



— L1 Inductive Energy — L2 Inductive Energy — L3 Inductive Energy



**Energy Analyzers and Reactive Power Control Relays  
with communication**

*Future Tense of Industrial Electronics*



## RGT-MT18 SVC

# Magic Touch

## New Generation Compensation



5" Touch Screen



TCR (SVC) Connection



Solar system-PV compatible



61st Harmonic Measurement



Generator Mode



Remote Access and Monitoring



Easy setup and Use



Internal Panel Thermostat and Control



Power Analysis



Flexible Working Voltage

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Tense Electronics, is a Turkish producer company operating in automation industry since 2006 with executions in various countries.

With an expertised and experienced team, Tense Electronics is bringing novelties and adding values to automation industry every new day. By help of a dynamic R&D and production teams, we update our product portfolios continuously. Brought a contemporary approach and high quality solutions into the industry, Tense is not only offering industrial solutions but also developing products and software easing the life itself.

Having a motto like "Using the technology of tomorrow since today", Tense Electronics has been reputable with the innovative solutions and become a pioneer in automation industry since the first day of production.

Focusing on R&D activities in order to develop new technologies, Tense Electronics is inventing new product categories and solutions all the time.

Gathering a strong name in the international market after export operations, Tense is extending the production line, team and plant regularly in order to provide the orders coming from new accounts.

Having the production plant in Istanbul, the connection point of European and Asian trade, Tense Electronics is exporting to more than 85 countries including U.A.E., Egypt, Russia, Ukraine, Albania, Tunisia, Poland, India, Germany, Morocco Libya and also have dealers and represents in many markets.

The only company having authorization of Turkish Standards Institute on Reactive Power Control Relay products, Tense Electronics is also one of the rare companies holding CE, UKR-SEPRO and GOST-R documents on its products.

By help of our technical teams that provide superior pre-sales and after-sales services, we are aiming to provide the best product with best price in shortest time with fastest and most active customer service.

**Our goals are, with better Energy quality, energy efficiency, communication with energy tracking, compensation and automation solutions**



# COMING SOON

## TBM-53B INDUSTRIAL DISHWASHER RELAY



- Built-in Buzzer feature
- Washing process completed information
- With drain outlet (Rinse time + 7sec.)
- 5 Level washing time (30-60-90-120-180 sec.)
- Supply voltage 100V-240V AC
- 1 Contact output 220V AC/10A

## TTR-20AS ASTRONOMIC TIME RELAY



- Energy-free programming with NFC Feature
- 12 - 240V AC/DC Supply voltage
- 2 contact outputs
- Automatic geolocation information by cities
- Summer/Winter time setting
- Automatic operation according to sunrise and sunset
- On/off time can be adjusted
- 32 different programs can be added
- 24 Hour time setting
- Replaceable battery
- 5 Years battery life



## TDK-24 / TDK-24YU PUMP CONTROL RELAY

- 2A to 40A (TDK-24), 5A to 250A (TDK-24YU)
- 3 phase voltage and current display
- Adjustable high and low current protection.
- Adjustable high and low voltage protection.
- Processor control that extends electrode life
- Current asymmetry protection
- Current fuse protection
- Adjustable Star waiting time (TDK-24YU)

## EM-08

### ADVANCED MULTIMETER

- Supports 3P4W and 3P3W (Non-Neutral) connections.
- 3 phase voltage (LN) min, max and average (V)
- 3 phase voltage (LL) min, max and average (V)
- 3 phase current, total current and 3 phase demand (I)
- 3 phase active power, total active power (Scalar) and demand (P)
- 3 phase reactive power, total reactive power (scalar) (Q)
- 3 phase apparent power, total apparent power (scalar) and demand (S)
- 3 phase import active energy (P kWh) and total
- 3 phase export active energy (-P kWh) and total
- 3 phase inductive reactive energy (Q kVarh) and total
- 3 phase capacitive reactive energy (-Q kVarh) and total
- 3 phase apparent reactive energy (S kVAh) and total



## TDK-96H



### COMMUNICATING SUBMERSIBLE PUMP CONTROL RELAY

- Protection between 1A - 250A
- RS485 Modbus RTU
- Electrodeless well control
- Number of Engine Stop/Starts and total operating time
- Easy-to-use menu
- Turkish and English language options
- Total Active Energy (Σ+P) can be monitored
- StarDelta contact output

## TPM-06

### ENERGY ANALYZER

- Supports 3P3W (Without Neutral), 3P4W, Aron connections.
- 3.5 inch TFT Color Screen
- Micro SD memory card support up to 256 GB
- RS485 Modbus RTU
- Screen timeout protection
- Measures up to the 63rd voltage harmonic (LN and LL).
- Measures up to the 63rd harmonic of the current.
- 2 relay outputs (Maximum 5A 250V AC resistive load)
- Tariff T1, T2, T3 and T values
- Tariff2 P,Q, -Q and S energy values
- Event records (high voltage, low voltage, power failure, voltage irregularity, high current, current irregularity,
- THDV and THDI limits)



## ERP-DX

### MULTIFUNCTIONAL TIME RELAY

- A Mode: On delay 10 sec
- A mode: 10 seconds on-delay
- B mode: 99 seconds on-delay
- C mode: 10 minutes on-delay
- D mode: 99 minutes on-delay
- E mode: 10 seconds off-delay
- F mode: 99 seconds off-delay



## ERS-08N

### MULTIFUNCTIONAL TIME RELAY

- 8 Pin socket input
- 2 relay outputs
- 2 Digit 7 Segment Display
- Time range from 0.1 sec to 100 Hours
- 6 function modes
- A Mode: On delay
- A1 Mode: On delay 0.5sec. one shot - Shot delay 0.5sec. single stroke, instantaneous contact
- B Mode: On delay 2- Delayed, instantaneous contact
- F Mode: Flicker - Equal time flasher relay off start
- F1 Mode: Flicker 1- Equal time flasher relay on start, instantaneous contact
- I Mode: Off delay - with instantaneous contact



## MDK-24

### SUBMERSIBLE PUMP CONTROL RELAY

- 2A - 40A
- With external current transformer (40A)
- High (250V) and low (170V) voltage protection
- Adjustable High/Low current protection.
- Voltage and current display
- Processor control that extends electrode life
- Adjustable electrode sensitivity.



# NOVELTIES

## RGM-12S



### Reactive Power Control Relay

- 7 Different Compensation Programs
- Monophase(1 CT) connection
- Easy to Install and Use with 20mm. 4 Digit Led Display
- Can Only Compensate Inductive Systems
- Cos Phi valu can be adjustable
- 1 alarm output and fan out
- Same Aging in Steps (In Certain Compensation Programs)
- Up to the 15th harmonic THD-I and THD-V Can Be Monitored
- Automatic Step Measurement
- Step Drive, Release and Discharge Times are Adjustable



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## TPM-05A

Modbus RTU

### Network Analyzer

Energy analyzers are designed to measure and monitor electrical values. With the communication feature, energy measurements can be monitored and reported independently. With energy analyzers, analyzes such as energy quality, efficiency and unit cost calculation can be performed.



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## TDK-96

### Submersible Pump Control Relay

It is designed for the control of submersible pumps and motors in wells and similar places and to protect them from negative situations that may arise from waterless operation, high or low voltage and current.



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## UVR-21

### Under Voltage Protection Relay

UVR-21 Under Voltage Protection Relay is designed for preventing threephase devices to get harmed from long-term voltage fluctuations.



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## RF-MOD-SET

### RF Based Automatic Well-Tank Control System

Distance Between Well – Tank : ~ 5 km.  
Wireless Communication Supply with Solar Panel

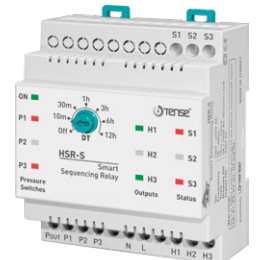


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## HSR-S

### Smart Hydrophore Sequencing Relay

Hydrophore sequencing relays are designed to regulate the number of booster that should operate according to the pressure and to ensure that the booster operates in equal time.



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## TAR-30

### Earth Leakage Relay

A compact design driven by a microcontroller.  
CBCT connection monitoring facility.  
Monitors true RMS earth leakage current.  
The monitored leakage current range from 30mA to 30A.  
Leakage current and time delay adjustable.  
LED indication for measured leakage current and various user settings.  
Can be rest or test remotely by external button or from the device front panel button.



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## FKV-03DF / FKV-03HF

### Digital Phase Failure Relay

Over Voltage : 450V AC  
Under Voltage : 280V AC  
Asymmetry : %15  
Error Waiting Time : 2sec.  
Reset Time : 2sec.  
Phase Sequence Control

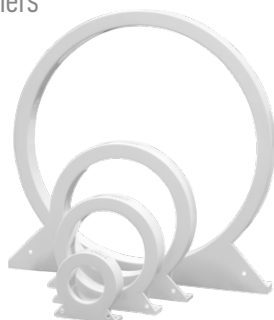


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## TTOR Series

### Toroidal Current Transformers

- TTOR Series toroid current transformers are suitable for in-panel use.
- They are coated with epoxy resin and thanks to these features
  - high precision and stable operation..
- Various hole diameters ranging from 45mm - 500 mm.



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## ERV-DG

### Power Off Delay Timer

- Time interval 0,1 sec. - 10 min.
- Supply Voltage: 100-240V AC
- 1 Contact output



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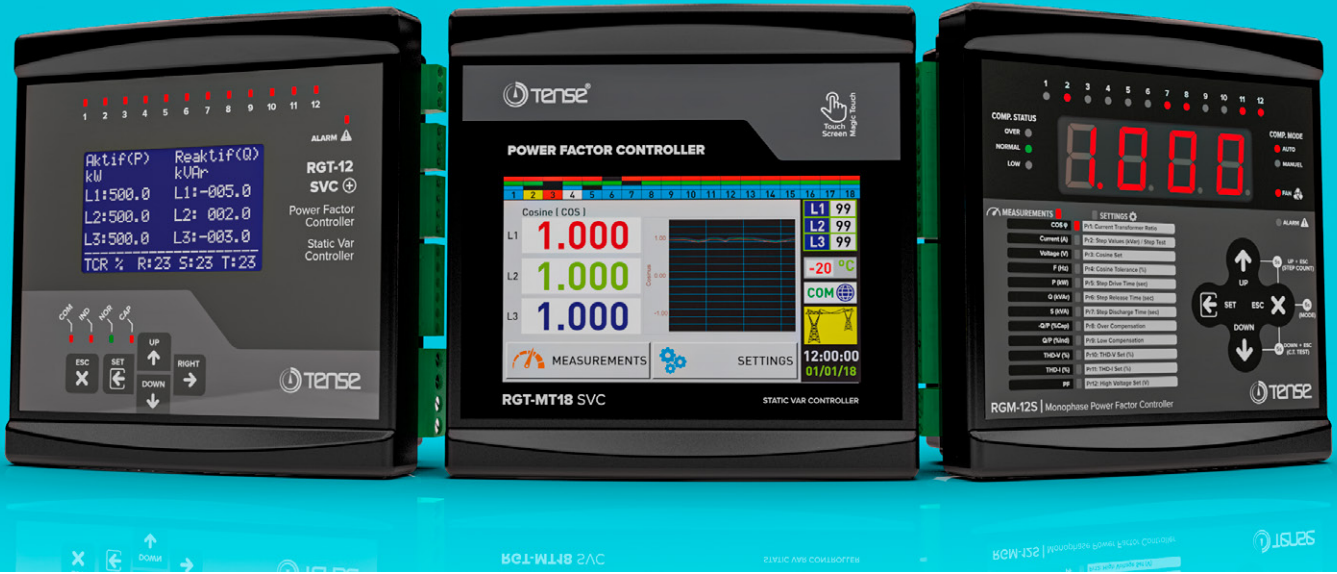
## ATS/ATSM

### Split Core Current Transformer

Current transformers are designed to shrink the primary circuit current within the conversion ratio and transfer it to secondary circuit elements and to isolate the measurement and protection devices they are connected to from the high voltage system

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THE FIRST AND ONLY REACTIVE POWER CONTROL RELAY IN TÜRKİYE WITH A TOUCH SCREEN AND SVC



## RGT-12 SVC

### REACTIVE POWER CONTROL RELAY

- Easy setup and usage with 128x64 graphic LCD
- TCR (SVC) connection can be made.
- Up to 10 inductive load drivers can be connected.
- Generator input and generator compensation
- Modbus RTU over RS485
- Hourly, daily, monthly and total compensation rates can be followed.
- Can compensate inductive and capacitive systems
- Step value can be entered manually
- Single-Phase, two-phase and three-phase capacitor and shunt reactor can be connected
- Current harmonics up to 31st harmonic can be observed
- Voltage harmonics up to 31st harmonic can be observed
- Voltage, harmonic current / voltage, inductive and capacitive alarm output
- Adjustable discharge and settlement time, intervention
- Monitor cosine values of each phase
- Power factor values of each phase can be tracked
- Capacitive / active and inductive / active ratios can be monitored
- Total energies (import / export) can be tracked
- THD-V and THD-I values of each phase can be monitored
- Creating power analysis (20 samples 9999 min.)
- Min, max and average values of current and voltage for each phase can be monitored.
- Password protection
- Co-aging in stages

### Solar System Compatible



## RGT-MT18 SVC

### REACTIVE POWER CONTROL RELAY

- Easy installation and operation with 5" touch (resistive) display
- TCR (SVC) connection available
- Up to 10 inductive load drivers can be connected.
- Generator input and generator compensation
- Modbus RTU over RS485
- Temperature measurement and control
- Can compensate inductive and capacitive systems
- Step value can be entered manually
- Single-Phase, two-phase and three-phase capacitor and shunt reactor can be connected
- English language.
- Voltage, harmonic current / voltage, inductive and capacitive alarm output
- Temperature alarm output
- Intervention, discharge and settlement times are adjustable
- Current harmonics up to 61st harmonic can be monitored
- Voltage harmonics up to 61st harmonic can be monitored
- Graphical monitoring of cosine values of each phase
- Power factor values of each phase can be tracked graphically
- Capacitive / Active and inductive / Active ratios can be tracked graphically
- Total energies (import / export) can be tracked
- THD-V and THD-I values of each phase can be monitored
- Creating power analysis (20 samples 9999 min.)
- Demand recording (active power, reactive power, apparent power and current demand)
- Min, max and average values of current and voltage for each phase can be monitored.
- Real time date and hour
- Password protection
- Gradual co-aging

## RGM-12S

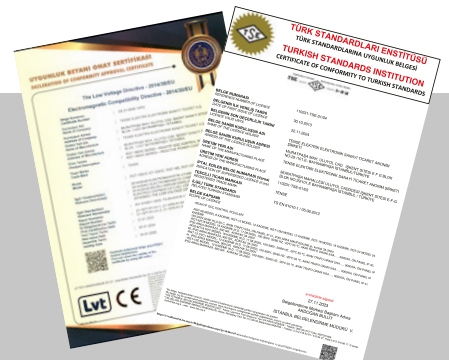
### REACTIVE POWER CONTROL RELAY

- 7 Different Compensation Programs
- Manual Compensation Option
- Easy to Install and Use with 20mm. 4 Digit Led Display
- Can Only Compensate Inductive Systems
- Automatic Step Measurement
- Step Drive, Release and Discharge Times are Adjustable
- Voltage and Current Harmonic Alarm Values Adjustable
- Over and Under Compensation Alarm Values Can Be Set
- Voltage, Harmonic Voltage/Current, Over and Under Compensation Alarm Output
- Voltage, Current and Frequency Values Can Be Monitored
- Active Power, Reactive Power and Apparent Power Values Can be Monitored
- Up to the 15th harmonic THD-I Can Be Monitored
- Up to the 15th harmonic THD-V Can Be Monitored
- Cosine Value Can Be Monitored
- Power Factor Value Can Be Monitored
- Capacitive/Active and Inductive/Active Ratios Can Be Monitored
- Automatic Fan Output
- Step Values Can Be Monitored
- Same Aging in Steps (In Certain Compensation Programs)



### REACTIVE POWER CONTROL RELAYS WITH CERTIFIED SVC

We keep on empowering your power by bringing our Reactive Power Control Relay product into Turkish Standard Institution and CE. High quality standards and innovative solutions in compensation systems.



