



Protection & Control

The ENTES Protection & Control product group consists of a wide range of products that provide solutions for the safe operation of systems and all control needs.

Motor Phase Protection Relays

- MKS Series
- MCS Series

Phase Sequence Protection Relays

- FR-02

Voltage Protection Relays

- DGRC-01
- GKRC-E Series
- GKRC Series
- MCC Series

Current Protection Relays

- AKC Series

Over Current Secondary Protection Relays

- CKR Series

Time Relays

- ERTC Series
- ERB Series
- MCB Series
- EF Series
- DG Series
- SSR-2X
- SER-YU

Multifunctional Timer Relays

- MCB-100/200
- ERTC-100 Series

Astronomical Time Relays

- DTR Series
- MCB-50 Series

Programmable Time Clocks

- MCB-50/50T
- MCB-A

Liquid Level Control Relay

- SSRC Series

Photocell Relays

- FG Series

Power Supplies

- PS Series

Control-Insulation Transformers

- ENT.PST/ENT.IST Series

ENTES

Reliable protection to your equipment with ENTES Voltage Protection Relay with Display...



GKRC-E Series

Over Voltage and Low Voltage Protection

Voltage Imbalance Protection

Over Frequency Protection

Low Frequency Protection

Phase Sequence Protection

Phase Failure Protection

Motor Phase Protection Relays



MKC - MKS Series

MKS-MKC Motor Protection Relays are designed to prevent 3-phase motors from overheating and being damaged due to phase failure or imbalance in industrial facilities.

1. Lack of Phase
2. Phase Sequence Error
3. PTC Protection
4. Fixed Asymmetry (Voltage Imbalance)
5. Adjustable Asymmetry (Voltage Unbalance)

Reliable protection
experience combined with
quality
by ENTES MKC/MKS Series...



Benefit

MK Series Motor Protection Relays protect your equipment and systems against phase breaks and unbalances.



Usage Areas

They are preferred by all businesses that want to protect their equipment against costly failures with features such as neutral break, absence of phase, phase sequence and PTC protection.

Motor (Phase) Protection Relays



Product Comparison Chart

| Product Name | | Neutral Break Detection | Lack of Phase | Phase Sequence Error | PTC Protection | Constant Asymmetry | Adjustable Asymmetry | Without neutral | Adjustable OFF Delay | Adjustable ON Delay | 1 C/O Contact | 1 N/O Contact | 220-230 VAC | 380-400 VAC | 160-690 VAC | DIN1 Rail Mount | DIN2 Rail Mount |
|--------------|---|-------------------------|---------------|----------------------|----------------|--------------------|----------------------|-----------------|----------------------|---------------------|---------------|---------------|-------------|-------------|-------------|-----------------|-----------------|
| MK-01 | Motor (Phase) Protection Relays | ● | ● | | | %20 | | | | | ● | ● | | | | | |
| MKC-01 | Motor (Phase) Protection Relays | ● | ● | | | %20 | | | | | ● | ● | | | | | ● |
| MKS-01 | Motor (Phase) Protection Relays | ● | ● | | | %20 | | | | | | ● | ● | | | | ● |
| MKC-03 | Motor (Phase) Protection Relays | ● | ● | ● | | %40 | | | | | ● | ● | | | | | ● |
| MKC-03P | Motor (Phase) Protection Relays (With PTC3) | ● | ● | ● | ● | %40 | | | | | ● | ● | | | | | ● |
| MKS-03 | Motor (Phase) Protection Relays | ● | ● | ● | | %40 | | | | | | ● | ● | | | | ● |
| MKC-04 | Motor (Phase) Protection Relays | | ● | ● | | %40 | | ● | | | ● | ○ | ● | | | | ● |
| MKC-04-U69 | Motor (Phase) Protection Relays | | ● | ● | | %10 | | ● | | | ● | | | | ● | | ● |
| MKC-05 | Motor (Phase) Protection Relays | ● | ● | ● | | %5-15 ; OFF | | ● | ● | ● | ● | ● | | | | | ● |
| MKC-05P | Motor (Phase) Protection Relays (With PTC3) | ● | ● | ● | ● | %5-15 ; OFF | | ● | ● | ● | ● | ● | | | | | ● |
| MKC-06 | Motor (Phase) Protection Relays | | ● | ● | | %5-15 ; OFF | | ● | ● | ● | ● | ● | | ● | | | ● |
| MKC-06P | Motor (Phase) Protection Relays (With PTC3) | | ● | ● | ● | %5-15 ; OFF | | ● | ● | ● | ● | ● | | ● | | | ● |
| MKC-30 | Motor (Phase) Protection Relays | ● | ● | ● | | %5-25 ; OFF | | | | ● | ● | ● | | | | | ● |

○ Optional

Protection Features

1. Absence of Phase

If there is voltage in the 3 phases monitored; output relay is in ON position. In case of failure of any of the 3 phases, the output relay automatically switches to OFF.

2. Phase Sequence Failure

When the phase sequence is correct (clockwise L1, L2, L3), the output relay is in the ON position; however, if the sequence changes, the output relay automatically switches to OFF.

3. PTC Protection

If the winding temperatures in the motors exceed the PTC limit temperature value, the output relay automatically switches to OFF.

4. Constant Asymmetry (Voltage Unbalance)

If the Phase-Neutral voltage shows voltage unbalance over a certain constant value (over 20% or 40%), the output relay switches to OFF in 0.2 seconds.

5. Adjustable Asymmetry (Voltage Unbalance)

If the Phase-Phase (MKC-06/06P) or Phase-Neutral (MKC-05/05P) voltage unbalance is lower than the value set by the user, the output relay switches ON. If the unbalance value exceeds the limit value set by the user (5% - 15%), the output relay switches to OFF after the delay time (0.1... 20s) defined by the user. If the fault disappears within the delay time, the output relay will not turn OFF and the motor will continue to run normally. In addition to these features, if the L3 phase falls below 50% of the operating voltage of the device (MKC-05/05P), the relay switches to OFF without delay. In this case, the phase sequence and asymmetry LEDs start to flash.

Phase Sequence Relay / Thermistor Relay

FR-02 / PT-01



FR-02

The FR-02 Phase Sequence Relay controls the sequence of the 3 phases feeding the motors. If the R, S and T phases are in the correct order, the OUT LED on the front panel lights up. If the phase sequence is wrong, the OUT (output) LED turns off and the output relay automatically turns OFF.

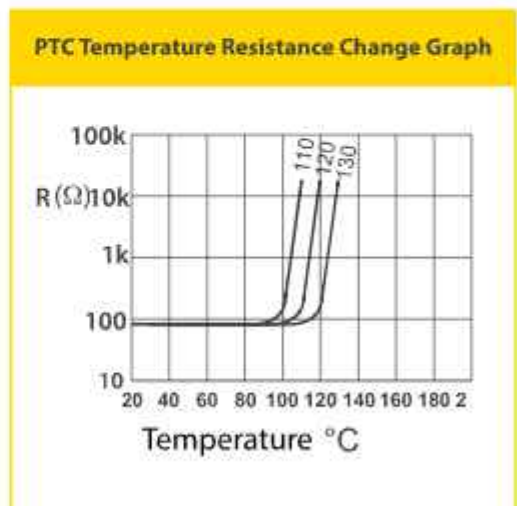
PT-01

The PT-01 Thermistor Relay has been developed for the protection of motors with PTC. If the winding temperatures in the motors exceed the PTC limit temperature value, the output relay automatically switches to OFF. Please refer to the graphic below to see the heat characteristics of the PTC at 3 different shutdown temperatures (110 °C, 120 °C, 130 °C).

