



TPM-05
Energy Analyzer with communication



Future Tense of Industrial Electronics

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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 40 countries including U.A.E., Egypt, Russia, Ukraine, Albania, Tunisia, 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



NOVELTIES



RGM-12S

Graphic LCD Display Single-Phase Reactive Power Control Relay

RGM-12S reactive power control relay is designed to reduce inductive powers not used by loads but drawn from the network. If inductive reactive power is drawn from the network, it intervenes by activating capacitors of appropriate value. In this way, it tries to bring the Cos ϕ value to the desired level.



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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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HM-48D

Digital Hour meter

Hour meters are designed to calculate the total operating time of an electrical machine.



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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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PTM-01 / PTM-02

Digital Potentiometer with Analogue Output

Digital potentiometers are control devices that produce analog output between 0-10V or 4-20mA values according to the set value.

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TPM-04SHD / TPM-04 SHDL

DIN Type Network Analyzers

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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TTR-10

Programmable Timer

The TTR-10 is designed to control the daily operation of electrically powered equipment for specified time periods.



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HSR-02X / HSR-03X

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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ERV-09D

Flasher Relay

Time relays are designed for use in all areas requiring time-dependent control.



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DRV-10

Digital Timer with ON/OFF delays

Time relays are designed for use in all areas requiring time-dependent control.



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RGT-MT18 SVC



RGT-12SVC



RGT-18SVC



SVC REACTIVE POWER CONTROL RELAY (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
RGT-MT18 SVC	Reactive power control relay Touch screen	144 x 144	18+TCR	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
RGT-12 SVC	Reactive power control relay	144 x 144	12+TCR	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
RGT-18 SVC	Reactive power control relay	144 x 144	18+TCR	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

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	Modbus RTU over RS485	Thyristor Triggered
RGM-12S	4x20 mm display single-phase reactive power control relay	144 x 144	12	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
RGT-12E	Graphic LCD display three-phase reactive power control relay	144 x 144	12	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
RGT-18E	Graphic LCD display three-phase reactive power control relay	144 x 144	18	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
RGT-24H	LCD display three-phase reactive power control relay RS485	144 x 144	24	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

THE FIRST AND ONLY, REACTIVE POWER CONTROL RELAY OF THE TURKEY WITH 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



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.

High quality standards and innovative solutions in compensation systems.





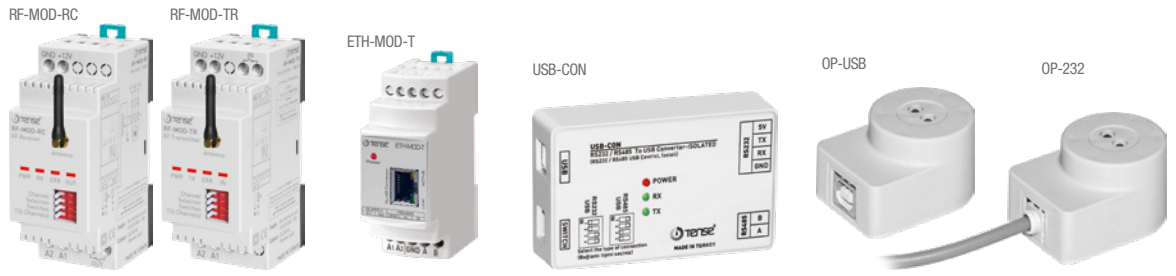
INDUCTIVE LOAD DRIVERS FOR SVC

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
SRL-5T	Max: 5 KVar	85-260 V AC	102 x 130 x 101 mm	3x TNS-1,66 (230V)	2,5 mm ²	16 A	●	●	●
SRL-10T	Max: 10 KVar	85-260 V AC	170 x 134 x 123 mm	3x TNS-3,3 (230V)	10 mm ²	25 A	●	●	●
SRL-20T	Max: 20 KVar	85-260 V AC	170 x 130 x 140 mm	3x TNS-6,67 (230V)	16 mm ²	63 A	●	●	●
SRL-30T	Max: 30 KVar	85-260 V AC	170 x 130 x 140 mm	3x TNS-10S (230V)	35 mm ²	100 A	●	●	●