RGT-MT18 SVC



RGT-12 SVC



RGT-12E SVC



RGT-18E SVC



## SVC REACTIVE POWER CONTROL RELAY (TCR OUTPUT) (TCR OUTPUT) Up to 10 TCR (SVC) can be connected to our TCR (SVC) Supported Reactive Power Control Relays for higher powers.

Product Code	Description	Dimensions (mm)	Number of Steps	3 Phase 3 Current	Single-Phase Capacitor	Two-Phase Capacitor	Three-Phase Capacitor	Single-Phase Shunt Reactor	Two-Phase Shunt Reactor	Three-Phase Shunt Reactor	Voltage (V), Current (I)	Power Factor (Pf)	Cos φ	TCR	Generator Mode	Alarm Status	2- 61st Harmonic (V-I)	2- 31st Harmonic (V-I)	Time - Date	Relay Output (Alarm)	Graphic Display	Panel Temperature Control	Active Power (W)	Reactive Power (VAR)	Active Energy (kWh)	Reactive Energy (kVarh)	% THD I	THD V %	Power Flow Chart	Modbus RTU over RS485
<b>RGT-MT18 SVC</b>	Reactive power control relay <b>Touch screen</b> <b>Solar System Compatible</b>	144 x 144	<b>18+TCR</b>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
<b>RGT-12 SVC</b>	Reactive power control relay	144 x 144	<b>12+TCR</b>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
<b>RGT-18 SVC</b>	Reactive power control relay	144 x 144	<b>18+TCR</b>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
<b>RGT-12E SVC</b>	Reactive power control relay	144 x 144	<b>12+TCR</b>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
<b>RGT-18E SVC</b>	Reactive power control relay	144 x 144	<b>18+TCR</b>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

RGM-12S



RGT-12E



RGT-18E



RGT-24H



## REACTIVE POWER CONTROL RELAYS

Product Code	Description	Dimensions (mm)	Number of Steps	1 Phase 1 Current	3 Phase 3 Current	Single-Phase Capacitor	Two-Phase Capacitor	Three-Phase Capacitor	Single-Phase Shunt Reactor	Two-Phase Shunt Reactor	Three-Phase Shunt Reactor	Voltage (V)	Current (I)	Cos φ	Active Power (W)	Reactive Power (VAR)	Active Energy (kWh)	Reactive Energy (kVarh)	Generator Mode	Alarm Status	% THD I	% THD V	Power Flow Chart	Over RS485	Thyristor Triggered
<b>RGM-12S</b>	4x20 mm display single-phase reactive power control relay	144 x 144	<b>12</b>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
<b>RGT-12E</b>	Graphic LCD display three-phase reactive power control relay	144 x 144	<b>12</b>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
<b>RGT-18E</b>	Graphic LCD display three-phase reactive power control relay	144 x 144	<b>18</b>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
<b>RGT-24H</b>	LCD display three-phase reactive power control relay <b>RS485</b>	144 x 144	<b>24</b>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●



## INDUCTIVE LOAD DRIVERS FOR SVC

Product Code	Description	Operating Voltage	Dimensions (mm)	Maximum Connectable Shunt Reactor Power	To Be Used Cable cross section	To Be Used Maximum Fuse Current	ModBus Interface	Micro Processor Based	Manual Test
<b>SRL-5T</b>	Max: 5 KVar	85-260 V AC	<b>102 x 130 x 101 mm</b>	<b>3x TNS-1,66 (230V)</b>	2,5 mm <sup>2</sup>	16 A	●	●	●
<b>SRL-10T</b>	Max: 10 KVar	85-260 V AC	<b>170 x 134 x 123 mm</b>	<b>3x TNS-3,3 (230V)</b>	10 mm <sup>2</sup>	25 A	●	●	●
<b>SRL-20T</b>	Max: 20 KVar	85-260 V AC	<b>170 x 130 x 140 mm</b>	<b>3x TNS-6,67 (230V)</b>	16 mm <sup>2</sup>	63 A	●	●	●
<b>SRL-30T</b>	Max: 30 KVar	85-260 V AC	<b>170 x 130 x 140 mm</b>	<b>3x TNS-10S (230V)</b>	35 mm <sup>2</sup>	100 A	●	●	●



## SINGLE-PHASE SHUNT REACTORS FOR SVC (INDUCTIVE LOAD REACTORS)

Product Code	Description	POWER (kVar) 230V AC	Thermal Protection	Sheet Type	INDUCTANCE (mH)	CURRENT (A) (rms)	WEIGHT (kg)
<b>TNS-1,5</b>	Shunt Reactor	1,5	●	E-I	113	6,52	9,2
<b>TNS-1,66S</b>	Shunt Reactor	1,66	●	E-I	102	7,22	10
<b>TNS-3</b>	Shunt Reactor	3	●	E-I	56,3	13,04	17,5
<b>TNS-3.3S</b>	Shunt Reactor	3,3	●	E-I	48,3	14,48	22,5
<b>TNS-5</b>	Shunt Reactor	5,0	●	E-I	33,8	21,75	30,5
<b>TNS-6,67S</b>	Shunt Reactor	6,67	●	U-I	24,1	30,43	26
<b>TNS-7,5</b>	Shunt Reactor	7,5	●	U-I	22,5	32,61	26
<b>TNS-10S</b>	Shunt Reactor	10	●	U-I	16,9	43,48	37,6



## CAPACITORS (CYLINDER TYPE)

### 230V SINGLE-PHASE LOW VOLTAGE POWER CAPACITORS

Product Code	Capacitor Power (kVAR)	50 HZ (230V AC)		Size (Diameter x Height) (mm)	Weight (Approx) (kg)	Quantity per box
		Capacitive Power (kVAR)	Current (A)			
TMK-0.25	0,25 kVAR	0.25	1,08	50 x 135	0,50	20
TMK-0.5	0,5 kVAR	0.5	2.17	50 x 135	0,50	15
TMK-1	1 kVAR	1	4.34	65 x 130	0,60	12
TMK-1.5	1,5 kVAR	1.5	6.52	65 x 130	0,60	12
TMK-2.5	2,5 kVAR	2.5	10.86	75 x 196	1,00	12
TMK-5	5 kVAR	5	21.73	90 x 203	1,50	12
TMK-7.5	7,5 kVAR	7.5	32.60	116 x 243	2,72	12
TMK-10	10 kVAR	10	43.47	116 x 243	2,72	8



\* Cylinder capacitors should be mounted vertically to the panel.

### 400V - 415V - 440V THREE-PHASE LOW VOLTAGE POWER CAPACITORS

Product Code	Capacitor Power (kVAR)	Capacitor Power (kVAR)			Capacitance	Current	Size (Diameter x Height) (mm)	Weight (Approx) (kg)	Quantity per box
		400 V	415 V	440 V					
TTK-0.5	0,5 kVAR	0,5	0,54	0,61	3x3.32	0.72	50x125	0.50	20
TTK-1	1 kVAR	1	1,08	1,21	3x6.63	1.44	50x125	0.50	15
TTK-1.5	1,5 kVAR	1,5	1,62	1,82	3x9.95	2.17	50x125	0.50	15
TTK-2.5	2,5 kVAR	2,5	2,69	3,03	3x16.58	3.61	65x130	0.60	15
TTK-5	5 kVAR	5	5,38	6,05	3x33.17	7.22	75x196	1.00	12
TTK-7.5	7,5 kVAR	7,5	8,07	9,08	3x49.76	10.83	75x196	1.00	12
TTK-10	10 kVAR	10	10,76	12,1	3x66.35	14.43	90x203	1.50	8
TTK-12.5	12,5 kVAR	12,5	13,45	15,12	3x82.93	18.04	90x203	1.50	8
TTK-15	15 kVAR	15	16,15	18,15	3x99.52	21.65	90x243	1.72	8
TTK-20	20 kVAR	20	21,53	24,2	3x132.69	28.87	116x243	2.80	8
TTK-25	25 kVAR	25	26,91	30,25	3x165.87	36.09	116x243	2.80	8
TTK-30	30 kVAR	30	32,29	36,3	3x199.05	43.30	116x283	3.20	8
TTK-40	40 kVAR	40	43,06	48,4	3x265.39	57.74	136x346	5.65	6
TTK-50	50 kVAR	50	53,82	60,5	3x331.74	72.17	136x346	5.65	6

### 525V THREE-PHASE LOW VOLTAGE POWER CAPACITORS

Product Code	Capacitor Power (kVAR)	Output Power (VA)	Capacitance mf	Current	Size (Diameter x Height) (mm)	Weight (Approx) (kg)	Quantity per box
		525 V					
TTKB-5	5 kVAR	5	3x19.26	5.50	75x196	1.00	8
TTKB-7.5	7,5 kVAR	7,5	3x28.89	8.25	75x196	1.00	8
TTKB-10	10 kVAR	10	3x38.52	11.00	90x203	1.50	8
TTKB-12.5	12,5 kVAR	12,5	3x48.14	13.75	90x203	1.50	5
TTKB-15	15 kVAR	15	3x57.77	16.50	90x243	1.72	5
TTKB-20	20 kVAR	20	3x77.03	21.99	116x243	2.60	5
TTKB-25	25 kVAR	25	3x96.29	27.49	116x243	2.70	5
TTKB-30	30 kVAR	30	3x115.55	32.99	116x243	2.80	5

### 690V THREE-PHASE LOW VOLTAGE POWER CAPACITORS

Product Code	Capacitor Power (kVAR)	Output Power (VA)	Capacitance mf	Current	Size (Diameter x Height) (mm)	Weight (Approx) (kg)	Quantity per box
		690 V					
TTKA-12.5	12,5 kVAR	12,5	3x27.87	10.46	90x243	1.72	4
TTKA-15	15 kVAR	15	3x33.48	12.55	90x243	1.72	4
TTKA-20	20 kVAR	20	3x44.59	16.74	116x243	2.80	5
TTKA-25	25 kVAR	25	3x55.74	20.92	116x243	2.80	5





## TPM-05A

Modbus RTU

- Supports 3P4W connections..
- Neutral current measurement via 4th current transformer input.
- Measures voltage harmonics up to the 55th harmonic (L-N and L-L).
- Measures current harmonics up to the 55th harmonic.
- RS485 Modbus RTU.
- 2 relay outputs (configurable), 1 digital input.
- Event logging (over voltage, under voltage, power outage, voltage imbalance, over current, current imbalance, THDV, and THDI limits).
- You can delete energies, demands, and event logs.
- Adjustable date and time.
- Real-time clock.
- Menu password-protected.
- 71.5 x 61.5 Custom Design Glass LCD.

DIN RAIL TYPE



## TPM-04SH-DL

Modbus RTU

- Supports 3P4W connections.
- Measures up to 31st voltage harmonics (L-N and L-L).
- Measures up to 31st current harmonics.
- RS485 Modbus RTU
- 2x relay outputs (adjustable), 1x Digital Input
- It displays the demands.
- You can delete energies and demands.
- The menu is password protected.
- Without display screen (LED display) and 53 x 31.5 Custom design glass LCD



## TPM-05

Our Top Model

- It supports 3P4W connections.
- Measures the 55th voltage harmonics (L-N and L-L).
- Measurements up to the 55th current harmonic.
- RS485 Modbus RTU
- 2x relay outputs (adjustable), 1x Digital Input
- Event logs (high voltage, low voltage, power failure, voltage imbalance, high current, current irregularity, THDV and THDI limits)
- Displays the demands.
- You can delete energies, requests and event logs.
- Date and time can be set.
- Real time clock.
- The menu is password protected.
- 71.5 x 61.5 Custom Design Glass LCD



## TPM-04 SH

Modbus RTU

- It supports 3P4W connections.
- Measures up to 31st voltage harmonics (L-N and L-L).
- Measures up to 31st current harmonics.
- RS485 Modbus RTU
- 2x Relay outputs (adjustable), 1x Digital Input
- It shows the demands.
- You can delete energies and demands.
- The menu is password protected.
- 71.5 x 61.5 Custom Design Glass LCD



## TPM-01E / TPM-01ES / TPM-01ESH

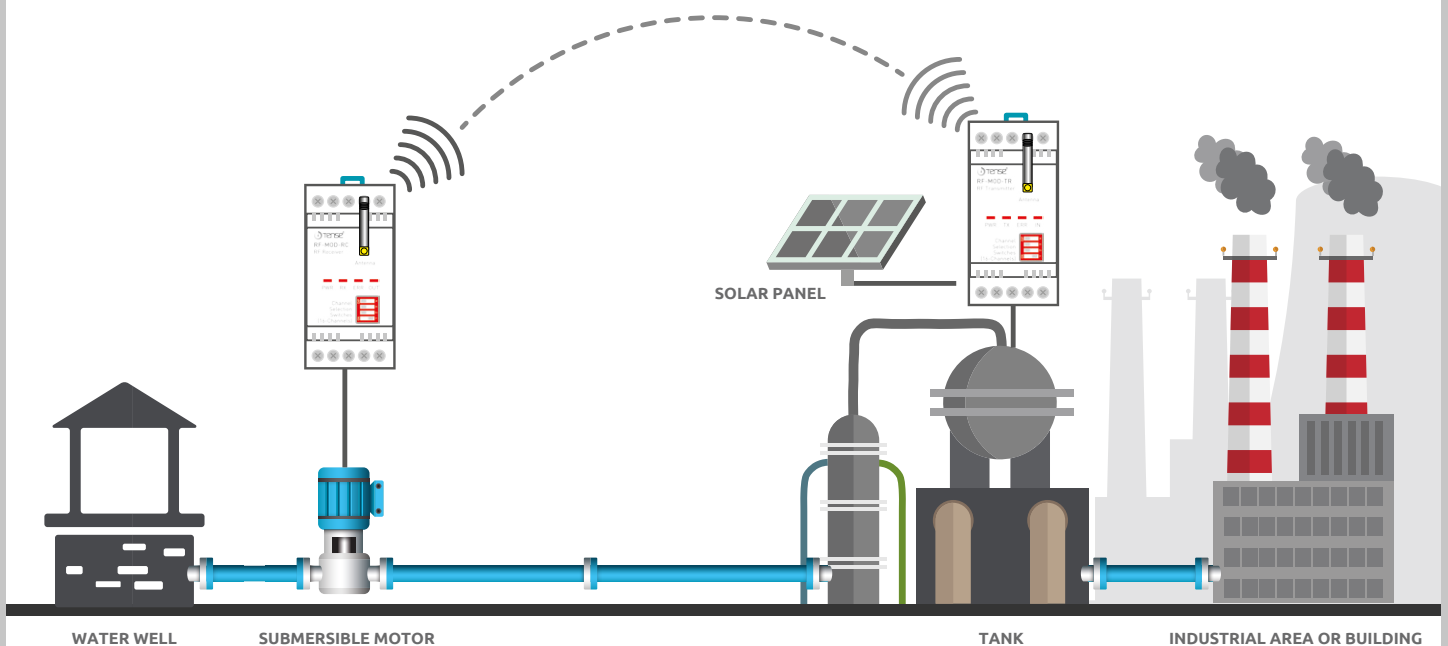
- It supports 3P4W connections
- Measures up to 31st voltage harmonics (L-N and L-L).
- Measures up to 31st current harmonics.
- RS485 Modbus RTU
- 2x relay outputs (adjustable), 1x digital input
- It shows the demands.
- You can delete energies, demands.
- The menu is password protected.
- 4 Row Led display