Product Comparison Chart

| Product Name | | Neutral Fault Detection | Lack of Phase | Phase Sequence Error | PTC Protection | 1 C/O Contact | DIN2 Rail Mount |
|--------------|---|-------------------------|---------------|----------------------|----------------|---------------|-----------------|
| FR-02 | Phase Sequence Protection Relay | ● | ● | ● | | ● | ● |
| PT-01 | Thermistor Relay | | | | ● | ● | ● |
| PTC-3 | Triple Thermistor Group (Auxiliary Circuit Element) | | | | | | |

| Features | |
|---------------------------|---|
| Operating Voltage | 230 VAC |
| Operating Frequency | 50/60 Hz |
| Operating Range | (0.9-1.1) x Un |
| Connection | 3-phase / neutral (FR-02) / 1-phase / neutral (PT-01) |
| Contact Output | 1 CO contact, 8A, 2000 VA (FR-02) 5A, 1250 VA (PT-01) |
| Protection Class | IP20 |
| Ambient Temperature Range | -5 / +55°C |
| Dimension | 36x90x60 mm (FR-02, PT-01) |
| Mounting | Rail Mounting; Screw Terminal Block |
| Weight | 0.15 kg/pc (FR-02) 0.2 kg/pc (PT-01) |



Voltage Protection Relays

GKRC / DGRC / MCC Series



GKRC Series

GKRC Series Voltage Protection Relays are designed to protect single or three phase systems from sudden voltage changes and phase sequence disturbances.

When the nominal voltage of any phase increases or decreases by 50%, the relay switches to OFF without delay.

DGRC Series

DGRC Series Voltage Protection Relays are designed to protect single or three phase systems in permanent undervoltage.

Product Comparison Chart

| Product Name | LCD Display | Neutral Break Detection | 3-Phase | Single-Phase | Undervoltage | Overvoltage | Under Frequency | Over Frequency | Voltage Unbalance | Phase Failure Protection | Phase Sequence Protection | ON Delay | OFF Delay | TURN-OFF Delay | Without-Neutral | Auxiliary Supply | 230 VAC | 400 VAC | 8S-300VAC | 150-500VAC | Relay | DIN1 Rail Mounting | DIN2 Rail Mounting |
|--------------|--------------------|-------------------------|---------|--------------|--------------|-------------|-----------------|----------------|-------------------|--------------------------|---------------------------|----------|-----------|----------------|-----------------|------------------|---------|---------|-----------|------------|-------|--------------------|--------------------|
| GKRC-31E LCD | ● | | ● | | ● | ● | ● | ● | ● | ● | ● | ● | ● | | ● | | | | | ● | 1 | | ● |
| GKRC-21E LCD | ● | ● | ● | | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | ● | | 1 | | ● |
| GKRC-32E LCD | ● | | ● | | ● | ● | ● | ● | ● | ● | ● | ● | ● | | ● | | | | | ● | 2 | | ● |
| GKRC-22E LCD | ● | ● | ● | | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | ● | | 2 | | ● |
| DGRC-01 | | ● | ● | | ■ | | | | | | | ● | | ● | | | | ● | | | | | ● |
| GKRC-01 | | ● | ● | | ■ | | | | | | | ● | | ● | | | | ● | | | | | ● |
| GKRC-02 | | ● | ● | | ■ | ■ | | | | | | ● | | ● | | | | ● | | | | | ● |
| GKRC-02F | | ● | ● | | ■ | ■ | | | | ● | ● | ● | | ● | | | | ● | | | | | ● |
| GKRC-02FA | | | ● | | ■ | ■ | | | | ● | ● | ● | | ● | ● | ● | ● | ● | | | | | ● |
| GKRC-03 | | | ● | | ■ | ■ | | | | | | ● | | ● | ● | | | ● | | | | | ● |
| GKRC-03F | | | ● | | ■ | ■ | | | | ● | ● | ● | | ● | ● | | | ● | | | | | ● |
| GKRC-M2 | | ● | ● | | ■ | ■ | | | | ● | ● | ● | | ● | | | | ● | | | | | ● |
| MCC-1D | 5-15 min. ON Delay | ● | ● | | ■ | | | | | ● | | ● | | | | | | ● | | | | | ● |
| MCC-3D | 5-15 min. ON Delay | ● | ● | | ■ | | | | | ● | | ● | | | | | | ● | | | | | ● |
| GKRC-30F | | ● | ● | | ○ | ○ | | | | ● | ○ | | | ● | | | | ● | | | | | ● |

■ Adjustable and Closeable.
○ Selectable.

Current Protection Relays



AKC Series

AKC Series Current Protection relays measure the current of the systems and shut down the systems when the measured current values are above or below the adjusted level.



Product Comparison Chart

| Product Name | | Low Current Protection | Over Current Protection | ±5A | CT-25 Included | 230 VAC | DINZ Rail Mount |
|--------------|---|------------------------|-------------------------|-----|----------------|---------|-----------------|
| AKC-01D | Low Current Protection (0.5-5A) | ● | | ● | | ● | ● |
| AKC-01A | Over Current Protection (0.5-5A) | | ● | ● | | ● | ● |
| AKC-03D | Low Current Protection (with CT-25 between 1.5A and 60A) | ● | | | ● | ● | ● |
| AKC-03A | Over Current Protection (with CT-25 between 1.5A and 60A) | | ● | | ● | ● | ● |

Experience reliable protection with **ENTES AKC Series**, which combines innovation and superior quality...



Benefit

ENTES AKC Series Current protection Relays are designed to protect systems against to current imbalances.



Application

ENTES AKC Series is a reliable solution for all facilities require an equipment protection within a certain current range.

Over Current Secondary Protection Relays



CKR Series

CKR Series Overcurrent Relays combine reverse and independent time relays in a single device. CKR Series Overcurrent Relays are used to protect transformers, motors, generators and power transmission lines in the power distribution system against short circuits and ground failures. "Selective protection" should be applied to ensure the highest level of protection. The main purpose of the selective protection is to limit the fault to the minimum and disconnect as soon as possible.

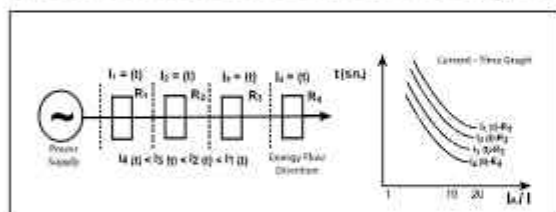


Product Comparison Chart

| Product Name | |
|--------------|--|
| CKR-93T | 3 Phase + 1 Ground (Adjustable inverse and fixed time, for phase and ground) 85-265 VAC / DC |
| CKR-92T | 2 Phase + 1 Ground (Adjustable inverse and fixed time, for phase and ground) 85-265 VAC / DC; 24 VDC |

Correct protection for inverse time overcurrent relays can be realized under the following conditions:

- 1) Relays with the same operating characteristics should be connected in series with each other.
- 2) TURN-OFF Delay of the relays used in the system should be set as "Current/time steps". The current dependent TURN-OFF Delay time of the relays should be designed in such a way that the "current/time steps" decrease with distance from the source. In this way, the relay at the end of the line (R4 as follows) should have the shortest TURN-OFF time. This can be seen from the diagrams and the current-time characteristics given below:



- Double Isolation (□)
- Measurement Category III
- Terminal Connection
- Flush Mounting
- IP40 (front panel)
- IEC 60255-3
- IEC 60255-6
- IEC 529

A. The CKR series has the following I/t characteristics. According to EC-255, BS-142 these are:

- a - Normal Inverse
- b - Very Inverse
- c - Extreme Inverse
- d - Long Time Inverse (CKR-93T)
- e - Independent Time 1 (2.5 sec.)
- f - Independent Time 2 (5 sec.)
- g - Independent Time 3 (10 sec.)
- h - Independent Time 4 (15 sec.)

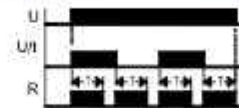
The instantaneous TURN-OFF current, time multiplier and current time characteristic settings can be selected separately for phase and neutral.