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

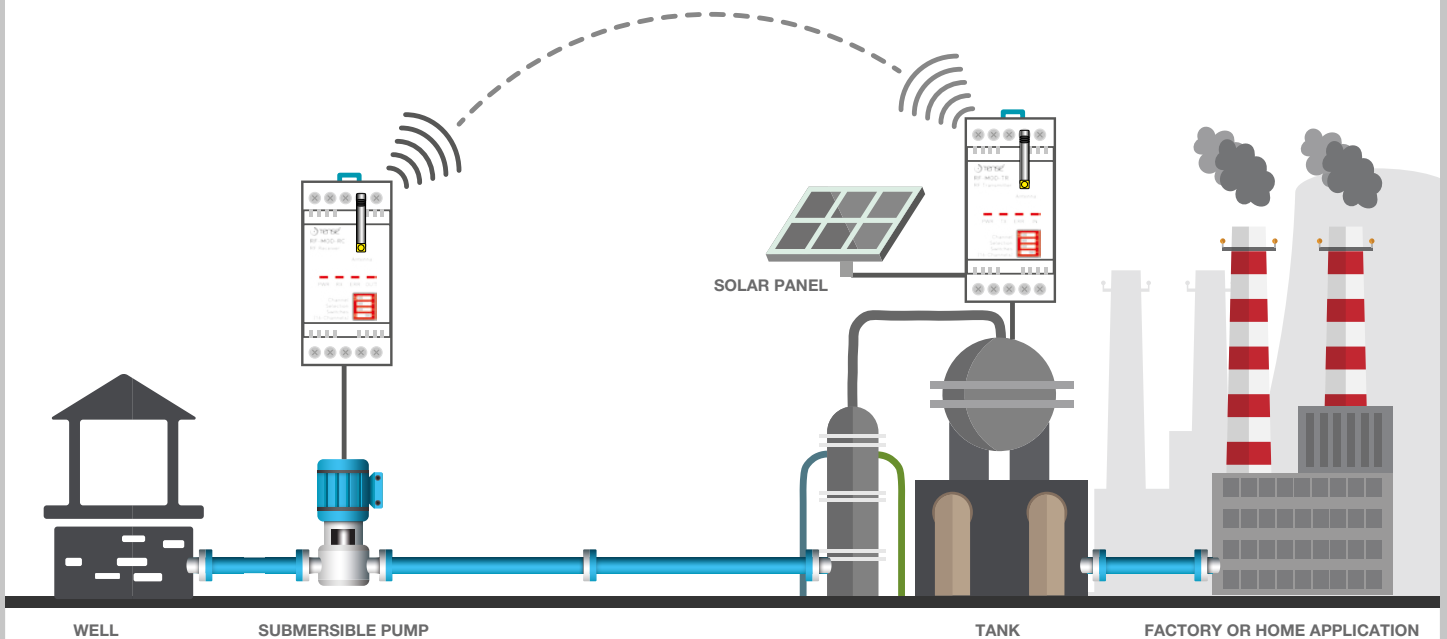
Product Code	Description	POWER (kVar) 230V AC	Thermal Protection	Sheet Type	INDUCTANCE (mH)	CURRENT (A) (rms)	WEIGHT (kg)
TNS-1,5	Shunt Reactor	1,5	●	E-I	113	6,52	9,2
TNS-1,66S	Shunt Reactor	1,66	●	E-I	102	7,22	10
TNS-3	Shunt Reactor	3	●	E-I	56,3	13,04	17,5
TNS-3.3S	Shunt Reactor	3,3	●	E-I	48,3	14,48	22,5
TNS-5	Shunt Reactor	5,0	●	E-I	33,8	21,75	30,5
TNS-6.67S	Shunt Reactor	6,67	●	U-I	24,1	30,43	26,0
TNS-7.5	Shunt Reactor	7,5	●	U-I	22,5	32,61	26,0
TNS-10S	Shunt Reactor	10	●	U-I	16,9	43,48	37,6



REMOTE COMMUNICATION

Product Code	Description
OP-232	Optical reader, communication via RS-232, neodymium magnet
OP-USB	Optical reader, communication with USB 1.1 / USB 2.0, with neodymium magnet
USB-CON	RS-232 USB converter and RS-485 USB converter, 300bps - 230.4 Kbps Baudrate, isolated
ETH-MOD-T	Ethernet Modem, RS-485, TCP-IP compatible, 10/100 Mbps ethernet, isolated, ModBus communication, Maximum 115200 Bps
RF-MOD-SET (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)
HA-5	External antenna 5 dBi, 824 ~ 960/1710 ~ 2170 MHz, 3 Meter cable, SMA Connector, Magnet mount
HA-9	External antenna 9 dBi, 824 ~ 960/1710 ~ 2170 MHz, 3 Meter cable, SMA Connector, Magnet mount