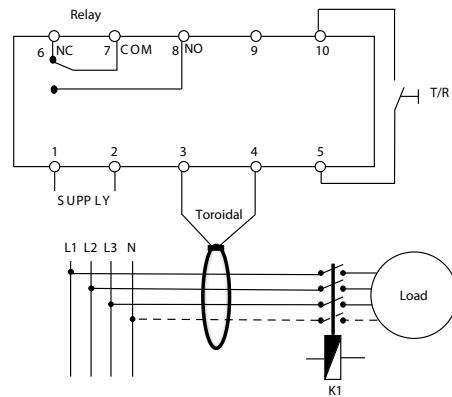
## REMOTE COMMUNICATION

Product Code	Description
<b>OP-232</b>	Optical reader, communication via RS-232, neodymium magnet
<b>OP-USB</b>	Optical reader, communication with USB 1.1 / USB 2.0, with neodymium magnet
<b>USB-CON</b>	RS-232 USB converter and RS-485 USB converter, 300bps - 230.4 Kbps Baudrate, isolated
<b>ETH-MOD-T</b>	Ethernet Modem, RS-485, TCP-IP compatible, 10/100 Mbps ethernet, isolated, ModBus communication, Maximum 115200 Bps
<b>RF-MOD-SET</b> (RF-MOD-TR+ RF-MOD-RC)	Well Tank Communication System, ISM 868 MHz, GFSK Modulation, RS 485 Interface, Maximum 57600 Bps RF Communication Speed, Antenna: 9 dBi SMA Connector magnet mounting, Maximum 5 km communication distance (Provided that the antennas can recognize each other)
<b>HA-5</b>	External antenna 5 dBi, 824 ~ 960/1710 ~ 2170 MHz, 3 Meter cable, SMA Connector, Magnet mount
<b>HA-9</b>	External antenna 9 dBi, 824 ~ 960/1710 ~ 2170 MHz, 3 Meter cable, SMA Connector, Magnet mount

## OPERATING PRINCIPLE OF WELL - TANK COMMUNICATION SYSTEM



## EARTH LEAKAGE RELAY



Product Code	Description
<b>TAR-30</b>	Earth Leakage Relay <b>30 mA-30A</b>

The earth leakage relay (TAR-30) is designed in a modular type to protect loads and lines against earth leakage currents. With its adjustable delay time and adjustable leakage current threshold (trip current), the TAR-30 can be used in various applications to prevent grounding and insulation faults.

- Adjustable delay time in the range of 0 – 9 seconds
- Compatible with 1-phase (Phase, Neutral), 3-phase (3 Phase or 3 Phase + Neutral) systems
- Indication of leakage current levels at 25%, 50%, 75%, and 100% (trip current) using LEDs based on the set leakage current threshold
- Test/reset capability via the device's front panel button or remotely using the device terminal connection
- Warning provided when CBCT is not connected or short-circuited at the device input.

## TOROIDAL CURRENT TRANSFORMERS

Product Code	Description	Bar Dimensions (mm)	CLASS	Accuracy Rating	Input Voltage
<b>TTOR-45</b>	Toroidal Current Transformer 45 mm	<b>45 mm</b>	0,5	1000/1	100-240V AC/DC
<b>TTOR-80</b>	Toroidal Current Transformer 80 mm	<b>80 mm</b>	0,5	1000/1	100-240V AC/DC
<b>TTOR-100</b>	Toroidal Current Transformer 100 mm	<b>100 mm</b>	0,5	1000/1	100-240V AC/DC
<b>TTOR-150</b>	Toroidal Current Transformer 150 mm	<b>150 mm</b>	0,5	1000/1	100-240V AC/DC
<b>TTOR-210</b>	Toroidal Current Transformer 210 mm	<b>210 mm</b>	0,5	1000/1	100-240V AC/DC
<b>TTOR-310</b>	Toroidal Current Transformer 310 mm	<b>310 mm</b>	0,5	1000/1	100-240V AC/DC
<b>TDIK-360</b>	Rectangular CBCT 360x100 mm	<b>360X100 mm</b>	0,5	1000/1	100-240V AC/DC
<b>TDIK-500</b>	Rectangular CBCT 500x100 mm	<b>500X100 mm</b>	0,5	1000/1	100-240V AC/DC

- The TTOR Series toroidal current transformers are suitable for panel applications.
- Coated with epoxy resin, these transformers provide high sensitivity and stable operation due to their features.
- Available in various hole diameters ranging from 45 mm to 500 mm.





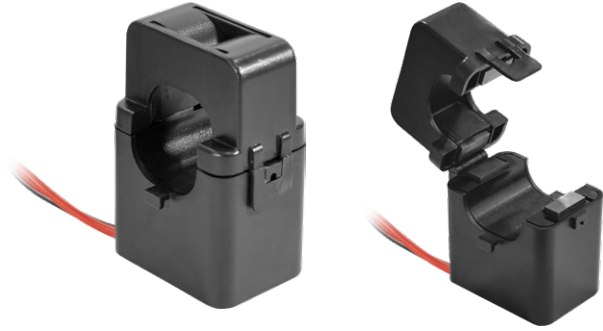
## L.V. CURRENT TRANSFORMERS

Product Code	Busbar Dimensions (mm)	Class	Input / Output Current	Output Power (VA)
AT-100	30X10 mm	0,5	100/5	1,5
AT-125	30X10 mm	0,5	125/5	2,5
AT-150	30X10 mm	0,5	150/5	2,5
AT-200	30X10 mm	0,5	200/5	2,5
AT-250	30X10 mm	0,5	250/5	5
AT-300	30X10 mm	0,5	300/5	5
AT-400	40X10 mm	0,5	400/5	5
AT-500	40X10 mm	0,5	500/5	5
AT-600	40X10 mm	0,5	600/5	7,5
AT-750	60X10 mm	0,5	750/5	15
AT-800	60X10 mm	0,5	800/5	15
AT-1000	80X10 mm	0,5	1000/5	15
AT-1250	80X10 mm	0,5	1250/5	20
AT-1500	100X10 mm	0,5	1500/5	25
AT-1600	100X10 mm	0,5	1600/5	25
AT-2000	100X10 mm	0,5	2000/5	30
AT-2500	100X10 mm	0,5	2500/5	40
AT-3000	100X10 mm	0,5	3000/5	40
AT-4000	100X10 mm	0,5	4000/5	40



## MINI SERIES L.V CURRENT TRANSFORMERS

Product Code	Busbar Dimensions (mm)	Class	Input / Output Current	Output Power (VA)
ATM-40	20 mm	1	40/5	1
ATM-50	20 mm	1	50/5	1
ATM-60	20 mm	1	60/5	1
ATM-75	20 mm	1	75/5	1,5
ATM-100	30 X10 mm	1	100/5	1,5
ATM-125	30 X10 mm	1	125/5	1,5
ATM-150	30 X10 mm	0,5	150/5	2,5
ATM-200	30 X10 mm	0,5	200/5	2,5
ATM-250	30 X10 mm	0,5	250/5	2,5
ATM-300	30X10 mm	0,5	300/5	2,5
ATM-400	30X10 mm	0,5	400/5	2,5



## SPLIT CORE CURRENT TRANSFORMER

Product Code	Busbar Dimensions (mm)	Class	Input / Output Current	Output Power (VA)
ATSM-241005901	24X24 mm	3	100/5	1
ATSM-241255901	24X24 mm	3	125/5	1
ATSM-241505902	24X24 mm	3	150/5	1,5
ATSM-241605 902	24X24 mm	3	160/5	1,5
ATSM-242005903	24X24 mm	3	200/5	2,5
ATSM-242505101	24X24 mm	1	250/5	1
ATSM-243005101	24X24 mm	1	300/5	1
ATSM-361005901	36X36 mm	3	100/5	1
ATSM-361255901	36X36 mm	3	125/5	1
ATSM-361505901	36X36 mm	3	150/5	1
ATSM-361605901	36X36 mm	3	160/5	1
ATSM-362005901	36X36 mm	3	200/5	1
ATSM-362505903	36X36 mm	3	250/5	2,5
ATSM-363005101	36X36 mm	1	300/5	1
ATSM-364005102	36X36 mm	1	400/5	1,5
ATSM-365005102	36X36 mm	1	500/5	1,5
ATSM-366005102	36X36 mm	1	600/5	1,5
ATSM-502505901	50X50 mm	3	250/5	1
ATSM-503005103	50X50 mm	1	300/5	2,5
ATSM-504005103	50X50 mm	1	400/5	2,5
ATSM-505005105	50X50 mm	1	500/5	5
ATSM-506005105	50X50 mm	1	600/5	5
ATSM-508005203	50X50 mm	0,5	800/5	2,5



## L.V. CURRENT TRANSFORMERS

Product Code	Busbar Dimensions (mm)	Class	Input / Output Current	Output Power (VA)
ATS-582505903	50X80 mm	3	250/5	2,5
ATS-583005903	50X80 mm	3	300/5	2,5
ATS-584005103	50X80 mm	3	400/5	2,5
ATS-585005103	50X80 mm	3	500/5	2,5
ATS-586005105	50X80 mm	1	600/5	5
ATS-587505105	50X80 mm	1	750/5	5
ATS-588005105	50X80 mm	1	800/5	5
ATS-5810005105	50X80 mm	1	1000/5	5
ATS-5812005105	50X80 mm	1	1200/5	5
ATS-5812505105	50X80 mm	1	1250/5	5
ATS-5815005105	50X80 mm	1	1500/5	5
ATS-5816005207	50X80 mm	0,5	1600/5	10
ATS-884005103	80X80 mm	1	400/5	2,5
ATS-885005103	80X80 mm	1	500/5	2,5
ATS-886005103	80X80 mm	1	600/5	2,5
ATS-887505105	80X80 mm	1	750/5	5
ATS-888005107	80X80 mm	1	800/5	10
ATS-8810005107	80X80 mm	1	1000/5	10
ATS-8812005107	80X80 mm	1	1200/5	10
ATS-8812505107	80X80 mm	1	1250/5	10
ATS-8815005107	80X80 mm	1	1500/5	10
ATS-8816005207	80X80 mm	0,5	1600/5	10
ATS-8820005207	80X80 mm	0,5	2000/5	10

Product Code	Busbar Dimensions (mm)	Class	Input / Output Current	Output Power (VA)
ATS-8124005903	80X120 mm	3	400/5	2,5
ATS-8125005103	80X120 mm	1	500/5	2,5
ATS-8126005105	80X120 mm	1	600/5	5
ATS-8128005107	80X120 mm	1	800/5	10
ATS-81210005107	80X120 mm	1	1000/5	10
ATS-81212005207	80X120 mm	0,5	1200/5	10
ATS-81212505207	80X120 mm	0,5	1250/5	10
ATS-81215005209	80X120 mm	0,5	1500/5	15
ATS-81216005209	80X120 mm	0,5	1600/5	15
ATS-81220005209	80X120 mm	0,5	2000/5	15
ATS-81225005209	80X120 mm	0,5	2500/5	15
ATS-81230005212	80X120 mm	0,5	3000/5	30
ATS-81610005207	80X160 mm	1	1000/5	10
ATS-81612005207	80X160 mm	1	1200/5	10
ATS-81612505207	80X160 mm	1	1250/5	10
ATS-81615005209	80X160 mm	1	1500/5	15
ATS-81616005209	80X160 mm	0,5	1600/5	15
ATS-81620005209	80X160 mm	0,5	2000/5	15
ATS-81625005209	80X160 mm	0,5	2500/5	15
ATS-81630005212	80X160 mm	0,5	3000/5	30
ATS-81640005212	80X160 mm	0,5	4000/5	30
ATS-81650005212	80X160 mm	0,5	5000/5	30

**NEW** AUTOMATIC FUSES

PRODUCT CODE	PRODUCT DESCRIPTION	CURRENT (In) (230 /415V) 50/60Hz	NUMBER OF POLES	CUTTING CAPACITY (Icu kA)	BOX QTY	PARCEL QTY
<b>SGB-63-0201</b>	MCB 1P 2A 4.5 kA, Automatic Fuse	2A	1P	4.5 kA	12	120
<b>SGB-63-0401</b>	MCB 1P 4A 4.5 kA, Automatic Fuse	4A	1P	4.5 kA	12	120
<b>SGB-63-0601</b>	MCB 1P 6A 4.5 kA, Automatic Fuse	6A	1P	4.5 kA	12	120
<b>SGB-63-1001</b>	MCB 1P 10A 4.5 kA, Automatic Fuse	10A	1P	4.5 kA	12	120
<b>SGB-63-1601</b>	MCB 1P 16A 4.5 kA, Automatic Fuse	16A	1P	4.5 kA	12	120
<b>SGB-63-2001</b>	MCB 1P 20A 4.5 kA, Automatic Fuse	20A	1P	4.5 kA	12	120
<b>SGB-63-2501</b>	MCB 1P 25A 4.5 kA, Automatic Fuse	25A	1P	4.5 kA	12	120
<b>SGB-63-3201</b>	MCB 1P 32A 4.5 kA, Automatic Fuse	32A	1P	4.5 kA	12	120
<b>SGB-63-4001</b>	MCB 1P 40A 4.5 kA, Automatic Fuse	40A	1P	4.5 kA	12	120
<b>SGB-63-5001</b>	MCB 1P 50A 4.5 kA, Automatic Fuse	50A	1P	4.5 kA	12	120
<b>SGB-63-6301</b>	MCB 1P 63A 4.5 kA, Circuit Breaker	63A	1P	4.5 kA	12	120
<b>SGB-63-0602</b>	MCB 2P 6A 4.5 kA, Automatic Fuse	6A	2P	4.5 kA	6	60
<b>SGB-63-1002</b>	MCB 2P 10A 4.5 kA, Automatic Fuse	10A	2P	4.5 kA	6	60
<b>SGB-63-1602</b>	MCB 2P 16A 4.5 kA, Automatic Fuse	16A	2P	4.5 kA	6	60
<b>SGB-63-2002</b>	MCB 2P 20A 4.5 kA, Automatic Fuse	20A	2P	4.5 kA	6	60
<b>SGB-63-2502</b>	MCB 2P 25A 4.5 kA, Automatic Fuse	25A	2P	4.5 kA	6	60
<b>SGB-63-3202</b>	MCB 2P 32A 4.5 kA, Automatic Fuse	32A	2P	4.5 kA	6	60
<b>SGB-63-4002</b>	MCB 2P 40A 4.5 kA, Automatic Fuse	40A	2P	4.5 kA	6	60
<b>SGB-63-5002</b>	MCB 2P 50A 4.5 kA, Automatic Fuse	50A	2P	4.5 kA	6	60
<b>SGB-63-6302</b>	MCB 2P 63A 4.5 kA, Circuit Breaker	63A	2P	4.5 kA	6	60
<b>SGB-63-0603</b>	MCB 3P 6A 4.5 kA, Automatic Fuse	6A	3P	4.5 kA	4	40
<b>SGB-63-1003</b>	MCB 3P 10A 4.5 kA, Automatic Fuse	10A	3P	4.5 kA	4	40
<b>SGB-63-1603</b>	MCB 3P 16A 4.5 kA, Automatic Fuse	16A	3P	4.5 kA	4	40
<b>SGB-63-2003</b>	MCB 3P 20A 4.5 kA, Automatic Fuse	20A	3P	4.5 kA	4	40
<b>SGB-63-2503</b>	MCB 3P 25A 4.5 kA, Automatic Fuse	25A	3P	4.5 kA	4	40
<b>SGB-63-3203</b>	MCB 3P 32A 4.5 kA, Automatic Fuse	32A	3P	4.5 kA	4	40
<b>SGB-63-4003</b>	MCB 3P 40A 4.5 kA, Automatic Fuse	40A	3P	4.5 kA	4	40
<b>SGB-63-5003</b>	MCB 3P 50A 4.5 kA, Automatic Fuse	50A	3P	4.5 kA	4	40
<b>SGB-63-6303</b>	MCB 3P 63A 4.5 kA, Automatic Fuse	63A	3P	4.5 kA	4	40
<b>SGB-63-1004</b>	MCB 4P 10A 4.5 kA, Automatic Fuse	10A	4P	4.5 kA	3	30
<b>SGB-63-1604</b>	MCB 4P 16A 4.5 kA, Automatic Fuse	16A	4P	4.5 kA	3	30
<b>SGB-63-2004</b>	MCB 4P 20A 4.5 kA, Automatic Fuse	20A	4P	4.5 kA	3	30
<b>SGB-63-2504</b>	MCB 4P 25A 4.5 kA, Automatic Fuse	25A	4P	4.5 kA	3	30
<b>SGB-63-3204</b>	MCB 4P 32A 4.5 kA, Automatic Fuse	32A	4P	4.5 kA	3	30
<b>SGB-63-4004</b>	MCB 4P 40A 4.5 kA, Automatic Fuse	40A	4P	4.5 kA	3	30
<b>SGB-63-5004</b>	MCB 4P 50A 4.5 kA, Automatic Fuse	50A	4P	4.5 kA	3	30
<b>SGB-63-6304</b>	MCB 4P 63A 4.5 kA, Automatic Fuse	63A	4P	4.5 kA	3	30
<b>SGB-80-125H</b>	MLB3P 80A Auto Fuse	80A	3P	10 kA	12	40
<b>SGB-100-125H</b>	MLB3P 100A Auto Fuse	100A	3P	10 kA	12	40
<b>SGB-125-125H</b>	MLB3P 125A Auto Fuse	125A	3P	10 kA	12	40







