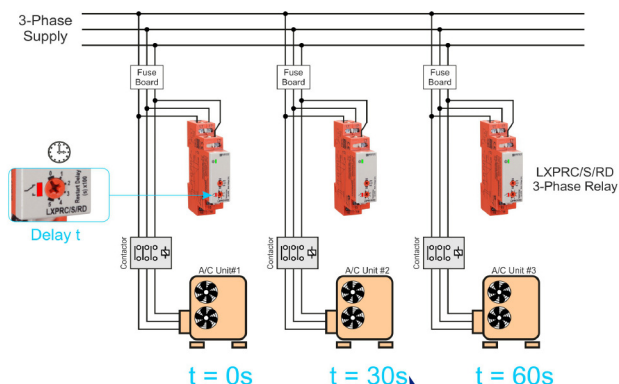
3-Phase Compressor protection (with Aux. supply)

Powered by an external 24V auxiliary source (i.e. from control panel transformer), provides monitoring of the 3-phase compressor supply. Protects compressor against **single-phasing** (phase loss/blown fuse), **rotating in the wrong direction** (phase reversal) and **overheating** (voltage imbalance).



Staggered starting of multiple compressors

Prevents multiple compressors starting simultaneously but adding an intentional delay before starting. Each compressor is fitted with its own 3-phase monitoring relay and the **restart delay** period is staggered based on size and capacity of the compressor. In addition, each relay still provides compressor protection against **phase loss, phase reversal** and **under/over voltage** protection.



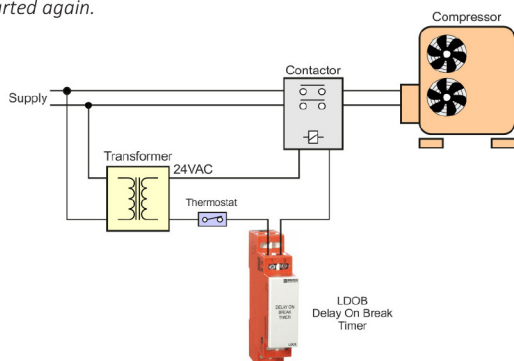
✓ **MONITOR**

✓ **CONTROL**

✓ **PROTECT**

Compressor anti-short cycle (lock-out) protection

Connected on the low-voltage side of the control panel transformer in between the thermostat and compressor contactor, the timer prevents rapid recycling of the compressor by initiating a time delay when the thermostat opens. This is also known as a "lock-out" delay. The time delay must have finished before the compressor can be started again.



Maximum protection for your HVAC equipment

A range of products designed to ensure smooth running of your HVAC installation offering re-assurance and piece of mind that costly damage will be prevented in the event of a fault.

Monitor - Permanently installed relays can constantly monitor for faults and detect conditions that may lead to the risk of damage or disruption

Control - Switch the equipment when absolutely necessary

Protect - Your equipment to guarantee trouble-free operation

These are the key elements to ensuring your application will run as you'd expect.

THREE PHASE & TIME DELAY

IDEAL FOR.....



CHILLERS



ROOFTOP
UNITS



AIR HANDLING
UNITS



HEAT PUMPS



LXPRC/S/RD

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Compressor Protection (with delayed restart)

Key Features:

- Selectable nominal voltages - 2 ranges available **200 - 240VAC** or **380 - 460VAC L>L**
- Monitors own supply - detects if phases exceed the fixed Under or Over voltage trip levels
- Detects incorrect phase sequence and loss
- Adjustable Restart time delay (**1 - 500s**)

Benefits:

- ✓ Protects compressor against loss of phase (single-phasing) and reverse running
- ✓ Choice of selectable nominal voltages for global applications
- ✓ Adjustable Restart delay - allows for staggering of multiple compressors



3-PHASE
MONITORING



Dims: to DIN 43880
W. 17.5mm

LXPRC/S/F

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Compressor Protection (with adjustable timer)

Key Features:

- Designed for **415V L>L** supplies
- Monitors own supply and detects if one or more phases exceed the fixed Under or Over voltage trip levels (+/-10% of selected nominal)
- Detects incorrect phase sequence and loss
- Adjustable time delay to prevent nuisance tripping

Benefits:

- ✓ Easy to install
- ✓ Minimal setting up required



3-PHASE
MONITORING



Dims: to DIN 43880
W. 17.5mm

LPMR/AUX

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Compressor Protection (with auxiliary supply)

Key Features:

- Wide 3-phase monitoring voltage range **190 - 600VAC L>L**
- Low voltage auxiliary supply **24VAC**
- Detects voltage unbalance, phase reversal and phase loss

Benefits:

- ✓ Low cost and simple to install
- ✓ No setting up required
- ✓ Compact dimensions



3-PHASE
MONITORING

Dims: to DIN 43880
W. 17.5mm

LDOB

AVAILABLE Q3 2020

Compressor Lockout/Anti-Short Cycle/Random Start

Key Features:

- Designed for **24VAC** supplies
- Simple 2-wire connection
- Fixed time delay with choice of 3 or 5 minutes

Benefits:

- ✓ Protects compressors from damage caused by rapid short cycling
- ✓ Easy to install
- ✓ No user adjustments
- ✓ Solid state for maximum reliability



TIMING

Dims: to DIN 43880
W. 17.5mm

FURTHER SOLUTIONS

Protection

Earth Leakage

Protect installations against injury to personnel and damage to equipment due to earth leakage faults.

Benefits:

- ✓ Maximises safety



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Monitoring

Voltage and Current

Monitoring relays for under or over voltage and current sensing.

Benefits:

- ✓ Protect compressors and motors from single phasing and current unbalance
- ✓ Multi-voltage supply



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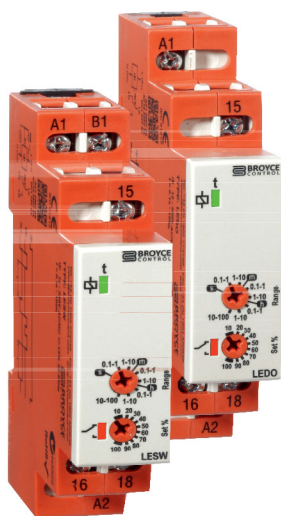
Timing

Single or Multifunction

Choice of timing relays for control of specific HVAC equipment such as compressors, exhaust fans, etc.

Benefits:

- ✓ Key timing functions available
- ✓ Multi-voltage supply
- ✓ Compact dimensions
- ✓ Easy to install



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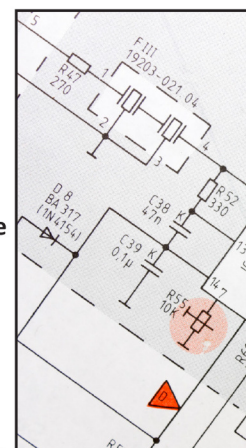
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