Functions

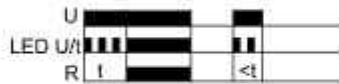
OFF Delay [MCB-15 & MCB-20 & MCB-7/8/9]



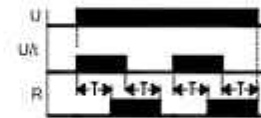
Single Shot Leading and Trailing Edge with Control Output



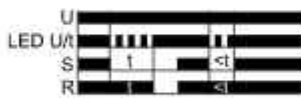
ON Delay [MCB-15 & MCB-20 & MCB-7-8-9-30-60]



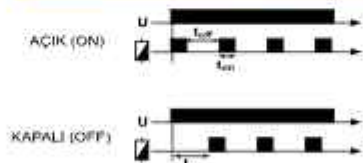
ON Delay with Control Input Leading Edge OFF Delay with Control Input Trailing Edge



OFF Delay with Control Input [MCB-15 & MCB-20]



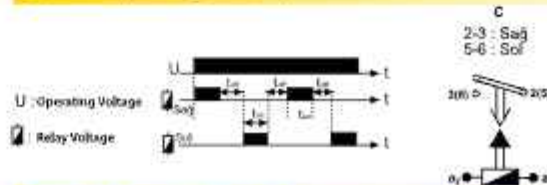
Flasher



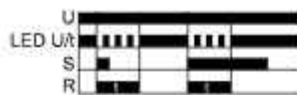
ON Delay with Control Input [MCB-20]



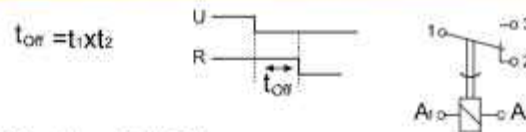
Right-Left Operating (SSR-2X)



Single Shot Leading Edge with Control Input (Ts)[MCB-20]



Power OFF Delay (DG-10 / DG-60)



No voltage, Delay Trigger

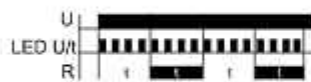
Single Shot Trailing Edge with Control Input (Ta)[MCB-20]



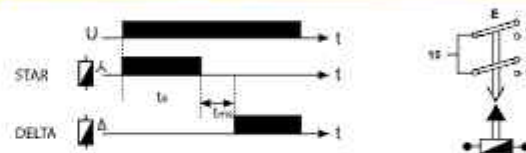
Dishwasher Relay (ERB-50)



Symmetrical Flasher [MCB-15 & MCB-20]



Star-Delta Relay (SER-Y/U)



* For SER - Y/U, 24 VAC/DC input is applied between A2-A3.

Multifunctional Timer Relays



MCB-100/200 ERTC-100 Series

Multifunctional Digital Time Relays

- Ability to work with internal battery without the need for power supply (MCB-200)
- 1.000.000 contact turn/off abilities (MCB-200)
- Easy installation with user-friendly menu
- In addition to the main functions, flexible solutions suitable for the purpose in applications with sub-functions that can be controlled by triggering.
- With the memory feature, the ability to save time and status information in memory when the power supply is interrupted in some functions and to continue from where it left off when the power is restored.
- It has the features of performing the functions according to the real time clock with the digital time setting.



Product Comparison Chart

| Product Name | Functionality | Time | Triggered ON Delay | OFF Delay | Pulse | Asymmetrical Flasher | Symmetrical Flasher | Start/Stop | Counter | Right-Left | Star/Delta | 2 Steps ON Delay | 2 Steps OFF Delay | Memory | 12-30 VAC/DC | 85-315 VAC/DC | Internal Battery | DIN2 Rail Mount |
|--------------|---|-----------------------------|--------------------|-----------|-------|----------------------|---------------------|------------|---------|------------|------------|------------------|-------------------|--------|--------------|---------------|------------------|-----------------|
| MCB-100 | 7 Functional Time Relay | 0,1sn-9999min. | ● | | | | | | | ● | ● | ● | ● | * | ● | | ● | |
| MCB-101 | 7 Functional Time Relay | 0,1sn-9999min. | ● | | | | | | | ● | ● | ● | ● | * | ● | | ● | |
| MCB-120 | 17 Functional Time Relay | 0,1sn-9999min. | ● | ● | ● | ● | ● | | | | | | | * | ● | | ● | |
| MCB-121 | 17 Functional Time Relay | 0,1sn-9999min. | ● | ● | ● | ● | ● | | | | | | | * | ● | | ● | |
| MCB-125 | 21 Functional Time Relay | 0,1sn-9999min. | ● | ● | ● | ● | ● | ● | ● | | | | | * | ● | | ● | |
| MCB-126 | 21 Functional Time Relay | 0,1sn-9999min. | ● | ● | ● | ● | ● | ● | ● | | | | | * | ● | | ● | |
| MCB-130 | 28 Functional Time Relay | 0,1sn-9999min. | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | * | ● | | ● | |
| MCB-131 | 28 Functional Time Relay | 0,1sn-9999min. | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | * | ● | | ● | |
| MCB-200 | Multifunctional Time Relay Without Supply | 0,2sn-9999sn/0,1dk-9999min. | ● | ○ | ○ | ○ | ○ | ○ | ○ | | | | | | | | ● | ● |
| ERTC-100 | Sayıç / Impulse Zaman Rölesi | 0,1sn-9999min. | ● | | ● | | | | ● | | | | | * | ● | | ● | |
| ERTC-101 | Sayıç / Impulse Zaman Rölesi | 0,1sn-9999dk | ● | | ● | | | | ● | | | | | * | ● | | ● | |

○ Functions with Triggered

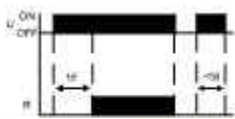
To see the sub-functions included in the main functions, see the function table.

* Memory feature is not valid for all functions of the device. See the instructions for use for the details of the applicable functions.

Main Functions

ON Delay

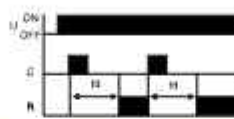
a) Power Supply Start



b) Control Input(*)

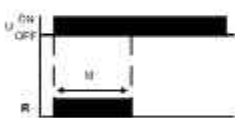


c) Resettable with Leading Edge Trigger(*)

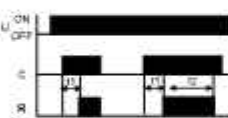


OFF Delay

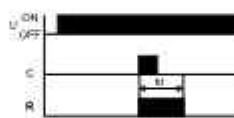
a) with Supply Voltage



b) with Control Output(*)



c) with Leading Edge Trigger



d) Resettable with Leading Edge Triggerger

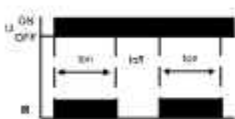


e) Resettable with Trailing Edge(*)

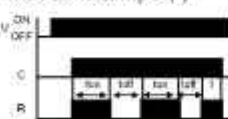


Flasher

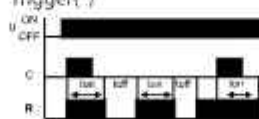
a) Asymmetric ON Start



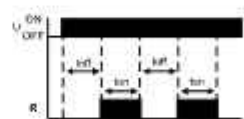
b) Asymmetric ON Start with Control Input(*)



c) Resettable Asymmetric ON Start with Leading Edge Trigger(*)



d) Asymmetric OFF Start



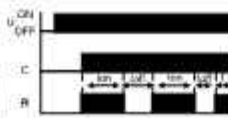
e) Asymmetric OFF Start with Control Input(*)



f) Resettable Asymmetric OFF Start with Leading Edge Trigger(*)



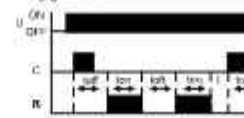
g) Symmetric ON Start with Control Input(*)



h) Symmetric OFF Start with Control Input(*)

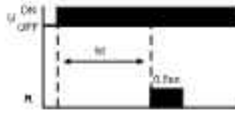


i) Resettable Symmetric OFF Start with Leading Edge Trigger(*)

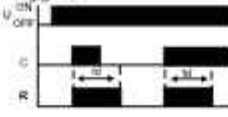


Pulse

a) Single Pulse with ON Delay After Supply Voltage



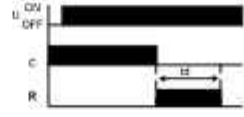
b) Adjustable OFF Delay Pulse with Leading Edge Trigger(*)