## NEW COMPACT SWITCHES (3 POLES - FIXED)

PRODUCT CODE	PRODUCT DESCRIPTION	POLE NUMBER	CUTTING ITS CAPACITY (Icu kA)	Rated CURRENT (A)
SGM6-125H-80	Compact Switch <b>80A</b>	3P	36 kA	<b>80</b>
SGM6-125H-100	Compact Switch <b>100A</b>	3P	36 kA	<b>100</b>
SGM6-125H-125	Compact Switch <b>125A</b>	3P	36 kA	<b>125</b>
SGM6-160L-125	Compact Switch <b>125A</b>	3P	36 kA	<b>125</b>
SGM6-160L-160	Compact Switch <b>160A</b>	3P	36 kA	<b>160</b>
SGM6-250L-200	Compact Switch <b>200A</b>	3P	36 kA	<b>200</b>
SGM6-250L-250	Compact Switch <b>250A</b>	3P	36 kA	<b>250</b>
SGM6-400M-315	Compact Switch <b>315A</b>	3P	85 kA	<b>315</b>
SGM6-400M-400	Compact Switch <b>400A</b>	3P	85 kA	<b>400</b>
SGM6-630M-630	Compact Switch <b>630A</b>	3P	85 kA	<b>630</b>
SGM6-1250M-1000	Compact Switch <b>1000A</b>	3P	50 kA	<b>1000</b>
SGM6-1250M-1250	Compact Switch <b>1250A</b>	3P	50 kA	<b>1250</b>
SGM6-1600M-1600	Compact Switch <b>1250A</b>	3P	65 kA	<b>1600</b>

## NEW FUSE SWITCH DISCONNECTOR

PRODUCT CODE	PRODUCT DESCRIPTION	DIMENSION	POLE NUMBER	RATED OPERATING CURRENT	INSURANCE CUTTING CAPACITY	SIGORTA KESME KAPASİTESİ	I/IC
TYA-00	160A Yük Ayırıcı	NH00	3	160A	750V	70kA	AC-22B



## COMPENSATION CONTACTORS



Product Code	Description	Power (kVA) 230V	Power (kVA) 400V	Auxiliary Contacts
<b>KMP-2,5 kVA</b>	2,5 kVA Compensation Contactor	1,4	2,5	<b>2NA</b>
<b>KMP-5 kVA</b>	5 kVA Compensation Contactor	2,8	5	<b>1NC+2 NO</b>
<b>KMP-7,5 kVA</b>	7,5 kVA Compensation Contactor	4	7,5	<b>1NC+2NO</b>
<b>KMP-10 kVA</b>	10 kVA Compensation Contactor	5,0	10	<b>1NC+2NO</b>
<b>KMP-12,5 kVA</b>	12,5 kVA Compensation Contactor	6,7	12,5	<b>1NC+2NO</b>
<b>KMP-15 kVA</b>	15 kVA Compensation Contactor	8,5	15	<b>1NC+2NO</b>
<b>KMP-20 kVA</b>	20 kVA Compensation Contactor	11,0	20	<b>1NC+2NO</b>
<b>KMP-25 kVA</b>	25 kVA Compensation Contactor	14,0	25	<b>1NC+2NO</b>
<b>KMP-30 kVA</b>	30 kVA Compensation Contactor	20,0	30	<b>1NC+2NO</b>
<b>KMP-40 kVA</b>	40 kVA Compensation Contactor	25,0	40	<b>1NC+2NO</b>
<b>KMP-50 kVA</b>	50 kVA Compensation Contactor	29,0	50	<b>1NC+2NO</b>
<b>KMP-60 kVA</b>	60 kVA Compensation Contactor	29,0	50	<b>1NC</b>

## AUXILIARY CONTACTS

Product Code	Description	Contacts Structure
<b>CA1S11</b>	Side Auxiliary Contact	1NO + 1NC
<b>CA1R22</b>	Upper Auxiliary Contact	2NO + 2NC



## SILENT CONTACTORS - MODULAR CONTACTORS



PRODUCT CODE	PRODUCT DESCRIPTION	AUXILIARY CONTACTS
<b>UEC1-20GC20M7Z</b>	2 POLES 20A Modular Contactor	2NO
<b>UEC1-40GC20M7Z</b>	2 POLES 40A Modular Contactor	2NO
<b>UEC1-63GC20M7Z</b>	2 POLES 63A Modular Contactor	2NO
<b>UEC1-20GC30M7Z</b>	3 POLES 20A Modular Contactor	3NO
<b>UEC1-40GC30M7Z</b>	3 POLES 40A Modular Contactor	3NO
<b>UEC1-63GC30M7Z</b>	3 POLES 63A Modular Contactor	3NO
<b>UEC1-20GC40M7Z</b>	4 POLES 20A Modular Contactor	4NO
<b>UEC1-40GC40M7Z</b>	4 POLES 40A Modular Contactor	4NO
<b>UEC1-63GC40M7Z</b>	4 POLES 63A Modular Contactor	4NO

## AC POWER CONTACTORS (3 POLES)



PRODUCT CODE	PRODUCT DESCRIPTION	Rated POWER (kW) Rated CURRENT (A 380/400V) AC-3	THERMAL CURRENT (A)	AUXILIARY CONTACTS	PARCEL QTY
<b>SGC1-D-09</b>	AC 3 POLE CONTACTOR	4 kW-9A	25	<b>1NA+1NK</b>	<b>60</b>
<b>SGC1-D-12</b>	AC 3 POLE CONTACTOR	5,5 kW-12A	25	<b>1NA+1NK</b>	<b>60</b>
<b>SGC1-D-18</b>	AC 3 POLE CONTACTOR	7,5 kW-18A	32	<b>1NA+1NK</b>	<b>60</b>
<b>SGC1-D-25</b>	AC 3 POLE CONTACTOR	11 kW-25A	40	<b>1NA+1NK</b>	<b>40</b>
<b>SGC1-D-32</b>	AC 3 POLE CONTACTOR	15 kW-32A	50	<b>1NA+1NK</b>	<b>40</b>
<b>SGC1-D-40</b>	AC 3 POLE CONTACTOR	18,5 kW-40A	60	<b>1NA+1NK</b>	<b>16</b>
<b>SGC1-D-50</b>	AC 3 POLE CONTACTOR	22 kW-50A	80	<b>1NA+1NK</b>	<b>16</b>
<b>SGC1-D-65</b>	AC 3 POLE CONTACTOR	30 kW-65A	80	<b>1NA+1NK</b>	<b>12</b>
<b>SGC1-D-80</b>	AC 3 POLE CONTACTOR	37 kW-80A	125	<b>1NA+1NK</b>	<b>12</b>
<b>SGC1-D-95</b>	AC 3 POLE CONTACTOR	45 kW-95A	125	<b>1NA+1NK</b>	<b>12</b>
<b>SGC1-D-115</b>	AC 3 POLE CONTACTOR	55 kW-115A	200	<b>2NA+2NK</b>	<b>4</b>
<b>SGC1-D-150</b>	AC 3 POLE CONTACTOR	75 kW-150A	200	<b>2NA+2NK</b>	<b>4</b>
<b>SGC1-D-225</b>	AC 3 POLE CONTACTOR	130 kW-225A	260	<b>3NA</b>	<b>4</b>

## OVERLOAD PROTECTION RELAYS



Product Code	Description	Thermal Adjustment Pitch (A)	Contactor Block to Use Together	Insulation Voltage (Ui)	Pulse Strength Voltage (Uimp)
<b>UER1-40/2.5BZ</b>	Overload Relay	1.8 - 2.5	UEC1-09C ~ 38C	<b>690 V</b>	<b>6 kV</b>
<b>UER1-40/4.0BZ</b>	Overload Relay	2.9 - 4.0	UEC1-09C ~ 38C	<b>690 V</b>	<b>6 kV</b>
<b>UER1-40/6.3BZ</b>	Overload Relay	4.5 - 6.3	UEC1-09C ~ 38C	<b>690 V</b>	<b>6 kV</b>
<b>UER1-40/10BZ</b>	Overload Relay	7.0 - 10	UEC1-09C ~ 38C	<b>690 V</b>	<b>6 kV</b>
<b>UER1-40/12.5BZ</b>	Overload Relay	9 - 12,5	UEC1-12C ~ 38C	<b>690 V</b>	<b>6 kV</b>
<b>UER1-40/16BZ</b>	Overload Relay	11.3 - 16	UEC1-12C ~ 38C	<b>690 V</b>	<b>6 kV</b>
<b>UER1-40/25BZ</b>	Overload Relay	21 - 25	UEC1-25C ~ 38C	<b>690 V</b>	<b>6 kV</b>
<b>UER1-40/30BZ</b>	Overload Relay	24.5 - 30	UEC1-32C ~ 38C	<b>690 V</b>	<b>6 kV</b>
<b>UER1-40/36BZ</b>	Overload Relay	29 - 36	UEC1- 38C	<b>690 V</b>	<b>6 kV</b>
<b>UER1-90/36BZ</b>	Overload Relay	24.5 - 36	UEC1-40C ~ 95C	<b>690 V</b>	<b>6 kV</b>
<b>UER1-90/47BZ</b>	Overload Relay	35 - 47	UEC1-50C ~ 95C	<b>690 V</b>	<b>6 kV</b>
<b>UER1-90/60BZ</b>	Overload Relay	45 - 60	UEC1-65C ~ 95C	<b>690 V</b>	<b>6 kV</b>
<b>UER1-90/75BZ</b>	Overload Relay	58 - 75	UEC1-80C ~ 95C	<b>690 V</b>	<b>6 kV</b>
<b>UER1-90/90BZ</b>	Overload Relay	72 - 90	UEC1-95C	<b>690 V</b>	<b>6 kV</b>
<b>UER1-90/97BZ</b>	Overload Relay	77 - 97	UEC1-95C	<b>690 V</b>	<b>6 kV</b>

EM-72



EM-07



EM-06DIN



EM-06



EM-250D



## MULTIMETER

Product Code	Description	3x Voltage (Phase-Neutral-V)	3 x Voltage (Phase-Phase-V)	3 x Current (A)	3 x Frequency (Hz)	Apparent Power	Modbus RTU over RS485	3.7" Glass LCD	16x9 mm Led Display	18x9 mm Led Display	18x7.2 mm Led Display	High-Low Voltage Protection	High Low Current Protection	Phase Sequence	Phase Sequence Protection	Voltage Asymmetry Protection	Current Asymmetry Protection	Demurrage Time	Demurrage Multiplier	High Low Frequency Protection	X/5 CT	CT-120	CT-300	Contact Output	Panel End (96 x 96)	Panel End (72 x 72)	Rail Type (DIN)
EM-07	Direct multimeter with set Modbus RTU over RS485	●	●	●	●	●	●	●				●	●	●	●	●	●	●	●	●	●			●	●		
EM-07E	Multimeter Modbus RTU over RS485	●	●	●	●	●	●	●						●							●				●		
EM-07D	Direct multimeter with set 300 A Modbus RTU over RS485	●	●	●	●	●	●	●				●	●	●	●	●	●	●	●	●	●			●	●	●	
EM-06	Multimeter	●	●	●	●	●				●					●						●				●		
EM-72	Multimeter	●	●	●	●	●				●					●						●					●	
EM-250D	Direct Multimeter 250 A	●	●	●	●	●				●					●						●			●	●		
EM-06DIN	Multimeter	●	●	●	●	●					●				●						●						●
EM-250DIN	Direct Multimeter 250 A	●	●	●	●	●					●				●						●			●			●

DJ-F96



DJ-F72



DJ-F48



DJ-F36



DF-DIN



## DIGITAL FREQUENCY METER

Product Code	Description	Dimensions (mm)	Display	Panel Type	Rail Type
DJ-F96	Digital Frequencymeter 1 - 400 Hz.(15V - 500V AC)	96 x 96	3 x 20 mm	●	
DJ-F72	Digital Frequencymeter 1 - 400 Hz.(15V - 500V AC)	72 x 72	3 x 14 mm	●	
DJ-F48	Digital Frequencymeter 1 - 400 Hz.(15V - 500V AC)	48 x 48	3 x 9 mm	●	
DJ-F36	Digital Frequencymeter 1 - 400 Hz.(15V - 500V AC)	36 x 72	3 x 14 mm	●	
DF-DIN	Digital Frequencymeter 1 - 400 Hz.(15V - 500V AC)	DIN TYPE	3 x 9 mm		●

DAV-120



DAV-300



DAV-72D



## DIGITAL VOLTMETER & AMMETER

Product Code	Description	Dimensions (mm)	Display	Voltage Measuring Range (AC)	Current Measuring Range (AC)	X / 5 C.T.	CT-120	CT-300	Panel Type	Rail Type
<b>DAV-120</b>	Digital Voltmeter & Ammeter (50/60 Hz)	<b>DIN TYPE</b>	<b>6 x 9 mm</b>	150V - 260V	1A - 100A		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>DAV-300</b>	Digital Voltmeter & Ammeter (50/60 Hz)	<b>DIN TYPE</b>	<b>6 x 9 mm</b>	150V - 260V	2A - 250A		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>DAV-72D</b>	Digital Voltmeter & Ammeter (50/60 Hz)	<b>72 x 72</b>	<b>6 x 14 mm</b>	150V - 260V	1A - 100A		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

DJ-V72DC



DJ-V48DC



DJ-V36DC



## DC VOLTMETER

Product Code	Description
<b>DJ-V72DC</b>	Digital DC Voltmeter 1V - 300V DC, 3 digits 14 mm Display (72 x 72)
<b>DJ-V48DC</b>	Digital DC Voltmeter 1V - 300V DC, 3 digits 9 mm Display (48 x 48)
<b>DJ-V36DC</b>	Digital DC Voltmeter 1V - 300V DC, 3 digits 14 mm Display (36 x 72)