OPERATING PRINCIPLE OF WELL - TANK COMMUNICATION SYSTEM



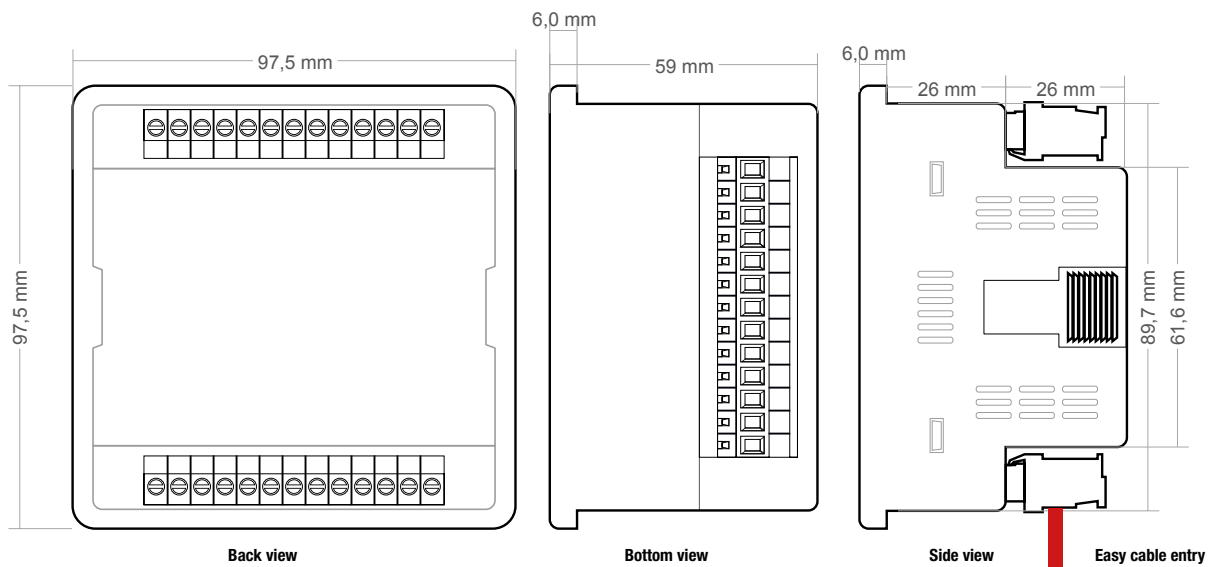
NETWORK ANALYZERS

Product Code	Description	3 x Voltage (Phase-Neutral V)	3 x Voltage (Phase-Phase V)	3 x Current (A)	3 x Frequency (Hz)	3 x Cos ϕ	Power Factor (PF1, PF2, PF3)	Active Power (P1, P2, P3, P)	Reactive Power (Q1, Q2, Q3, Q)	Apparent Power (S1, S2, S3, S)	Demands	Maximum Values (Max)	Minimum Values (Min)	Mean Values (Mean)	Current-Voltage Irregularity	% THD I	% THD V	2nd-31. Harmonic (V-I)	2nd-55th Harmonic (V-I)	2nd-63rd Harmonic (V-I)	Modbus RTU over RS485	Neutral Fault Measurement	1x Digital Input	Relay 1x Output	Relay 2x Output	Pulse Output	Event Recording	Alarm Status (Depends on Records)	7 Segment LED Display	3.7" Glass LCD	128 x 64 Graphic LCD	53 x 31.5 LCD	Time / Date	96x96 mm Panel Type	Rail Type				
TPM-01E	Energy analyzer	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
TPM-01 ES	Energy analyzer Modbus RTU over RS485	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
TPM-01 ESH	Energy analyzer Modbus RTU over RS485	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
TPM-02	Energy analyzer Modbus RTU over RS485	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
TPM-03	Energy analyzer Modbus RTU over RS485	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
TPM-04	Energy analyzer Modbus RTU over RS485	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
TPM-04 SH	Energy analyzer Modbus RTU over RS485	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
TPM-04SHD	Energy analyzer Modbus RTU over RS485	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
TPM-04SHDL	Energy analyzer Modbus RTU over RS485	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
TPM-05	Energy analyzer Modbus RTU over RS485	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Standard measurement parameters of our Energy Analyzer groups

- It displays the summative (P1, P2, P3, P) powers of each phase.
- It displays the total apparent (S1, S2, S3, S) powers of each phase.
- It displays the total reactive (Q1, Q2, Q3, Q inductive or capacitive) powers of each phase
- It displays the power factors (PF) and Cos ϕ values of each phase.
- Displays the minimum, maximum and average values of phase-neutral and phase-phase voltage (V).
- It displays the sum (I1, I2, I3, I Σ) values of each phase.
- Displays total import and export active (Σ kWh) energy.
- Displays total inductive and capacitive reactive (kVarh) energy.