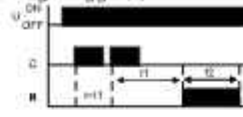
c) Resettable OFF Delay Pulse with Trailing Edge Trigger(*)



d) Adjustable OFF Delay Pulse with Leading Edge Trigger

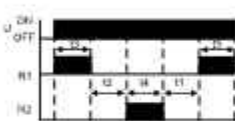


e) Resettable Adjustable OFF Delay Pulse with Leading Edge Trigger(*)

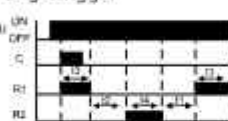


Right-Left Switcher (with Adjustable Time)

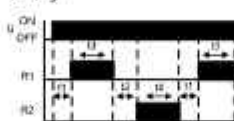
a) ON Start



b) ON Start with Leading Edge Trigger



c) OFF Start with Adjustable Delay

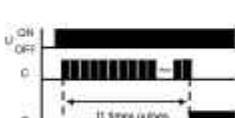


d) OFF Start with Leading Edge Trigger

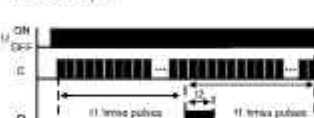


Counter

a) Up Pulse Counter



b) Up Pulse Counter with Adjustable Pulse Output



c) Down Time Counter with Leading Edge Trigger



2 Steps ON and OFF Delay/ Start-Stop

a) 2 Steps ON Delay



b) 2 Steps OFF Delay



c) Start-Stop Leading Edge Trigger



MCB-200 contains only the functions marked with () under Main Functions

Astronomical Time Relays



DTR Series



- Sunset, Sunrise Auto-Adjustment
- Automatic Switch To Summer Time
- 24/7 Programming By City Name Or Geographical Coordinate
- 15 Or 32 Program Numbers And Seconds Precision
- Modbus RS-485 Communication (DTR-20S/TS)
- Battery Level Indicator
- Display Illumination
- Password Protection
- Vacation Mode

DTR-PROG Software

DTR-PROG Setting Software enables all settings made via DTR devices to be made easily and quickly in the computer environment. These settings are loaded into DTR-IR-PROG devices, enabling easy programming of DTRs. DTR-IR-PROG is non-contact with IR (Infrared Ray) and DTR-PROG performs the programming process by attaching to the device thanks to the PROG module.

With ENTES DTR Series
uninterrupted efficiency is
by the side of you...



Benefit

ENTES DTR Series is designed to control your devices based on user-set time or automatically calculated sunrise/sunset



Application

DTR Series Astronomical Time Relays provide a beneficial solution for applications such as lighting, irrigation, agricultural spraying for both commercial and residential applications.

Astronomical Time Relays / Time Clock



Product Comparison Chart

| Product Name | | Data Transfer | Changeable Battery | Ability to Program According to Prayer Times | 24 hour Time Setting | Geographic Coordinate Programming (Astronomical) | 15 Programs | 32 Programs | 1 Relay Output (16A) | 2 Relay Output (16A) | 85-265 VAC | 190-260 VAC | DIN3 Rail Mounting |
|--------------------|--|---------------|--------------------|--|----------------------|--|-------------|-------------|----------------------|----------------------|------------|-------------|--------------------|
| DTR-10 | Astronomical Time Relay | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| DTR-10t | Astronomical Time Relay | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| DTR-20 | Astronomical Time Relay, External Memory | PROG | | | ● | ● | | ● | | ● | | ● | ● |
| DTR-20S | Astronomical Time Relay (Double Contact) | RS-485 | ● | | ● | ● | | ● | | ● | ● | | ● |
| DTR-20TS | Astronomical Time Relay (with Communication) | RS-485 | ● | | ● | ● | | ● | ● | | ● | | ● |
| DTR-20M | Astronomical Time Relay, IR Programming | IR | | | ● | ● | | ● | | ● | | ● | ● |
| DTR-25 | Astronomical Time Relay | | | ● | ● | ● | | ● | | ● | | ● | ● |
| Programmers | | | | | | | | | | | | | |
| DTR-PROG | Programmer (for DTR-20) | | | | | | | | | | | | |
| DTR-IR-PROG | Infrared Programmer (for DTR-20M) | | | | | | | | | | | | |

DTR-10/10t: DTR-10/10t: Astronomical Time Relay



DTR-20: DTR-20: Astronomical Time Relay (External Memory)



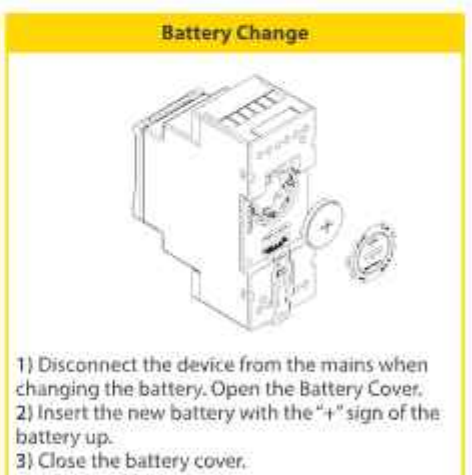
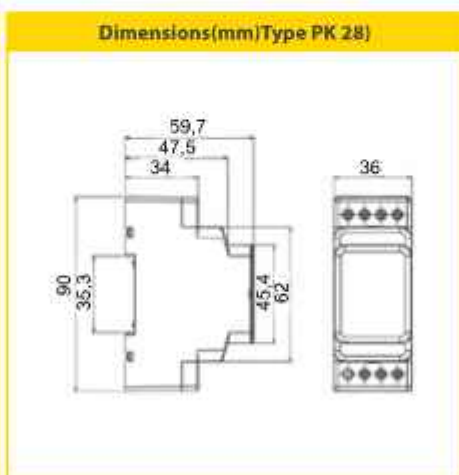
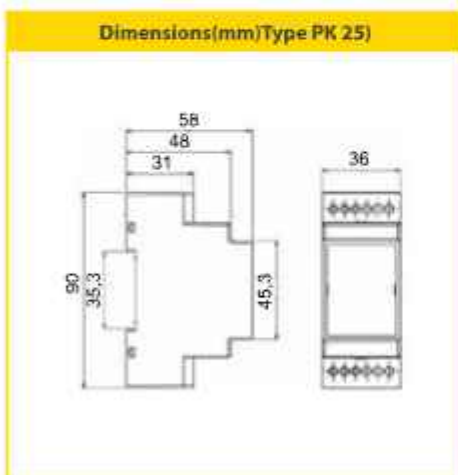
DTR-20M: DTR-20M: Astronomical Time Relay (IR Programming)



DTR-25: DTR-25: Astronomical Time Relay (Calculating Prayer Hours)



DTR-20S/DTR-20TS: DTR-20S/DTR-20TS: Astronomical Time Relay (Double Contact/Communication)



Programmable Time Clocks



MCB-50/50T
MCB-A

MCB-50/50T: It controls the daily and weekly operation of the devices with its user-friendly menu and 24/7 precise programming.

MCB-A: It controls the daily operation of electrical appliances with each ratchet gear corresponding to a time of 15 minutes.

 **Product Comparison Chart**

| Product Model | Product Description | Daily Programming (24 hours) | Weekly Programming | Number of Programs | Minimum Switching Time | Reverse Time | 1 Relay Output | 2 Relay Output | 230 VAC (0/1) | 0/0/1/1 |
|----------------|---------------------|------------------------------|--------------------|--------------------|------------------------|--------------|----------------|----------------|---------------|---------|
| MCB-A | Analog Time Clock | ● | | | 15 min. | 100 h | ● | | ● | ● |
| MCB-50T | Digital Time Clock | ● | ● | 32 | 1 sec. | ● | ● | ● | | ● |
| MCB-50 | Digital Time Clock | ● | ● | 32 | 1 sec. | ● | | ● | | ● |

“Maximum comfort minimum energy with DTR series astronomic time relays!”