DJ-A72DC



DJ-A48DC










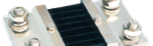



DJ-A36DC



## DC AMMETER (60 mV SHUNT)

Product Code	Description
<b>DJ-A72DC</b>	Digital DC Ammeter 100mA - 990A DC, 3 digits 14 mm Display (72 x 72), XA/60 mV Shunt
<b>DJ-A48DC</b>	Digital DC Ammeter 100mA - 990A DC, 3 digits 9 mm Display (48 x 48), XA/60 mV Shunt
<b>DJ-A36DC</b>	Digital DC Ammeter 100mA - 990A DC, 3 digits 14 mm Display (36 x 72), XA/60 mV Shunt

## SHUNTS

Product Code	Description	Image
<b>SNT60-30</b>	30A , 60mV Shunt	 1-50A
<b>SNT60-40</b>	40A , 60mV Shunt	 75-100A
<b>SNT60-50</b>	50A , 60mV Shunt	 150-200A
<b>SNT60-60</b>	60A , 60mV Shunt	 300A
<b>SNT60-100</b>	100A , 60mV Shunt	 500A
<b>SNT60-150</b>	150A , 60mV Shunt	 750A
<b>SNT60-250</b>	250A , 60mV Shunt	 1000A
<b>SNT60-300</b>	300A , 60mV Shunt	 1500A
<b>SNT60-600</b>	600A , 60mV Shunt	
<b>SNT60-1000</b>	1000A , 60mV Shunt	
<b>SNT60-1600</b>	1600A , 60mV Shunt	

DJ-V96T



DJ-V72S



DJ-V96



DJ-V72



DJ-V48



DJ-V36



DV-DIN



## DIGITAL VOLTMETER

Product Code	Description	Dimensions (mm)	Display	3 x Voltage (Phase - Neutral)	3 x Voltage (Phase - Phase)	Panel Type	Rail Type
<b>DJ-V96</b>	Digital Voltmeter 1V - 500V AC (50/60 Hz)	96 x 96	3 x 20 mm			●	
<b>DJ-V72</b>	Digital Voltmeter 1V - 500V AC (50/60 Hz)	72 x 72	3 x 14 mm			●	
<b>DJ-V48</b>	Digital Voltmeter 1V - 500V AC (50/60 Hz)	48 x 48	3 x 9 mm			●	
<b>DJ-V36</b>	Digital Voltmeter 1V - 500V AC (50/60 Hz)	36 x 72	3 x 14 mm			●	
<b>DV-DIN</b>	Digital Voltmeter 1V - 500V AC (50/60 Hz)	DIN TYPE	3 x 9 mm				●
<b>DJ-V96T</b>	3 Phase Digital Voltmeter 5V - 500V AC (50/60 Hz)	96 x 96	3 x 14 mm	●	●	●	
<b>DJ-V96S</b>	Digital Selective Voltmeter 5V - 500V AC (50/60 Hz)	96 x 96	3 x 20 mm	●	●	●	
<b>DJ-V72S</b>	Digital Selective Voltmeter 5V - 500V AC (50/60 Hz)	72 x 72	3 x 14 mm	●	●	●	

RG-72AK



RG-96K



RG-72K



RG-96



RG-72E



RG-72EB



## DIGITAL VOLTMETER (FOR REGULATORS)

Product Code	Description	Dimensions (mm)	Display	Regulator Input	Regulator Output	Regulator Output Protection	Servo Motor Speed	Regulator Output Set	Contact Output	Servo Motor Control Output	Buzzer	Switchless Working	Over Output Voltage Protection	Over Current Protection	Low Output Voltage Protection	Panel Type
<b>RG-96</b>	Digital Voltmeter (For Regulators) 1V - 300V AC (50/60 Hz)	96 x 96	3 x 20 mm 3 x 14 mm	●	●											●
<b>RG-72E</b>	Digital Voltmeter (For Regulators) Economic Type 3V - 300V AC (50/60 Hz)	72 x 72	6 x 14 mm	●	●											●
<b>RG-72EB</b>	Digital Voltmeter with Buzzer (For Regulators) 3V - 300V AC (50/60 Hz)	72 x 72	6 x 14 mm	●	●						●					●
<b>RG-96K</b>	Digital Voltmeter (Servo control for regulators) 1V - 300V AC (50/60 Hz)	96 x 96	3 x 20 mm 3 x 14 mm	●	●	●	●	●	●	●	●	●	●	●	●	●
<b>RG-72K</b>	Digital Voltmeter (Servo control for regulators) 1V - 300V AC (50/60 Hz)	72 x 72	6 x 14 mm	●	●	●	●	●	●	●	●	●	●	●	●	●
<b>RG-72AK</b>	Digital Voltmeter (Servo and current control for regulators) 1V - 300V AC (50/60 Hz)	72 x 72	3 x 9 mm	●	●	●	●	●	●	●	●	●	●	●	●	●
<b>RG-72C</b>	Digital Voltmeter (Servo control for Regulators without switch) 1V - 300V AC (50/60 Hz)	72 x 72	6 x 14 mm	●	●	●	●	●	●	●	●	●	●	●	●	●
<b>DV-B</b>	Digital Optional Voltmeter (50/60 Hz) with Buzzer	72 x 72	3 x 14 mm								●					●



## DIGITAL AMMETER

Product Code	Description	Dimensions (mm)	Measuring Range	Display	Panel Type	Rail Type	X/5 CT	CT-120	CT-300	High-Low Current Protection	Demurrage Multiplier	Demurrage Time	Contact Output	Automatic Reset Time	Automatic Reset Count	Error Delay Time
<b>DJ-A96</b>	Digital Ammeter, (50/60 Hz)	96 x 96	100mA - 9995A	4 x 20 mm	●	●										
<b>DJ-A96D</b>	Digital Ammeter, (50/60 Hz)	96 x 96	1A - 100A	3 x 20 mm	●		●									
<b>DJ-A72</b>	Digital Ammeter, (50/60 Hz)	72 x 72	100mA - 9995A	4 x 14 mm	●		●									
<b>DJ-A72D</b>	Digital Ammeter, (50/60 Hz)	72 x 72	1A - 100A	3 x 14 mm	●			●								
<b>DJ-A48</b>	Digital Ammeter, (50/60 Hz)	48 x 48	100mA - 9995A	4 x 9 mm	●		●									
<b>DJ-A48D</b>	Digital Ammeter, (50/60 Hz)	48 x 48	1A - 100A	3 x 9 mm	●			●								
<b>DJ-A36</b>	Digital Ammeter, (50/60 Hz)	36 x 72	100mA - 9995A	4 x 10 mm	●		●									
<b>DJ-A36D</b>	Digital Ammeter, (50/60 Hz)	36 x 72	1A - 100A	3 x 14 mm	●			●								
<b>DA-120</b>	Digital Ammeter, (50/60 Hz)	DIN TYPE	1A - 100A	3 x 9 mm		●		●								
<b>DA-300</b>	Digital Ammeter, (50/60 Hz)	DIN TYPE	2A - 250A	3 x 9 mm		●			●							
<b>DJ-A96T</b>	Digital Three-Phase Ammeter, (50 Hz)	96 x 96	150mA - 995A	3 x 20 mm, 3 x 14 mm	●		●									
<b>DJ-A96S</b>	Digital Ammeter With Set, (50 Hz)	96 x 96	150mA - 995A	3 x 20 mm, 3 x 14 mm	●		●			●	●	●	●	●	●	●
<b>DJ-A72S</b>	Digital Ammeter With Set, (50 Hz)	72 x 72	150mA - 995A	3 x 14 mm, 3 x 9 mm	●		●			●	●	●	●	●	●	●

TRM-30M

NEW

DAKR-01D

TRM-25

TRM-50

TRM-200

TRM-400

## DIGITAL THERMAL OVERLOAD RELAYS

Product Code	Description	High Current Set (A)	Delay Time (sec)	3x3 Digit Display	X/5 CT	CT-120	CT-300	Contact Output (NA, NC, NO, COM)	Manual Mode	Semi-Automatic Mode	Automatic Mode
<b>DAKR-01D</b>	Under Current Control Relay (Seconder 0.5A - 5A)	Seconder 0.5A - 5A	0,5 sec. - 2,5 sec.	●	●			●			
<b>TRM-12</b>	Digital Thermal Overload Relay (Direct)	3A - 12.0A	0,1 sec. - 20 sec.	●				●	●	●	●
<b>TRM-25</b>	Digital Thermal Overload Relay (Direct)	1A - 25.0A	0,1 sec. - 20 sec.	●				●	●	●	●
<b>TRM-30M</b>	Monophase Voltage Protected Digital Overload Relay	0,5A - 30A	0,1 sec. - 20 sec.	●				●	●	●	●
<b>TRM-30F</b>	Digital Thermal Overload with Phase Protection (Direct)	0,5A - 30A	0,1 sec. - 20 sec.	●				●	●	●	●
<b>TRM-50</b>	Digital Thermal Overload Relay	15A - 50.0A	0,1 sec. - 20 sec.	●	●			●	●	●	●
<b>TRM-100</b>	Digital Thermal Overload Relay	40A - 100A	0,1 sec. - 20 sec.	●		●		●	●	●	●
<b>TRM-200</b>	Digital Thermal Overload Relay	90A - 200A	0,1 sec. - 200 sec.	●			●	●	●	●	●
<b>TRM-300</b>	Digital Thermal Overload Relay	190A - 300A	0,1 sec. - 200 sec.	●	●			●	●	●	●
<b>TRM-400</b>	Digital Thermal Overload Relay	290A - 400A	0,1 sec. - 200 sec.	●	●			●	●	●	●

### NEW DAKR-01D

#### UNDER CURRENT CONTROL RELAY

- X/5A Current Transformer Can Be Connected
- Seconder 0.5A - 5A
- Inrush (Inrush Current) Time Adjustable
- Under Current Fault Waiting Time Adjustable
- Under Current Set Value Adjustable



### NEW TRM-30M

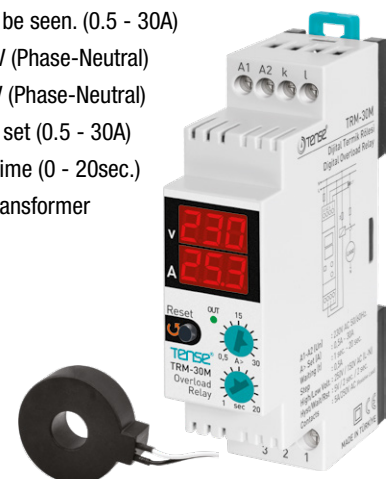
30 A

MONOFAZE

#### Monophase Current and Voltage Protection Digital Overload Relay

#### Innovative solutions in current control

- The current drawn can be seen. (0.5 - 30A)
- High voltage error 250V (Phase-Neutral)
- Low voltage error 150V (Phase-Neutral)
- Entering digital current set (0.5 - 30A)
- Entering error waiting time (0 - 20sec.)
- With external current transformer







## DIGITAL CONTACTOR & OVERLOAD RELAY

Product Code	Description	Working Voltage	High CurrentSet (A)	Case Type	Delay Time(sec)	Current Asymmetry 50% (Fixed)	3 x 3 Digit Display	Contact Output (NC, NO)	Error Output	Manual Mode	Number of contact usage	Working Hours	Rail Type
<b>KON-TER-12</b>	Contactors Thermal Overload (up to 4 kW)	100-240 VAC	1A - 12.0A	<b>TYPE 1</b>	1 sec. - 10 sec.	●	●	●	●	●	●	●	●
<b>KON-TER-18</b>	Contactors Thermal Overload (up to 7,5 kW)	100-240 VAC	1A - 18.0A	<b>TYPE 1</b>	1 sec. - 10 sec.	●	●	●	●	●	●	●	●
<b>KON-TER-25</b>	Contactors Thermal Overload (up to 11 kW)	100-240 VAC	1A - 25.0A	<b>TYPE 1</b>	1 sec. - 10 sec.	●	●	●	●	●	●	●	●
<b>KON-TER-50</b>	Contactors Thermal Overload (up to 22 kW)	120-240 VAC	25A - 50.0A	<b>TYPE 2</b>	1 sec. - 20 sec.	●	●	●	●	●	●	●	●

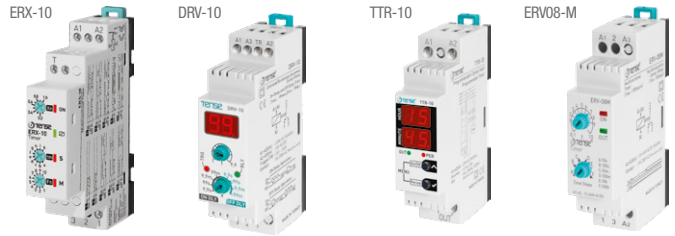
## DIGITAL CONTACTOR & THERMAL OVERLOAD RELAY

### KON-TER SERIES

Innovative Design, Two in One Product

- Measurement between 1A and 12A / 18A / 25A / 50A, intervention and silent operation
- 100-240 V AC Flexible operating voltage.
- Contactor and Digital thermal two products in one
- Realistic measurement and intervention sensitivity
- Complete solution for current protection of sensitive devices
- Stock and cost savings
- Manual operating mode (Manual Reset)
- Digital current set
- Digital error delay time (1 - 20 sec)
- Monitoring instant currents
- Monitoring the number of contact usage
- Monitoring working time
- Auxiliary contacts
- Error Output Contact
- 3 digits 3 segments display screen
- Informing with status LEDs
- Easy to use and easy to install
- With an internal current transformer
- 50% Current Asymmetry





## MULTIFUNCTIONAL TIME RELAYS

Product Code	Description	Dimensions (mm)	Time Range	24V AC DC	220V AC	Rail Type	Package Quantity
<b>ERX-10</b>	Multifunctional Time Relay (12-240 V AC / DC)	<b>V-AUTOMAT DIN 2</b>	0,1 sec.-30 hours	●	●	●	20
<b>DRV-10</b>	Multifunctional Time Relay (220/24V AC)	<b>V-AUTOMAT DIN</b>	0,1 sec.-99 minutes	●	●	●	20
<b>TTR-10</b>	Programmable Time Relay (220V AC)	<b>V-OTOMAT DIN</b>	5-10-15-20-30 minutes		●	●	20
<b>ERV-08M</b>	Multifunctional Timers (Operating Voltage 12V-240V AC/DC)	<b>V-AUTOMAT DIN</b>	1 sn-100 hours			●	20



### TTR-10 PROGRAMMABLE TIMER

- 230V AC
- Real time clock
- Number of programs: 48/72/96/144/288
- Switching time: 5/10/15/25/30 minutes
- Relay on time can be adjusted
- 16A, 250VAC, 4000VA (Resistive Load)



### DRV-10 ON & OFF Delay Digital Timer

- 0.1 sec. - 99 minutes time setting range
- On delay and release delay option
- External triggering input
- 220V AC - 24V AC / DC two separate supply inputs
- 2x7 mm display screen
- 1x Relay output



### ERX-10 MULTIFUNCTIONAL TIMER

- 230VAC or 12-240V AC/DC
- Working: 0,1sec. – 30h.(Adjustable)
- 10 different working modes
- ON Delay
- OFF Delay
- Control OFF Delay
- Single Shot Leading Edge with Control Input
- ON delay and OFF Delay with Control
- Pulse Output with Control
- Equivalent Timed Flasher with Control (t=ton=toff)



## DIGITAL TIMERS

Product Code	Description	Dimensions (mm)	Selectable Output Function Indicator	Display	Panel Type	Start with supply	With Trigger 24V, 240V	START input (100... 240VAC)	START input (max 32VDC)	RESET input (max 32VDC)	GATE input (max 32VDC)	24VDC input (Proximity switch connection)	Out 1 output	Out 2 output	SS out output	Reserve Feature
<b>ERD-48T</b>	Digital Timers 24V AC/DC 220V AC	48 x 48	On Delay - Off Delay	3 Digt 7 Segment	●	●	●						●			
<b>ERD-72T</b>	Digital Timers 24V AC/DC 220V AC	72 x 72	On Delay - Off Delay	3 Digits 7 Segment	●	●	●						●			
<b>ERD-96T</b>	Digital Timers 24V AC/DC 220V AC	96 x 96	On Delay - Off Delay	3 Digits 7 Segment	●	●	●						●			
<b>ERD-48M</b>	Digital Timers	48 x 48	13 different operating modes	2x4 Digits 7 Segment	●			●	●	●	●	●	●	●	●	●
<b>ERD-72M</b>	Digital Timers	72 x 72	8 different operating modes	2x4 Digits 7 Segment	●			●	●	●	●	●	●	●	●	●
<b>ERD-96M</b>	Digital Timers	96 x 96	8 different operating modes	2x4 Digits 7 Segment	●			●	●	●	●	●	●	●	●	●
<b>ERD-48K</b>	Digital Timers	48 x 48	Instant contact with Supply ON and Flasher	3 Digits 7 Segment	●	●							●	●		



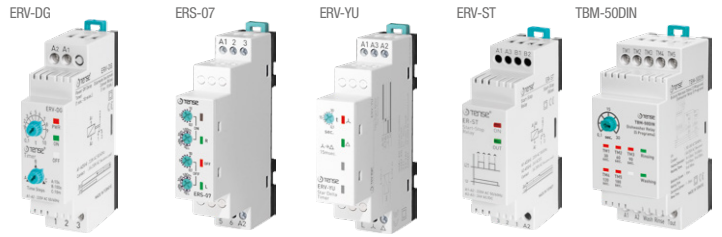
## DIGITAL HOUR METER

Product Code	Description
<b>DHM-48</b>	Digital Hour Meter (maximum 99.999 hours), 6 digits 9 mm display, with reserve, resetable (48 x 48), panel type
<b>HM-48</b>	Digital Hour Meter (maximum 99.999 hours), 5 digits 9 mm, 2 digits 8 mm display, with reserve, (48 x 48), panel type, 24V AC/DC, 220V AC
<b>HM-48D</b>	Digital Hour Meter (maximum 99.999 hours), 5 digits 9 mm, 2 digits 8 mm display, with reserve resetable, (48 x 48), panel type, 24V AC/DC, 220V AC
<b>DHM-DIN</b>	Digital Hour Meter clock (maximum 99.999 hours), 6 digits 9 mm display, with reserve, resetable (DIN BOX), rail type
<b>SF-48</b>	Analog Hour Meter (maximum 999.999.9 hours), 7 digits 220 V Panel Type 48x48

## TIMERS



Product Code	Description	Dimensions (mm)	Time Period	220V AC	24V AC/DC	Panel Type	Rail Type	Package Quantity
<b>ER-30</b>	Timers	<b>CLASSIC BOX</b>	0,1 - 30 sec.	●			●	10
<b>ER-60</b>	Timers	<b>CLASSIC BOX</b>	0,1 - 60 sec.	●			●	10
<b>ER-03D</b>	Timers	<b>CLASSIC BOX</b>	0,1-3 min.	●			●	10
<b>ER-12D</b>	Timers	<b>CLASSIC BOX</b>	0,1-12 min.	●			●	10
<b>ER-30D</b>	Timers	<b>CLASSIC BOX</b>	0,1-30 min.	●			●	10
<b>ER-60D</b>	Timers	<b>CLASSIC BOX</b>	0-1-60 min.	●			●	10
<b>ERV-08</b>	Timers	<b>V-AUTOMAT DIN</b>	1 sec.-100 hours	●	●		●	20
<b>ERV-03</b>	Timers	<b>V-AUTOMAT DIN</b>	0,1 - 3 sec.	●	●		●	20
<b>ERV-12</b>	Timers	<b>V-AUTOMAT DIN</b>	0,1 - 12 sec.	●	●		●	20
<b>ERV-30</b>	Timers	<b>V-AUTOMAT DIN</b>	0,1 - 30 sec.	●	●		●	20
<b>ERV-60</b>	Timers	<b>V-AUTOMAT DIN</b>	0,1 - 60 sec.	●	●		●	20
<b>ERV-03D</b>	Timers	<b>V-AUTOMAT DIN</b>	0,1 - 3 min.	●	●		●	20
<b>ERV-12D</b>	Timers	<b>V-AUTOMAT DIN</b>	0,1 - 12 min.	●	●		●	20
<b>ERV-30D</b>	Timers	<b>V-AUTOMAT DIN</b>	0,1 - 30 min.	●	●		●	20
<b>ERV-60D</b>	Timers	<b>V-AUTOMAT DIN</b>	0,1 - 60 min.	●	●		●	20
<b>ERS-03Y</b>	Timers	<b>48 x 48 (8 Pin Socket)</b>	0,1 - 3 sec.	●		●		
<b>ERS-12Y</b>	Timers	<b>48 x 48 (8 Pin Socket)</b>	0,1 - 12 sec.	●		●		
<b>ERS-30Y</b>	Timers	<b>48 x 48 (8 Pin Socket)</b>	0,1 - 30 sec.	●		●		
<b>ERS-60Y</b>	Timers	<b>48 x 48 (8 Pin Socket)</b>	0,1 - 60 sec.	●		●		
<b>ERS-03DY</b>	Timers	<b>48 x 48 (8 Pin Socket)</b>	0,1 - 3 min.	●		●		
<b>ERS-12DY</b>	Timers	<b>48 x 48 (8 Pin Socket)</b>	0,1 - 12 min.	●		●		
<b>ERS-30DY</b>	Timers	<b>48 x 48 (8 Pin Socket)</b>	0,1 - 30 min.	●		●		
<b>ERS-60DY</b>	Timers	<b>48 x 48 (8 Pin Socket)</b>	0,1 - 60 min.	●		●		
<b>ERP-03Y</b>	Timers	<b>48 x 48 (Plug-in Terminal)</b>	0,1 - 3 sec.	●		●		
<b>ERP-12Y</b>	Timers	<b>48 x 48 (Plug-in Terminal)</b>	0,1 - 12 sec.	●		●		
<b>ERP-30Y</b>	Timers	<b>48 x 48 (Plug-in Terminal)</b>	0,1 - 30 sec.	●		●		
<b>ERP-60Y</b>	Timers	<b>48 x 48 (Plug-in Terminal)</b>	0,1 - 60 sec.	●		●		
<b>ERP-03DY</b>	Timers	<b>48 x 48 (Plug-in Terminal)</b>	0,1 - 3 min.	●		●		
<b>ERP-12DY</b>	Timers	<b>48 x 48 (Plug-in Terminal)</b>	0,1 - 12 min.	●		●		
<b>ERP-30DY</b>	Timers	<b>48 x 48 (Plug-in Terminal)</b>	0,1 - 30 min.	●		●		
<b>ERP-60DY</b>	Timers	<b>48 x 48 (Plug-in Terminal)</b>	0,1 - 60 min.	●		●		



## COMMAND & CONTROL RELAYS

Product Code	Description	Package Quantity
<b>ERS-07</b>	Multi Functional Double Adjustable Right Left Relay (150-260 V AC) ON (Right-Left) Time Interval: 1 sec. - 100 minutes / OFF (Intermediate Waiting) Time Range: 1 sec. - 100 minutes	20
<b>ERV-YU</b>	Star Delta Relay, V-Automat Type, 220V AC (50-60 Hz), Star: 1sec. - 30 sec., Pass: 15 msec fixed.	20
<b>ERV-ST</b>	Start Stop Relay, Classic Box, 220V AC (50-60 Hz.)	20
<b>ERV-DG</b>	Power Off Delay Relay, Classic Box, 220V AC (50-60 Hz.), 0,1 sec. - 10 min.	10
<b>TBM-50DIN</b>	Dishwasher Relay, 5-Stage washing, 01 sec - 30 sec. rinsing, Industrial purpose, Classic Box, 220V AC (50-60 Hz.)	10



## FLASHER RELAYS

Product Code	Description	Dimensions (mm)	ON Time Range	OFF Time Range	220V AC	12V DC	24V AC/DC	Panel Type	Rail Type	Package Quantity
<b>DFR-72</b>	Digital Multifunction Flasher Relay	<b>72x72 Panel Mounting</b>	1 sec.-99 min.	1 sn-99 min.	●	●	●	●	●	
<b>ERF-09</b>	Multifunction Flasher Relay	<b>Classic Box</b>	1 sec.-100 hours	1 sn-100 hours	●	●	●	●	●	10
<b>ERV-09</b>	Multifunction Flasher Relay	<b>V-Automat DIN</b>	1 sec.-100 hours	1 sn-100 hours	●	●	●	●	●	20
<b>ERV-09D</b>	Multifunction Flasher Relay	<b>V-Automat DIN</b>	0,1 sec.-100 min.	0,1 sec.-100 min.	●	●	●	●	●	20
<b>ERP-2F</b>	Flasher Relay	<b>48x48 Panel Mounting</b>	0,1 - 60 min.	0,1 - 60 min.	●	●	●	●	●	

## DIGITAL OUTPUT DIGITAL POTENTIOMETER



Product Code	Description
<b>PTM-01</b>	0-10V analogue output
<b>PTM-02</b>	4-20mA analogue output

### PTM-01 0-10V A Digital Potentiometer with Analogue Output

- Microprocessor based digital potentiometer
- 0-10V analog output
- Analogue output control possibility with external digital inputs
- Ramp function
- Possibility of lower and upper limit adjustment (for Scale and Set values)
- SET value setting limitation (Unauthorized use The set feature can be turned off to prevent it)

### PTM-02 4-20mA Digital Potentiometer with Analogue Output

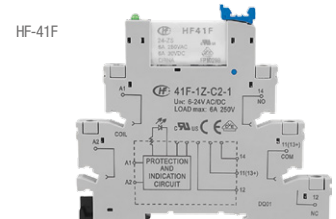
- Microprocessor based digital potentiometer
- 4-20mA analog output
- Analogue output control possibility with external digital inputs
- Ramp function
- Possibility of lower and upper limit adjustment (for Scale and Set values)
- SET value setting limitation (Unauthorized use The set feature can be turned off to prevent it)

## POTENTIOMETER 22 MM (SINGLE TOUR)



Product Code	Description
<b>WL9 PT 5K</b>	5K 22 mm Plastic Potentiometer
<b>WL9 PT 10K</b>	10K 22 mm Plastic Potentiometer

## RELAY + SOCKET



Product Code	Description
<b>HF-41F</b>	6A Relay + Socket Screw Set. (1N0) 24V DC



## LIQUID LEVEL RELAYS

Product Code	Description	Dimensions (mm)	220V AC (50/60 Hz)	3 x 380V AC (50 Hz) + Neutral	< 100k $\Omega$ Setting	< 50k $\Omega$ Fixed	High - Low Voltage	Phase Sequence	Delay for Upper Electrode	Fixed Asymmetry	Package Quantity
<b>SSR-05D</b>	Liquid Level Relay (With microprocessor)	<b>CLASSIC BOX</b>	●	●	●	●	●	●	●	●	12
<b>VSR-05</b>	Liquid Level Relay	<b>V-AUTOMAT</b>	●	●	●	●	●	●	●	●	20
<b>VSR-05-24</b>	Liquid Level Relay with 24V Supply	<b>V-AUTOMAT</b>	●	●	●	●	●	●	●	●	10
<b>SSR-09</b>	Liquid Level Relay for Steam Iron Boilers (Without Tank)	<b>CLASSIC BOX</b>	●	●	●	●	●	●	●	●	10
<b>SSR-19</b>	Liquid Level Relay for Steam Iron Boilers (With Tank)	<b>CLASSIC BOX</b>	●	●	●	●	●	●	●	●	10

<b>SSE-10</b>	Liquid Level Electrode (Stainless)
<b>FLT-1.6</b>	Cable Floater, 1.6 meters, 8A 250V AC (50/60 Hz), IP68
<b>FLT-3</b>	Cable Floater, 3 meters, 8A 250V AC (50/60 Hz), IP68
<b>FLT-5</b>	Cable Floater, 5 meters, 8A 250V AC (50/60 Hz), IP68
<b>FLT-10</b>	Cable Floater, 10 meters, 8A 250V AC (50/60 Hz), IP68



## HYDROPHORE SEQUENCING RELAYS



Product Code	Description	Dimensions (mm)	Thermal	2 Pressure Switch Input	3 Pressure Switch Input	2 Booster Outputs	3 Booster Outputs	Rail Type	Package Quantity
<b>HSR-S</b>	Smart Hydrophore Sequencing Relay (with Adjustable Co-Aging)	<b>DIN TYPE</b>	●	●	●	●	●	●	●
<b>HSR-02X</b>	Hydrophore Sequencing Relay	<b>DIN TYPE</b>	●	●	●	●	●	●	20
<b>HSR-03X</b>	Hydrophore Sequencing Relay	<b>DIN TYPE</b>	●	●	●	●	●	●	15

## PHOTOCELL RELAYS



Product Code	Description
<b>FTV-04</b>	Photocell Relay, V-Automat DIN Body, 1 - 10 Lux adjustable, 5A / 250V AC relay output
<b>FT-GR</b>	Photocell Relay, 10 Lux fixed, 7A / 250V AC relay output
<b>FT-G</b>	Photocell Eye, (5 mm LDR)

TDK-01



TDK-02



**NEW** TDK-96



MDK-02



MDK-03



TDK-30



## SUBMERSIBLE PUMP CONTROL RELAY

Product Code	Description	Dimensions (mm)	Single-Phase (Single Open Transformer)	Three-Phase (Three Current Transformers)	High - Low Voltage Protection	Phase Sequence	High - Low Current Protection/Koruma	Asymmetry Voltage Protection	High - Low Cos $\phi$ Protection	3 x Electrode Inputs	Demurrage Multiplier	Demurrage Time	Floater Input	Error Count Records	Delay for Upper Electrode	Manual Reset	Semi-Automatic Reset	Automatic Reset	CT-120	CT-300	30 A Direct	250 A Direct
<b>MDK-02</b>	Single-Phase Submersible Control Relay	<b>96 x 96</b>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
<b>MDK-03</b>	Single-Phase Submersible Control Relay With Digital Contactor (1-30 A Direct Operation) (150-270 V AC)	<b>DIN TYPE</b>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
<b>TDK-01</b>	Three-Phase Submersible Control Relay (Without Neutral)	<b>144 x 144</b>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
<b>TDK-02</b>	Three-Phase Submersible Control Relay (Without Neutral)	<b>144 x 144</b>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
<b>TDK-30</b>	Three-Phase Submersible Control Relay With Digital Contactor (Direct up to 5.5kW Operation) (150-270 V AC)	<b>DIN TYPE</b>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
<b>TDK-96</b>	Three-Phase Submersible Control Relay (Without Neutral)	<b>96 x 96</b>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●



**MDK-03** 30 A Direct (AC1 Load)

- 2x3 digits 9mm led display
- Adjustable high and low current
- Adjustable high and low voltage
- Adjustable upper electrode delay time
- Manual, semi-automatic and automatic resetting
- Monitoring 1x phase voltage
- Monitoring 1x phase current
- Extends electrode life
- Use with 2 or 3 electrodes
- Stock and cost savings



**TDK-30** 30 A Direct (AC1 Load)

- 3x3 digits 9mm led display
- Adjustable high and low current adjustment
- Adjustable high and low voltage
- Adjustable current and voltage asymmetry
- Adjustable upper electrode delay time
- Manual, semi-automatic and automatic resetting
- Displays 3 phase voltage
- Displays 3 phase current
- Adjustable liquid sensitivity
- Extends electrode life
- Err (no) fault contact
- Phase sequence check
- Use with 2 or 3 electrodes
- Indicates the number of contact releases
- Displays engine run time