Interchangeable Battery

24/7 Programming by City Name and Geographical Coordinate



Password Protection

Modbus RS-45 Communication

Remote Monitoring&Control

Liquid Level Control Relays



SSRC Series

SSRC Series Liquid Level Control Relays are used to control liquid levels in liquid tanks in water wells and industrial facilities. Sensitivity (resistance / impedance between electrodes) can be adjusted between 5-50 kΩ or 5-100 kΩ for different liquids.



Product Comparison Chart

| Product Name | | 5-50 kΩ Adjustable | 5-100 kΩ Adjustable | Small Electrode | Big Electrode | 8 Pin Socket | 230 VAC | DIN2 Rail Mounting | Socket Mounting |
|--------------|-------------------------------------|--------------------|---------------------|-----------------|---------------|--------------|---------|--------------------|-----------------|
| SSRC-04 | Liquid Level Control Relay | ● | | | | | ● | ● | |
| SSRC-04P | Liquid Level Control Relay (8 Pins) | | ● | | | | ● | | ● |
| LLS-01 | Liquid Level Electrode | | | ● | | | | | |
| LLS-02 | Liquid Level Electrode | | | | ● | | | | |
| PG5-108 | SSRC-04P Socket | | | | | ● | | | |

Liquid Level Electrodes cannot be used with flammable, corrosive liquids and foodstuffs. The liquids whose level is to be controlled must have the property of conducting electricity. olması gerekmektedir.

Socket Mounting, Innovative Liquid Level Control Solutions...



Benefit

Liquid Level Relays in storage areas ensure the liquid level remain within the specified range to prevent any damage.



Application

ENTES Liquid Level Control Relays are ideal for industrial and agricultural projects aim an uninterrupted continuity in production processes.

Photocell Relays

FG Series



FG Series Photocell Relays control the lighting systems according to the ambient light level with the lux setting on them.

Product Comparison Chart

| Product Name | | 1-3 Lux Adjusted | 1-10 Lux Adjusted | Hand Operated | Fuse Protection | Triac Output | Relay Output | Sensor | 190-260 VAC | DIN2 Box |
|--------------|--------------------------------|------------------|-------------------|---------------|-----------------|--------------|--------------|--------|-------------|----------|
| FG-4 | Photocell Relay | ● | | | | | ● | | ● | ● |
| FG-4A | Photocell Relay | | ● | | | | ● | | ● | |
| FG-4R | Photocell Relay | | ● | ● | ● | | ● | | ● | |
| FG-4T | Photocell Relay (Triac output) | | ● | ● | ● | ● | | | ● | |
| FG-GOZ | Photocell Relay | | | | | | | ● | | |

With ENTES FG Series,
Correct Illumination Level is
under your control...



Benefit

ENTES FG Series Photocell Relays are designed to activate and deactivate lighting or other systems based on required illumination level.



Application

ENTES FG Series Photocell Relays are ideal solutions for controlling lighting or other systems in all industrial or residential applications.

Power Supplies



PS Series

PS Series Power Supplies provide safe DC output voltage for systems with its wide supply (AC/DC voltage range) and adjustable output voltage.



Product Comparison Chart

| Product Name | | Universal Input Voltage 85-265 VAC | 110-350 VDC | 1A Output Current | 1.5A Output Current | 3A Output Current | 5A Output Current | Contact Output | Parallel/Serial Connection | LED Display | Adjustable Output Voltage | Under/High Voltage Supply Protection | Overload Protection | Thermal Protection | Output Short Circuit Protection | DIN 3 Rail Mounting | DIN 4 Rail Mounting |
|--------------|-----------------|------------------------------------|-------------|-------------------|---------------------|-------------------|-------------------|----------------|----------------------------|-------------|---------------------------|--------------------------------------|---------------------|--------------------|---------------------------------|---------------------|---------------------|
| PS-242 | 24W-1A-24 VDC | ● | ● | | | | | | ● | ● | | | ● | ● | ● | ● | |
| PS-361 | 36W-3A-12 VDC | ● | | | ● | | | | ● | ● | | ● | ● | ● | ● | | ● |
| PS-362 | 36W-1.5A-24 VDC | ● | | ● | | | | ● | ● | ● | ● | ● | ● | ● | ● | | ● |
| PS-722 | 72W-3A-24 VDC | ● | | | | | | | ● | ● | ● | ● | ● | ● | ● | | ● |
| PS-1202 | 120W-5A-24 VDC | ● | | | ● | ● | | | ● | ● | ● | ● | ● | ● | ● | | |

Reliable DC Output Voltage with superior ENTES Quality...



Benefit

ENTES PS Series Power Supply provides reliable DC power.



Usage Areas

ENTES PS Series are ideal for Industrial and commercial building projects require stable DC power.

Power Supplies

PS-242 Power Supply 24W-1A-24 VDC

- Wide Supply Voltage (85-265 VAC/ 110-350 VDC)
- 24 VDC Output Voltage
- 1A Nominal Output Current
- High Efficiency Operation with >82%
- Overload, Overheat and Output Short Circuit Protection
- Class 2 Protection Not Requiring Ground Connection

PS-361 Power Supply 36W-3A-12 VDC

- Wide Supply Voltage(85-265VAC/ 110-350VDC)
- 12 VDC Output Voltage
- 3A Nominal Output Current
- High Efficiency Operation with >85%
- Auto-Reset feature to protect itself and the system by automatically shutting down in cases such as overload, overheating, low/high input or output voltages short circuit, automatic activation when the fault disappears
- Class 2 Protection Not Requiring Ground Connection

PS-362 Power Supply 36W-1,5A-24 VDC

- Wide Supply Voltage(85-265VAC/ 110-350VDC)
- Ability to work in the desired voltage range with adjustable output voltage (21.6-27.6 VDC)
- 1,5A Nominal Output Current
- High Efficiency Operation with >85%
- Auto-Reset feature to protect itself and the system by automatically shutting down in cases such as overload, overheating, low/high input or output voltages short circuit, automatic activation when the fault disappears
- Remote monitoring of the power source with 1 NC contact (10A -250 VAC / 5A 30 VDC), integrating it into the automation system
- Class 2 Protection Not Requiring Ground Connection

PS-722 Power Supply 72W-3A-24 VDC

- Wide Supply Voltage(85-265VAC/ 110-350VDC)
- Ability to work in the desired voltage range with adjustable output voltage (21.6-27.6 VDC)
- 3A Nominal Output Current
- High Efficiency Operation with >87%
- Auto-Reset feature to protect itself and the system by automatically shutting down in cases such as overload, overheating, low/high input or output voltages short circuit, automatic activation when the fault disappears
- Class 2 Protection Not Requiring Ground Connection
- In case of thermal protection, after the device cools down, the power supply must be disconnected and reconnected.

PS-1202 Power Supply 120W-5A-24 VDC

- Wide Supply Voltage(85-265VAC/ 110-350VDC)
- Ability to work in the desired voltage range with adjustable output voltage (20.7-27.6 VDC)
- 5A Nominal Output Current
- Auto-Reset feature to protect itself and the system by automatically shutting down in cases such as overload, overheating, low/high input or output voltages short circuit, automatic activation when the fault disappears
- It occupies less space with its slip-type design in panels where mounting space is important.
- Class 2 Protection Not Requiring Ground Connection

Function Charts

MOTOR (PHASE) PROTECTION RELAYS

| | | | | |
|--|---------|---------|-----------------|--|
| No Phase + Constant Asymmetry | | MKC-01 | MKS-01 | |
| No Phase + Constant Asymmetry + Phase Sequence | MKC-03 | MKS-03 | MKC-04 / 04-U69 | |
| No Phase + Constant Asymmetry + Phase Sequence + PTC | MKC-03P | | | |
| No Phase + Adjust. Asymmetry + Phase Sequence + Adjustment. ON and/or OFF Delay | MKC-05 | MKC-06 | MKC-30 | |
| No Phase + Adjust. Asymmetry + Phase Sequence + Adjustment. ON and OFF Delay + PTC | MKC-05P | MKC-06P | | |
| No Phase + Phase Sequence | FR-02 | | | |
| PTC | PT-01 | | | |