**NEW**



**TDK-96** 250 A

- 128x64 LCD display
- Easy to use menu
- Adjustable high and low cosine set
- Adjustable high and low current,
- Adjustable high, low and asymmetry voltage
- Adjustable asymmetry voltage,
- Adjustable the upper electrode delay time,
- Adjustable liquid sensitivity,
- Keeping error records into memory,
- Star-Delta contact output,
- Flasher mode,
- Start / Stop memory,
- Notifies the engine maintenance time,
- Manual, automatic and semi-automatic reset
- External Start Stop input
- Adjustable 2x alarm outputs
- 50Hz and 60Hz operating frequency selection



## VOLTAGE CONTROL RELAYS

Product Code	Description	Dimensions (mm)	Neutral	Without neutral	High Voltage Protection	Low Voltage Protection	Low Voltage Protection (Fixed)	Over Voltage Fuse	Low Voltage Fuse	Underfeed Protection	Phase Absence	Phase sequence	Reset Delay Time	Error Delay Time	PTC	9 Digits 9 mm Display	Rail Type	Package Quantity
<b>GK-03</b>	Three-Phase Overvoltage Control Relay	CLASSIC BOX	●	●	●													10
<b>GK-04S</b>	Three-Phase Over-Low Voltage Control Relay <b>The phase sequence feature can be disabled.</b>	CLASSIC BOX		●	●	●					●	●	●	●				10
<b>GKM-11</b>	Single-Phase Over-Low Voltage Control Relay <b>The phase sequence feature can be disabled.</b>	DIN TYPE	●		●	●					●	●	●	●				12
<b>GKV-12</b>	Three-Phase Over-Low Voltage Control Relay <b>Single-Phase Dial</b>	V-AUTOMAT DIN	●		●	●		●	●	●	●	●	●	●				20
<b>GKM-02</b>	Three-Phase Over-Low Voltage Control Relay <b>Single-Phase Dial</b>	DIN TYPE	●		●	●					●	●	●	●				12
<b>GKM-02F</b>	Three-Phase Over-Low Voltage Control Relay <b>Single-Phase Dial</b>	DIN TYPE	●		●	●					●	●	●	●				12
<b>GKT-03F</b>	Three-Phase Over-Low Voltage Control Relay <b>Three-Phase Dial</b>	DIN TYPE		●	●	●					●	●	●	●				12
<b>DGK-01</b>	Single-Phase Digital Over-Low Voltage Control Relay	DIN TYPE	●		●	●					●	●	●	●				12
<b>DGK-04</b>	Three-Phase Digital Over-Low Voltage Control Relay	CLASSIC BOX		●	●	●					●	●	●	●				10
<b>DGK-04F</b>	Three-Phase Digital Over-Low Voltage Control Relay	CLASSIC BOX		●	●	●					●	●	●	●				10
<b>DGK-04PF</b>	Three-Phase Digital Over-Low Voltage Control Relay	CLASSIC BOX		●	●	●					●	●	●	●				10
<b>GKE-40</b>	Mono-Phase High-Low Voltage Protection Relay	DIN TYPE	●		●	●							●	●				

## GKE-40

### MONO-PHASE HIGH-LOW VOLTAGE PROTECTION RELAY

- Easy setup
- 3 digit display led
- Direct single-phase connection
- High/Low voltage protection
- Adjustable error delay time 0.1-600 sec.
- Error state led
- Adjustable over voltage 230-300 V
- Adjustable under voltage 120-210 V
- Maximum 40 A load



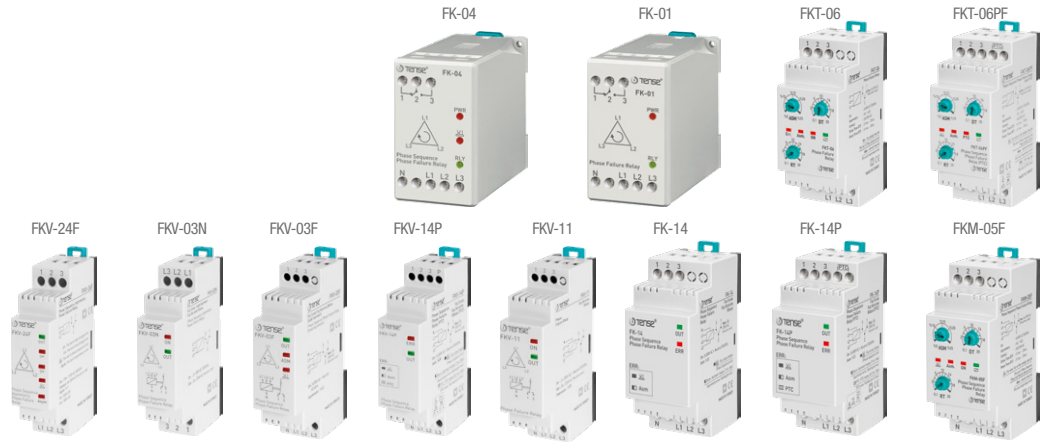
## UVR-21

### Under Voltage Protection Relay

- Operating Voltage (Un) : 415V AC and neutral
- Operating Frequency : 50/60 Hz.
- Operating Power : <6VA
- Operating Temperature : -20°C.....+55°C
- Under Voltage : ~170V
- Display : On led and Out led
- Delayed (t) : 1min. - 10min.
- Weight : Max. 110gr.
- Contact : 5A/250V AC (Resistive Load)
- Mounting : Vertical assembled in the panel or assembled on the din rail
- Operating Altitude : <2000meter
- Cable Diameter : 1,5mm<sup>2</sup>







## PHASE PROTECTION RELAYS

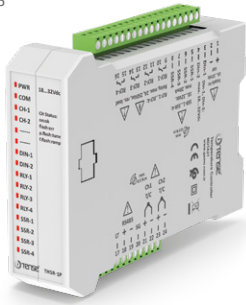
Product Code	Description	Dimensions (mm)	High - Low Voltage Protection	Asymmetry Protection (5% - 25%)	Phase Absence	Phase Sequence	Asymmetry Protection ~ 30% (Fixed)	Asymmetry Protection ~ 40% (Fixed)	Reset Delay Time	Error Delay Time	PTC	Rail Type	Package Quantity
<b>FK-01</b>	Phase Protection Relay	<b>CLASSIC BOX</b>			●		●					●	10
<b>FK-02</b>	Phase Protection Relay	<b>CLASSIC BOX</b>			●			●				●	10
<b>FK-04</b>	Phase Protection Relay	<b>CLASSIC BOX</b>	●		●	●	●					●	10
<b>FK-05F</b>	Phase Protection Relay <b>Without Neutral</b>	<b>CLASSIC BOX</b>	●	●	●	●						●	10
<b>FKM-05F</b>	Phase Protection Relay <b>%5 - %25</b>	<b>DIN TYPE</b>	●	●	●	●			●	●			12
<b>FKT-06</b>	Phase Protection Relay <b>%5 - %25 Without Neutral</b>	<b>DIN TYPE</b>	●	●	●	●			●	●			12
<b>FKT-06PF</b>	Phase Protection Relay <b>%5 - %25 Without Neutral</b>	<b>DIN TYPE</b>	●	●	●	●			●	●	●		12
<b>FKV-03F</b>	Phase Protection Relay	<b>V-AUTOMAT</b>			●	●		●				●	20
<b>FK-14</b>	Phase Protection Relay	<b>DIN TYPE</b>	●		●	●	●					●	12
<b>FK-14P</b>	Phase Protection Relay	<b>DIN TYPE</b>	●		●	●	●				●	●	12
<b>FKV-11</b>	Phase Protection Relay	<b>V-AUTOMAT DIN</b>			●	●	●					●	20
<b>FKV-14P</b>	Phase Protection Relay	<b>V-AUTOMAT DIN</b>	●		●	●	●				●	●	20
<b>FKV-03N</b>	Phase Protection Relay <b>Without Neutral</b>	<b>V-AUTOMAT DIN</b>			●	●	●					●	20
<b>FKV-24F</b>	Phase Protection Relay <b>Without Neutral</b>	<b>V-AUTOMAT DIN</b>	●		●	●	●					●	20

## DIGITAL PHASE PROTECTION RELAYS



Product Code	Description	Dimensions (mm)	High - Low Voltage Protection	Phase Sequence	Asymmetry Protection (20% Fixed)	Asymmetry Protection (5% - 25%)	PTC	9 Digits 9 mm Display	Rail Type	Package Quantity
<b>DFK-05F</b>	Digital Phase Protection Relay <b>Without Neutral</b>	<b>CLASSIC BOX</b>	●	●		●		●	●	10
<b>FKV-03DF</b>	V-Automat DIN digital phase protection relay	V-Automat DIN	●	●	●			●	●	20
<b>FKV-03HF</b>	V-Automat DIN settable digital phase protection relay	V-Automat DIN	●	●		●		●	●	20

THSR-1P



DT-321DIN



DT-96Y



DT-96E



AD-96



DT-36Y



DT-36EM



DT-322



HT-310



## TEMPERATURE CONTROL DEVICES

Product Code	Description	Dimensions (mm)	Thermocouple Input Type	Display	Panel Type	On/Off Control	P,PI,PD,PID Control	Auto-tune	Set Contact Output	Alarm Contact Output	Hysteresis Setting	Upper Limit Setting	Lower Limit Setting	Offset Feature	Password Protection	SSR Output	Optional SSR Output	Package Quantity
<b>THSR-1P</b>	Temperature Controller With Single Communication Channel	<b>36 x 110</b>	J,K,S,R,T,Pt100	-														
<b>THSR-2</b>	Temperature Controller With Dual Communication Channel	<b>36 x 110</b>	J,K,S,R,T	-														
<b>DT-36 EM</b>	Temperature Controller	<b>36 x 72</b>	J,K,S,R,T,Pt100	2x4 Digit 7 Segment														
<b>DT-48 EM</b>	Temperature Controller	<b>48 x 48</b>	J,K,S,R,T,Pt100	2x4 Digit 7 Segment														
<b>DT-72 EM</b>	Temperature Controller	<b>72 x 72</b>	J,K,S,R,T,Pt100	2x4 Digit 7 Segment														
<b>DT-96 EM</b>	Temperature Controller	<b>96 x 96</b>	J,K,S,R,T,Pt100	2x4 Digit 7 Segment														
<b>DT-36Y</b>	Temperature Controller	<b>36 x 72</b>	J,K,S,R,T,Pt100	2x4 Digit 7 Segment														
<b>DT-48Y</b>	Temperature Controller	<b>48 x 48</b>	J,K,S,R,T,Pt100	2x4 Digit 7 Segment														
<b>DT-72Y</b>	Temperature Controller	<b>72 x 72</b>	J,K,S,R,T,Pt100	2x4 Digit 7 Segment														
<b>DT-96Y</b>	Temperature Controller	<b>96 x 96</b>	J,K,S,R,T,Pt100	2x4 Digit 7 Segment														
<b>DT-D</b>	Temperature Controller	<b>96 x 48</b>	J,K,S,R,T,Pt100	2x4 Digit 7 Segment														
<b>DT-Y</b>	Temperature Controller	<b>48 x 96</b>	J,K,S,R,T,Pt100	2x4 Digit 7 Segment														
<b>DTZ-48</b>	Temperature Controller with Internal Time Relay	<b>48 x 48</b>	J,K,S,R,T,Pt100	2x4 Digit 7 Segment														
<b>DTZ-72</b>	Temperature Controller with Internal Time Relay	<b>72 x 72</b>	J,K,S,R,T,Pt100	2x4 Digit 7 Segment														
<b>DTZ-96</b>	Temperature Controller with Internal Time Relay	<b>96 x 96</b>	J,K,S,R,T,Pt100	2x4 Digit 7 Segment														
<b>DT-48E</b>	Temperature Controller	<b>48 x 48</b>	J (Fe-Const)	3 Digit 7 Segment														
<b>DT-72E</b>	Temperature Controller	<b>72 x 72</b>	J (Fe-Const)	3 Digit 7 Segment														
<b>DT-96E</b>	Temperature Controller	<b>96 x 96</b>	J (Fe-Const)	3 Digit 7 Segment														
<b>DT-321</b>	Temperature Controller (-30 to +150 °C)	<b>36 x 72</b>	NTC-105, NTC-150, NTC-S-150	3 Digit 7 Segment														
<b>DT-322</b>	Temperature Controller (-19.9 to +99.9 °C)	<b>36 x 72</b>	NTC-105, NTC-150, NTC-S-150	3 Digit 7 Segment														
<b>DT-321DIN</b>	Temperature Controller (-30 to +150 °C)	<b>DIN TYPE</b>	NTC-105, NTC-150, NTC-S-150	3 Digit 7 Segment														10
<b>AD-96</b>	Temperature Controller with Analog Adjustment and Digital Display	<b>96 x 96</b>	J (Fe-Const)	3 Digit 7 Segment														
<b>HT-310</b>	Digital Temperature and Humidity Controller	<b>36 x 72</b>	<b>NT- 310</b>	3 Digit 7 Segment														

## THERMOCOUPLES

Product Code	Description
<b>NT-310</b>	Humidity And Temperature Probe
<b>NTC-105</b>	Temperature Probe (-30 °C + 105)
<b>NTC-150</b>	Temperature Probe (-30 °C + 150)
<b>NTC-S-150</b>	Temperature Probe With Nut (-30 °C + 150)

AIR PROBE  
NTC-150



AIR PROBE  
NT-310



Product Code	Description (0 - 600 °C)
<b>TK-1</b>	1 mt. J Type Fe-const Thermocouple (Metric 6/8)
<b>TK-1,5</b>	1,5 mt. J Type Fe-const Thermocouple (Metric 6/8)
<b>TK-2</b>	2 mt. J Type Fe-const Thermocouple (Metric 6/8)
<b>TK-2,5</b>	2,5 mt. J Type Fe-const Thermocouple (Metric 6/8)
<b>TK-3</b>	3 mt. J Type Fe-const Thermocouple (Metric 6/8)
<b>TK-4</b>	4 mt. J Type Fe-const Thermocouple (Metric 6/8)
<b>TK-5</b>	5 mt. J Type Fe-const Thermocouple (Metric 6/8)
<b>PT-1</b>	1 mt. PT-100 Thermocouple (Metric 6/8)
<b>PT-2</b>	2 mt. PT-100 Thermocouple (Metric 6/8)
<b>PT-3</b>	3 mt. PT-100 Thermocouple (Metric 6/8)



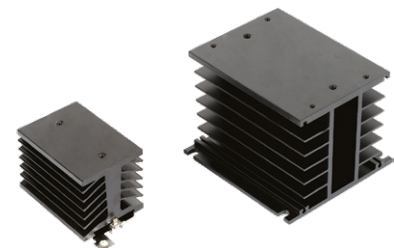
## SOLID STATE RELAYS (SSR)

Product Code	Current	Type	Input	Output
<b>1SS-25-1</b>	25A	<b>SINGLE-PHASE</b>	3-32 VDC	24-380 VAC
<b>1SS-40-1</b>	40A	<b>SINGLE-PHASE</b>	3-32 VDC	24-380 VAC
<b>1SS-50-1</b>	50A	<b>SINGLE-PHASE</b>	3-32 VDC	24-380 VAC
<b>1SS-75-1</b>	75A	<b>SINGLE-PHASE</b>	3-32 VDC	24-380 VAC
<b>1SS-120-1</b>	120A	<b>SINGLE-PHASE</b>	3-32 VDC	24-380 VAC
<b>3SS-25-1</b>	25A	<b>THREE-PHASE</b>	3-32 VDC	24-380 VAC
<b>3SS-40-1</b>	40A	<b>THREE-PHASE</b>	3-32 VDC	24-380 VAC
<b>3SS-75-1</b>	75A	<b>THREE-PHASE</b>	3-32 VDC	24-380 VAC