VOLTAGE PROTECTION RELAYS

| | | | | |
|---|----------|-----------|----------|----------|
| Low Voltage + Adjustable ON and OFF Delay | DGRC-01 | | | |
| Low Voltage + Adjustable ON Delay | MCC-1D | MCC-3D | | |
| Overvoltage + Adjustable ON and OFF Delay | GKRC-01 | | | |
| Under Voltage + Over Voltage + Adjustable. ON and OFF Delay | GKRC-02 | GKRC-03 | GKRC-M2 | |
| No Phase+Undervoltage+Overvoltage+Adjustable Tripping and OFF-ON Delay+Phase Sequence | GKRC-02F | GKRC-02FA | GKRC-03F | GKRC-30F |

CURRENT PROTECTION RELAYS

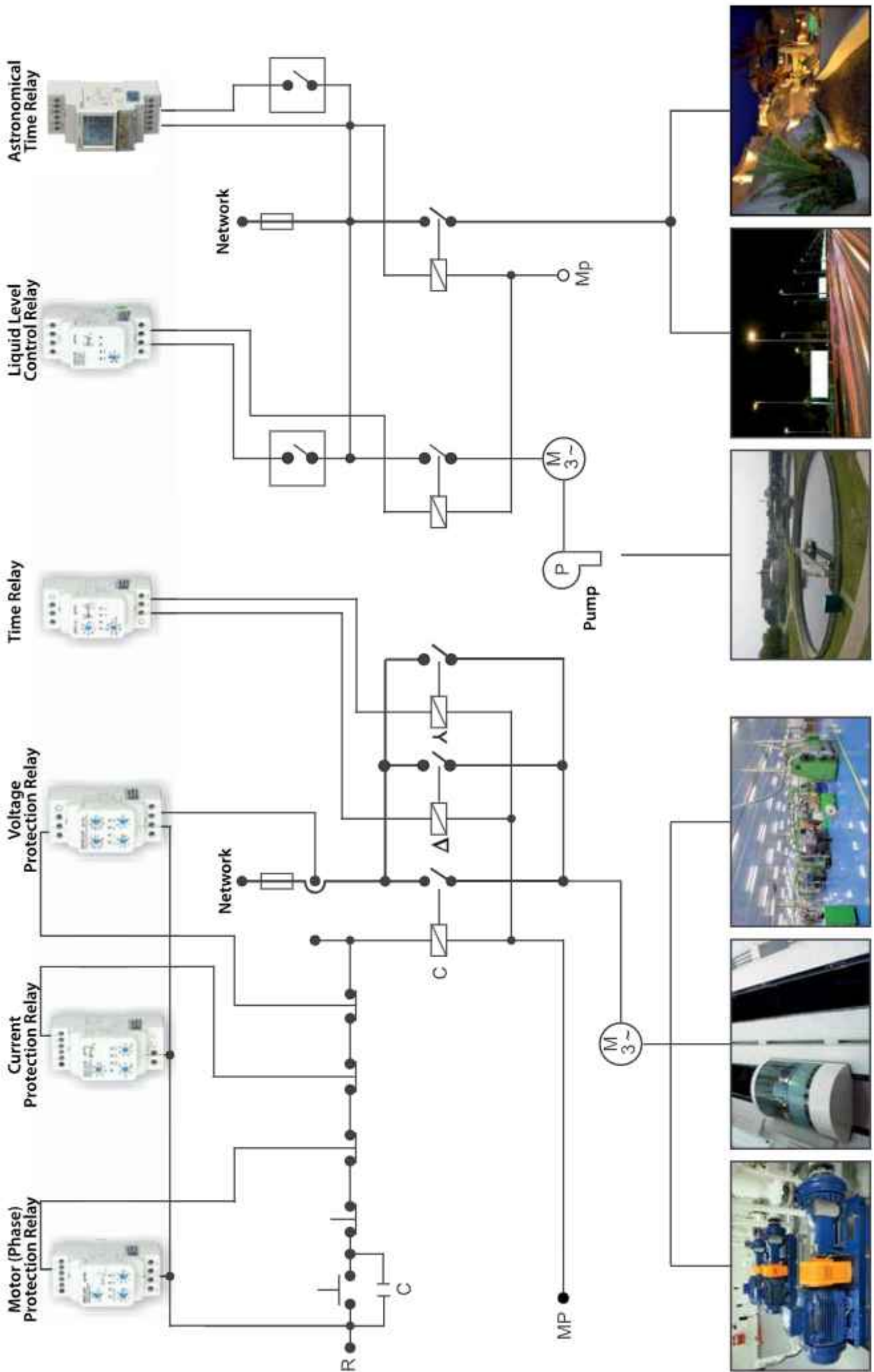
| | | | | |
|---------------|---------|---------|--|--|
| Under Current | AKC-01D | AKC-03D | | |
| Over Current | AKC-01A | AKC-03A | | |

TIME RELAYS

| | | | | |
|--|---------|--------|--|--|
| ON Delay | MCB-30 | MCB-60 | | |
| ON Delay +OFF Delay | MCB-7 | MCB-8 | | |
| Open Flasher | EF-10 | EF-10T | | |
| ON Delay +OFF Delay+ON Flasher +OFF Flasher | MCB-9 | | | |
| ON Delay +OFF Delay+ON Flasher +OFF Flasher+ Down Counter | ERTC-01 | | | |
| ON Delay +OFF Delay+ON Delay with Control Input + OFF Delay with Control Input + Triggered | MCB-15 | | | |
| ON Delay +OFF Delay+ON Delay with Control Input + OFF Delay with Control Input + Triggered+ Symmetric Flasher | MCB-20 | MCB-25 | | |
| Single Shot Leading and Trailing Edge with Control Input ON Delay with Control Input Leading Edge Delay with Control Input Trailing Edge | MCB-25 | | | |
| Power OFF Delay | DG-10 | DG-60 | | |
| Star- Delta | SER-YU | | | |
| Right-Left | SSR-2X | | | |
| Dishwasher Relay | ERB-50 | | | |

ASTRONOMIC TIME RELAYS

| | | | | |
|---------------------------|--------|------------|---------|--------|
| Astronomic+ 15 Programmes | DTR-10 | DTR-10t | | |
| Astronomic+ 32 Programmes | DTR-20 | DTR-20S/TS | DTR-20M | DTR-25 |



Control Transformers



ENT.PST Series

ENTES Control Transformers ensure safe operation of devices with 24 VAC output voltage. In addition to 230V or 400V constant input options, alternative input voltage (400; 230+15-15) options are also available.

Control Transformers are designed for continuous operation at 50°C ambient temperature. All ENTES Control Transformers are **CE** marked and compatible with EN standards.

SPECIFICATIONS

- Compatible with TS.EN 61558-2-2
- Air-gapped sheet welding minimizing the body grounding resistance
- Vacuum impregnated varnish method, which increases efficiency by reducing heat losses, provides protection against humidity and quiet operation.
- Ability to maintain the nominal output value up to 50°C ambient temperature
- Iron core with high magnetic permeability
- High quality copper winding Class 1 transformer
- Minimum primary-secondary isolation voltage values: 2200 VAC for 400V transformers, 1800 VAC for 230V transformers

Reliable 24VAC
by ENTES Control
Transformers...



Benefit

ENTES Control Transformers are designed to provide secure 24VAC to ensure the safe operation of measuring devices.

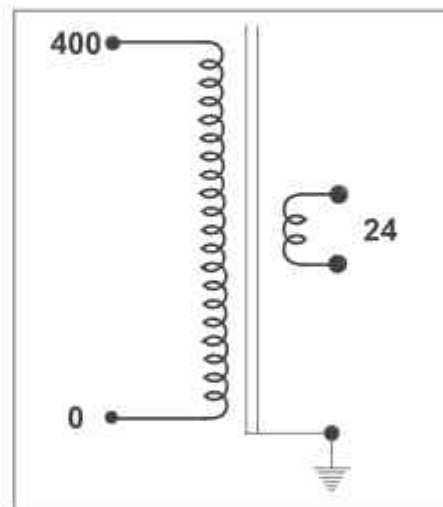
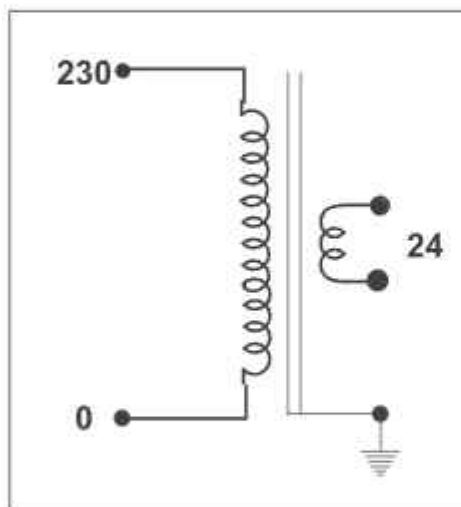


Application

Any electrical panel requires stable and reliable 24VAC.

ENT.PST. Series

| | Nominal Power (VA)(at 50°C) | Short Term Power | Weight(kg) | Terminal Diameter | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) | F (mm) | H (mm) |
|-------------------|--------------------------------|---------------------|------------|----------------------|--------|--------|--------|--------|--------|--------|--------|
| 230V / 24V | | | | | | | | | | | |
| ENT.PST.2324.25 | 25 | 51 | 1 | 4 mm | 66 | 76 | 80 | 50 | 64 | 80 | 5*8 |
| ENT.PST.2324.50 | 50 | 97 | 1,5 | 4 mm | 84 | 76 | 91 | 64 | 64 | 82 | 5*8 |
| ENT.PST.2324.100 | 100 | 209 | 1,9 | 4 mm | 84 | 76 | 91 | 64 | 64 | 96 | 6*9 |
| ENT.PST.2324.160 | 160 | 338 | 2,4 | 4 mm | 96 | 89 | 99 | 84 | 74 | 100 | 6*9 |
| ENT.PST.2324.200 | 200 | 419 | 3 | 4 mm | 96 | 89 | 99 | 84 | 74 | 100 | 6*9 |
| ENT.PST.2324.250 | 250 | 559 | 3,4 | 4 mm | 96 | 102 | 99 | 84 | 87 | 114 | 6*9 |
| ENT.PST.2324.320 | 320 | 689 | 4,4 | 4 mm | 120 | 90 | 127 | 90 | 83 | 92 | 6*9 |
| ENT.PST.2324.400 | 400 | 961 | 5,6 | 4 mm | 120 | 102 | 127 | 90 | 95 | 106 | 7*13 |
| ENT.PST.2324.500 | 500 | 1260 | 7,1 | 4 mm | 120 | 122 | 127 | 90 | 109 | 126 | 7*13 |
| ENT.PST.2324.630 | 630 | 1520 | 7,6 | 10 mm | 150 | 113 | 141 | 122 | 89 | 120 | 7*13 |
| 400V / 24V | | | | | | | | | | | |
| ENT.PST.4024.25 | 25 | 51 | 1 | 4 mm | 66 | 76 | 80 | 50 | 64 | 80 | 5*8 |
| ENT.PST.4024.50 | 50 | 96 | 1,5 | 4 mm | 84 | 76 | 91 | 64 | 64 | 82 | 5*8 |
| ENT.PST.4024.100 | 100 | 218 | 2 | 4 mm | 84 | 76 | 91 | 64 | 64 | 96 | 6*9 |
| ENT.PST.4024.160 | 160 | 344 | 2,4 | 4 mm | 96 | 89 | 99 | 84 | 74 | 100 | 6*9 |
| ENT.PST.4024.200 | 200 | 460 | 2,9 | 4 mm | 96 | 89 | 99 | 84 | 74 | 100 | 6*9 |
| ENT.PST.4024.250 | 250 | 584 | 3,4 | 4 mm | 96 | 102 | 99 | 84 | 87 | 114 | 6*9 |
| ENT.PST.4024.320 | 320 | 749 | 4,4 | 4 mm | 120 | 90 | 127 | 90 | 83 | 92 | 6*9 |
| ENT.PST.4024.400 | 400 | 909 | 5,5 | 4 mm | 120 | 102 | 127 | 90 | 95 | 106 | 7*13 |
| ENT.PST.4024.500 | 500 | 1241 | 7,1 | 4 mm | 120 | 122 | 127 | 90 | 109 | 126 | 7*13 |
| ENT.PST.4024.630 | 630 | 1556 | 7,6 | 10 mm | 150 | 113 | 141 | 122 | 89 | 120 | 7*13 |



ENT.PST. Series

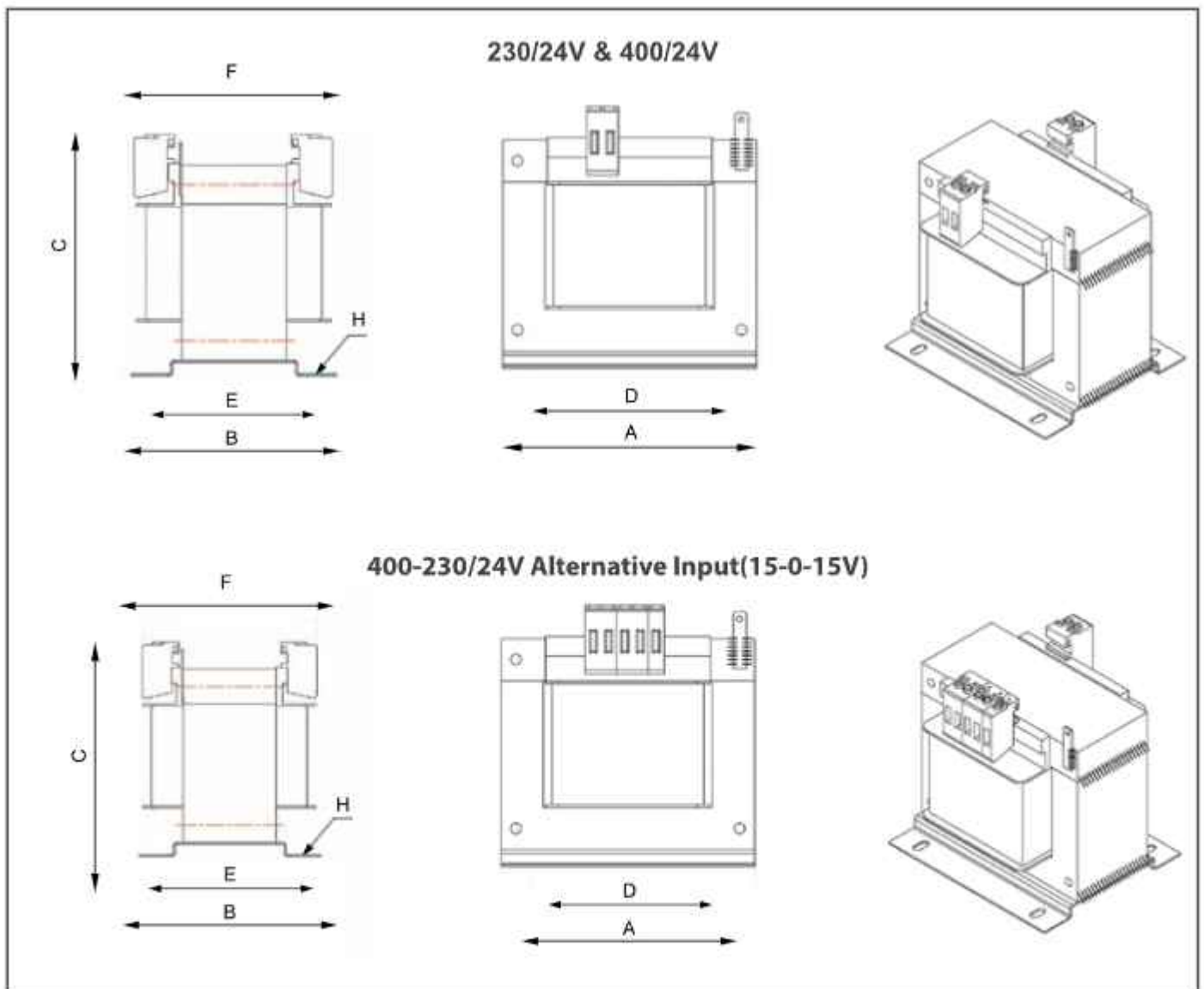
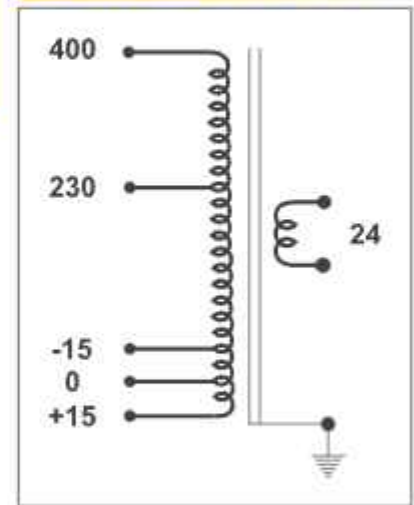
400 - 230 / 24 V Alternative Input (15-0-15 V)