## RAIL MOUNTED COOLERS

Product Code	Current
<b>ISS-M-25A</b>	Rail Mounted Single-Phase Cooler for 25A SSR
<b>ISS-M-40A</b>	Rail Mounted Single-Phase Cooler for 40A SSR
<b>ISS-M-75A</b>	Rail Mounted Single-Phase Cooler for 75A SSR
<b>ISS-T-25A</b>	Rail Mounted Three-Phase Cooler for 25A SSR



## RAIL MOUNTED SSR WITH COOLER

Product Code	Current	Type	Input	Output
<b>IG3PA-4825D</b>	25A	<b>SINGLE-PHASE</b>	3-32 VDC	24-380 VAC
<b>IG3PA-4840D</b>	40A	<b>SINGLE-PHASE</b>	3-32 VDC	24-380 VAC



## DT-48EM / DT-72EM DIGITAL TEMPERATURE CONTROLLER

- Microprocessor based, temperature control device
- Temperature measurement scale from 0 C ° to +1700 C °
- Working with J, K, Pt100, R, S, T Type Thermocouples
- Advanced PID feature
- Suitable for hot runners
- AUTO-TUNE feature
- ON-OFF operation feature
- Soft Start (Ramp) feature
- Decimal measurement scale
- 1x Relay, 1x SSR Output
- Possibility to adjust upper / lower limit, hysteresis and offset for set values
- High sensitivity and accuracy
- Keeping program and control parameters continuously in memory
- Easy connection with plug-in terminal blocks
- Password protected



## COUNTERS



Product Code	Description
DS-72A	72x72 sizes, double SET, double output, CP1, CP2, RESET input, dry contact, proximity and enCoder input (NPN / PNP / Totem Pole), Double display, 6 digits, multiplier value can be entered, with reserve, SSR output, forward-backward counter
DS-72	72x72 sizes, double SET, double output, CP1, CP2, RESET input, dry contact, proximity and enCoder input (NPN / PNP / Totem Pole), Double display, 6 digits, multiplier value can be entered, with reserve, SSR output, forward-backward counter
DS-48	48x48 sizes, double SET, double output, CP1, CP2, RESET input, dry contact, proximity and enCoder input (NPN / PNP / Totem Pole), Double display, 6 digits, multiplier value can be entered, with reserve, SSR output, forward-backward counter

## PERMANENT CIRCUIT CAPACITORS

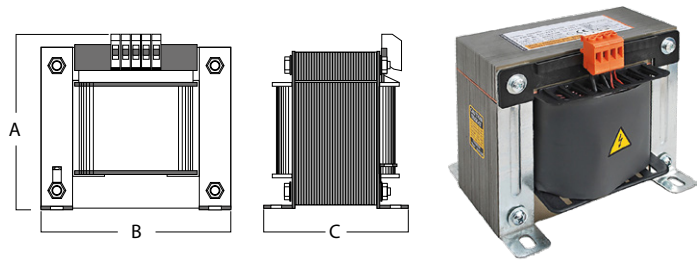
Capacity Range	Capacity deviation	Rated Voltage	Package Quantity
3 µF	+/- 5%	450VAC,50/60Hz	10
4 µF	+/- 5%	450VAC,50/60Hz	10
5 µF	+/- 5%	450VAC,50/60Hz	10
6 µF	+/- 5%	450VAC,50/60Hz	10
7 µF	+/- 5%	450VAC,50/60Hz	10
8 µF	+/- 5%	450VAC,50/60Hz	10
10 µF	+/- 5%	450VAC,50/60Hz	10
12 µF	+/- 5%	450VAC,50/60Hz	10
12,5 µF	+/- 5%	450VAC,50/60Hz	10
15 µF	+/- 5%	450VAC,50/60Hz	10
20 µF	+/- 5%	450VAC,50/60Hz	10
25 µF	+/- 5%	450VAC,50/60Hz	10
30 µF	+/- 5%	450VAC,50/60Hz	10
35 µF	+/- 5%	450VAC,50/60Hz	10
40 µF	+/- 5%	450VAC,50/60Hz	10
45 µF	+/- 5%	450VAC,50/60Hz	10
50 µF	+/- 5%	450VAC,50/60Hz	10
60 µF	+/- 5%	450VAC,50/60Hz	10
80 µF	+/- 5%	450VAC,50/60Hz	10
100 µF	+/- 5%	450VAC,50/60Hz	10

## INITIAL MOVEMENT CAPACITORS

Capacity Range	Capacity deviation	Rated Voltage	Package Quantity
124-149 µF	+/- 10%	250VAC,50/60Hz	10
130-156 µF	+/- 10%	250VAC,50/60Hz	10
145-175 µF	+/- 10%	250VAC,50/60Hz	10
161-193 µF	+/- 10%	250VAC,50/60Hz	10
189-227 µF	+/- 10%	250VAC,50/60Hz	10
216-259 µF	+/- 10%	250VAC,50/60Hz	10
233-280 µF	+/- 10%	250VAC,50/60Hz	10
280-333 µF	+/- 10%	250VAC,50/60Hz	10

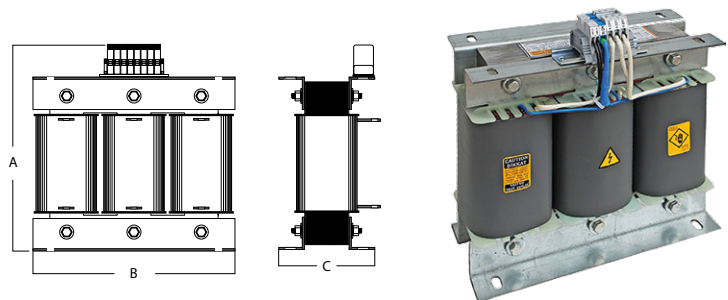


## SINGLE-PHASE SHUNT REACTORS (INDUCTIVE LOAD REACTORS)



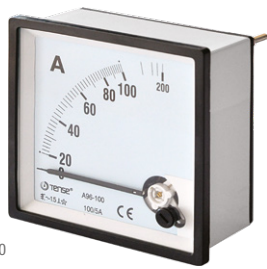
Product Code	Description	Power (kVAr) 230V AC	Thermal Protection	Sheet Type	A (mm)	B (mm)	C (mm)	Inductance (mH)	Current (A)	Weight (kg)
<b>TNS-0,5</b>	Shunt Reactors	0,5	●	E-I	120	120	77	338	2,17	3,1
<b>TNS-1</b>	Shunt Reactors	1,0	●	E-I	145	150	100	169	4,35	6,3
<b>TNS-1,5</b>	Shunt Reactors	1,5	●	E-I	145	150	120	113	6,52	9,2
<b>TNS-1,66S</b>	Shunt Reactors	1,66	●	E-I	145	150	120	103	6,82	10
<b>TNS-2,5</b>	Shunt Reactors	2,5	●	E-I	185	192	120	67,6	10,87	12,5
<b>TNS-3</b>	Shunt Reactors	3	●	E-I	185	192	145	56,3	13,04	17,5
<b>TNS-3,33S</b>	Shunt Reactors	3,33	●	E-I	185	192	145	50,5	14,40	22,5
<b>TNS-5</b>	Shunt Reactors	5,0	●	E-I	185	192	210	33,8	21,74	30,5
<b>TNS-6,67S</b>	Shunt Reactors	6,67	●	U-I	240	180	300	28,5	30,0	26,0
<b>TNS-7,5</b>	Shunt Reactors	7,5	●	U-I	240	180	360	22,5	32,61	29,2
<b>TNS-10S</b>	Shunt Reactors	10	●	U-I	240	180	360	16,9	43,48	37,6

## THREE-PHASE SHUNT REACTORS (INDUCTIVE LOAD REACTORS)



Product Code	Description	Power (kVAr) 400V AC	Thermal Protection	Sheet Type	A (mm)	B (mm)	C (mm)	Inductance (mH)	Current (A)	Weight (kg)
<b>TNS-0,5/400V</b>	Shunt Reactors	0,5	●	TYPE1	145	150	84	1020	0,72	3
<b>TNS-1/400V</b>	Shunt Reactors	1	●	TYPE1	152	180	80	505	1,44	7,8
<b>TNS-1,5/400V</b>	Shunt Reactors	1,5	●	TYPE1	152	180	100	336	2,17	9,5
<b>TNS-2,5/400V</b>	Shunt Reactors	2,5	●	TYPE1	225	240	100	202	3,61	11,9
<b>TNS-3 /400V</b>	Shunt Reactors	3	●	TYPE1	225	240	110	170	4,33	16,7
<b>TNS-5/400V</b>	Shunt Reactors	5	●	TYPE1	275	300	146	101	7,22	30,5
<b>TNS-7,5/400V</b>	Shunt Reactors	7,5	●	TYPE1	315	300	156	68	10,83	32
<b>TNS-10/400V</b>	Shunt Reactors	10	●	TYPE1	360	360	166	51	14,43	44
<b>TNS-15/400V</b>	Shunt Reactors	15	●	TYPE2	350	420	176	34	21,65	63
<b>TNS-20/400V</b>	Shunt Reactors	20	●	TYPE2	350	420	196	25,5	28,87	81
<b>TNS-25/400V</b>	Shunt Reactors	25	●	TYPE2	405	480	216	20,4	36,09	102
<b>TNS-30/400V</b>	Shunt Reactors	30	●	TYPE2	405	480	236	16,8	43,30	125
<b>TNS-40/400V</b>	Shunt Reactors	40	●	TYPE2	405	480	256	12,63	57,80	141
<b>TNS-50/400V</b>	Shunt Reactors	50	●	TYPE2	510	600	270	10,2	72,20	180

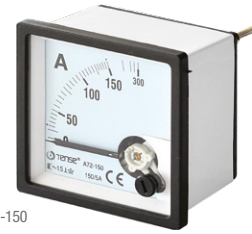
## ANALOG AMMETERS AND VOLTMETERS



A96-100



V72-500



A72-150

### DIRECT ANALOG AMMETERS

Product Code	Description	Dimensions (mm)
<b>A72-05 D</b>	5A Direct Ammeter	<b>72x72</b>
<b>A72-10 D</b>	10A Direct Ammeter	<b>72x72</b>
<b>A72-15 D</b>	15A Direct Ammeter	<b>72x72</b>
<b>A72-20 D</b>	20A Direct Ammeter	<b>72x72</b>
<b>A72-25 D</b>	25A Direct Ammeter	<b>72x72</b>
<b>A72-30 D</b>	30 A Direct Ammeter	<b>72x72</b>
<b>A72-40 D</b>	40A Direct Ammeter	<b>72x72</b>
<b>A72-50 D</b>	50A Direct Ammeter	<b>72x72</b>
<b>A72-60 D</b>	60A Direct Ammeter	<b>72x72</b>
<b>A72-75 D</b>	75A Direct Ammeter	<b>72x72</b>
<b>A72-100 D</b>	100A Direct Ammeter	<b>72x72</b>
<b>A96-30 D</b>	30A Direct Ammeter	<b>96x96</b>
<b>A96-50 D</b>	50A Direct Ammeter	<b>96x96</b>
<b>A96-60 D</b>	60A Direct Ammeter	<b>96x96</b>
<b>A96-75 D</b>	75A Direct Ammeter	<b>96x96</b>
<b>A96-100 D</b>	100A Direct Ammeter	<b>96x96</b>

### ANALOG VOLTMETERS

Product Code	Description	Dimensions (mm)
<b>V72-250</b>	0..250V AC Voltmeters	<b>72x72</b>
<b>V72-500</b>	0..500V AC Voltmeters	<b>72x72</b>
<b>V96-250</b>	0..250V AC Voltmeters	<b>96x96</b>
<b>V96-500</b>	0..500V AC Voltmeters	<b>96x96</b>

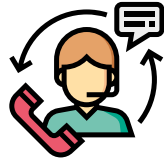
### ANALOG AMMETERS

Product Code	Description	Dimensions (mm)
<b>A72-100</b>	100/5 Ammeter	<b>72x72</b>
<b>A72-150</b>	150/5 Ammeter	<b>72x72</b>
<b>A72-200</b>	200/5 Ammeter	<b>72x72</b>
<b>A72-250</b>	250/5 Ammeter	<b>72x72</b>
<b>A72-300</b>	300/5 Ammeter	<b>72x72</b>
<b>A72-400</b>	400/5 Ammeter	<b>72x72</b>
<b>A72-600</b>	600/5 Ammeter	<b>72x72</b>
<b>A72-800</b>	800/5 Ammeter	<b>72x72</b>
<b>A72-1000</b>	1000/5 Ammeter	<b>72x72</b>
<b>A72-1200</b>	1200/5 Ammeter	<b>72x72</b>
<b>A96-50</b>	50/5 Ammeter	<b>96x96</b>
<b>A96-100</b>	100/5 Ammeter	<b>96x96</b>
<b>A96-150</b>	150/5 Ammeter	<b>96x96</b>
<b>A96-200</b>	200/5 Ammeter	<b>96x96</b>
<b>A96-250</b>	250/5 Ammeter	<b>96x96</b>
<b>A96-300</b>	300/5 Ammeter	<b>96x96</b>
<b>A96-400</b>	400/5 Ammeter	<b>96x96</b>
<b>A96-600</b>	600/5 Ammeter	<b>96x96</b>
<b>A96-800</b>	800/5 Ammeter	<b>96x96</b>
<b>A96-1000</b>	1000/5 Ammeter	<b>96x96</b>
<b>A96-1200</b>	1200/5 Ammeter	<b>96x96</b>
<b>A96-1600</b>	1600/5 Ammeter	<b>96x96</b>
<b>A96-2000</b>	2000/5 Ammeter	<b>96x96</b>
<b>A96-2500</b>	2500/5 Ammeter	<b>96x96</b>



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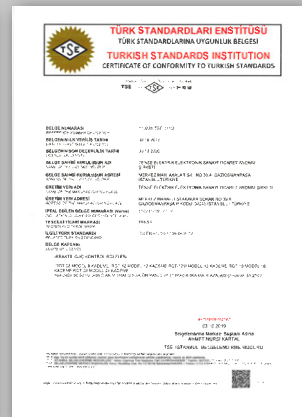
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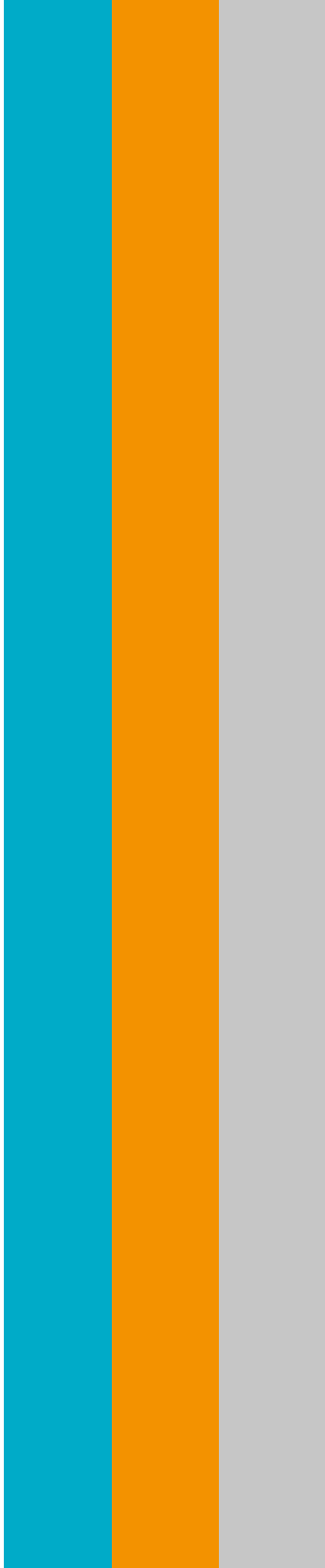


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