| | Nominal Power (VA) (at 50°C) | Primary Voltage (V) | Short Term Power | Weight (kg) | Terminal Diameter | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) | F (mm) | H (mm) |
|--|------------------------------|---------------------|------------------|-------------|-------------------|--------|--------|--------|--------|--------|--------|--------|
|--|------------------------------|---------------------|------------------|-------------|-------------------|--------|--------|--------|--------|--------|--------|--------|

400-230/24V

| | | | | | | | | | | | | |
|-------------------|-----|-----|------|-----|---------------|-----|-----|-----|-----|-----|-----|------|
| ENT.PST.A4024.25 | 25 | 400 | 51 | 1 | 4 mm | 68 | 76 | 80 | 50 | 64 | 80 | 5*8 |
| ENT.PST.A4024.50 | 50 | 400 | 97 | 1,5 | 4 mm | 84 | 76 | 91 | 64 | 64 | 82 | 5*8 |
| ENT.PST.A4024.100 | 100 | 400 | 218 | 2 | 4 mm | 84 | 76 | 91 | 64 | 64 | 96 | 6*9 |
| ENT.PST.A4024.160 | 160 | 400 | 344 | 2,4 | 4 mm | 96 | 89 | 99 | 84 | 74 | 100 | 6*9 |
| ENT.PST.A4024.200 | 200 | 400 | 460 | 2,9 | 4 mm | 96 | 89 | 99 | 84 | 74 | 100 | 6*9 |
| ENT.PST.A4024.250 | 250 | 400 | 584 | 3,4 | 4 mm | 96 | 102 | 99 | 84 | 87 | 114 | 6*9 |
| ENT.PST.A4024.320 | 320 | 400 | 749 | 4,4 | 4 mm | 120 | 90 | 127 | 90 | 83 | 92 | 7*13 |
| ENT.PST.A4024.400 | 400 | 400 | 909 | 5,5 | 4 mm | 120 | 102 | 127 | 90 | 95 | 106 | 7*13 |
| ENT.PST.A4024.500 | 500 | 400 | 1214 | 7,1 | 4 mm | 120 | 122 | 127 | 90 | 109 | 126 | 7*13 |
| ENT.PST.A4024.630 | 630 | 400 | 1556 | 7,6 | 10 mm 4 mm | 150 | 113 | 141 | 122 | 89 | 120 | 7*13 |

ENT.PST.A Series



Isolation Transformer

ENT.IST Series

ENTES Isolation Transformers ensure safe operation of devices by isolating the secondary side from the primary voltage. Input and output voltages of isolation transformers are constant (230V or 400V). It is generally used to obtain a neutral point in places where galvanic isolation is required and in networks without a neutral point.

All insulation transformers compatible with **CE** mark and EN standards.

SPECIFICATIONS

- Compatible with TS.EN 61558-2-2
- Vacuum impregnated varnish method, which increases efficiency by reducing heat losses, provides protection against humidity and quiet operation.
- Air-gapped sheet welding minimizing the body grounding resistance
- Ability to maintain the nominal output value up to 50°C ambient temperature
- Iron core with high magnetic permeability
- High quality copper winding Class 1 transformer
- High Efficiency

High isolation against to damaging impacts of voltage with ENTES Isolating Transformers...

**Benefit**

ENTES Isolating Transformers are designed to protect equipments against to instantaneous changes on voltage.

**Application**

Preferred by the industrial projects require protection of sensitive and valuable equipment.

Isolation Transformer

| | Nominal Power (VA)(at 50°C) | Short Term Power | Weight(kg) | Terminal Diameter | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) | F (mm) | H (mm) |
|------------------|-----------------------------|------------------|------------|-------------------|--------|--------|--------|--------|--------|--------|--------|
| 230/230 | | | | | | | | | | | |
| ENT.IST.2323.25 | 25 | 51 | 1 | 4 mm | 66 | 76 | 80 | 50 | 64 | 80 | 5*8 |
| ENT.IST.2323.50 | 50 | 104 | 1,5 | 4 mm | 84 | 76 | 91 | 64 | 64 | 82 | 5*8 |
| ENT.IST.2323.100 | 100 | 199 | 2 | 4 mm | 84 | 76 | 91 | 64 | 64 | 96 | 6*9 |
| ENT.IST.2323.160 | 160 | 338 | 2,4 | 4 mm | 96 | 89 | 99 | 84 | 74 | 100 | 6*9 |
| ENT.IST.2323.200 | 200 | 428 | 2,9 | 4 mm | 96 | 89 | 99 | 84 | 74 | 100 | 6*9 |
| ENT.IST.2323.250 | 250 | 548 | 3,4 | 4 mm | 96 | 102 | 99 | 84 | 87 | 114 | 6*9 |
| ENT.IST.2323.320 | 320 | 701 | 4,4 | 4 mm | 120 | 90 | 127 | 90 | 83 | 92 | 6*9 |
| ENT.IST.2323.400 | 400 | 959 | 5,4 | 4 mm | 120 | 102 | 127 | 90 | 95 | 106 | 7*13 |
| ENT.IST.2323.500 | 500 | 1259 | 7,1 | 4 mm | 120 | 122 | 127 | 90 | 109 | 126 | 7*13 |
| ENT.IST.2323.630 | 630 | 1493 | 8,1 | 4 mm | 150 | 113 | 141 | 122 | 89 | 102 | 7*13 |
| 400/230 | | | | | | | | | | | |
| ENT.IST.4023.25 | 25 | 51 | 1 | 4 mm | 66 | 76 | 80 | 50 | 64 | 80 | 5*8 |
| ENT.IST.4023.50 | 50 | 95 | 1,5 | 4 mm | 84 | 76 | 91 | 64 | 64 | 82 | 5*8 |
| ENT.IST.4023.100 | 100 | 216 | 2 | 4 mm | 84 | 76 | 91 | 64 | 64 | 96 | 6*9 |
| ENT.IST.4023.160 | 160 | 330 | 2,5 | 4 mm | 96 | 89 | 99 | 84 | 74 | 100 | 6*9 |
| ENT.IST.4023.200 | 200 | 454 | 3 | 4 mm | 96 | 89 | 99 | 84 | 74 | 100 | 6*9 |
| ENT.IST.4023.250 | 250 | 555 | 3,6 | 4 mm | 96 | 102 | 99 | 84 | 87 | 114 | 6*9 |
| ENT.IST.4023.320 | 320 | 744 | 4,5 | 4 mm | 120 | 90 | 127 | 90 | 83 | 92 | 6*9 |
| ENT.IST.4023.400 | 400 | 942 | 5,6 | 4 mm | 120 | 102 | 127 | 90 | 95 | 106 | 7*13 |
| ENT.IST.4023.500 | 500 | 1174 | 7,1 | 4 mm | 120 | 122 | 127 | 90 | 109 | 126 | 7*13 |
| ENT.IST.4023.630 | 630 | 1555 | 8,3 | 4 mm | 150 | 113 | 141 | 122 | 89 | 102 | 7*13 |