Aesthetic Slim Case, easy assembly system. Thanks to the 180 degree terminal structure, there is no problem of cable bending.





TPM-05

- 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 / TPM-04 SH

- 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



TPM-04SHD / TPM-04 SHDL

- 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

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



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



XLPE CABLE TYPE M.V. CURRENT TRANSFORMERS

Product Code	Description	Hole Size	Primary Current (A)	Secondary Current (A)	Output Power (VA)
0G-AT/40	M.V. Toroid Current Transformer	68 mm	40	1	1,25
0G-AT/100	M.V. Toroid Current Transformer	68 mm	100	5	5

It shouldn't be connected to M.V busbars. It is only used with XLPE Cables

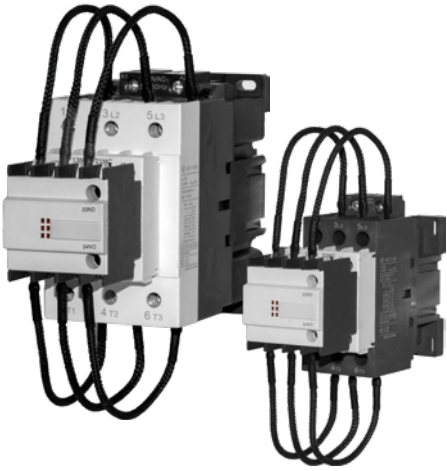
NEW AC/DC (100V-240V) CONTACTORS (3 POLES)

100V - 240V AC/DC

Product Code	Description	Operation Voltage	Rated Power (kW) Rated Current (A 380/400 V) AC-3	Thermal Current (A)	Auxiliary Contac
UEC1-40C11KU7D NEW	AC 3 Poles Contactor	100V - 240V AC/DC	18,5 kW-40A	60	1NO + 1NC
UEC1-50C11KU7D NEW	AC 3 Poles Contactor	100V - 240V AC/DC	22 kW-50A	80	1NO + 1NC
UEC1-65C11KU7D NEW	AC 3 Poles Contactor	100V - 240V AC/DC	30 kW-65A	80	1NO + 1NC
UEC1-80C11KU7D NEW	AC 3 Poles Contactor	100V - 240V AC/DC	37 kW-80A	125	1NO + 1NC
UEC1-100C11KU7D NEW	AC 3 Poles Contactor	100V - 240V AC/DC	45 kW-95A	125	1NO + 1NC



COMPENSATION CONTACTORS



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

COMPACT SWITCHES (WITH 3 POLES - STABLE)



Product Code	Description	Pole Numbers	Cut off capacity	Rated Current (A)
UEM5-100L/80	Compact Switches 80A	3P	35 kA	80
UEM5-100L/100	Compact Switches 100A	3P	35 kA	100
UEM5-250L/125	Compact Switches 125A	3P	35 kA	125
UEM5-250L/160	Compact Switches 160A	3P	35 kA	160
UEM5-250L/200	Compact Switches 200A	3P	35 kA	200
UEM5-250L/250	Compact Switches 250A	3P	35 kA	250
UEM5-400L/315	Compact Switches 300A	3P	50 kA	300
UEM5-400L/400	Compact Switches 400A	3P	50 kA	400
UEM5-630L/630	Compact Switches 630A	3P	65 kA	630

AUXILIARY CONTACTS

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



AC CONTACTORS (WITH 3 POLES)



Product Code	Description	Rated Power (kW) Rated Current (A 380/400 V) AC-3	Thermal Current (A)	Auxiliary Contact
UEC1-09CB-24V	24 V AC 3 Pole Contactor	4 kW-9A	25	1NO + 1NC
UEC1-12CB-24V	24 V AC 3 Pole Contactor	5.5 kW-12A	25	1NO + 1NC
UEC1-18CB-24V	24 V AC 3 Pole Contactor	7.5 kW-18A	32	1NO + 1NC
UEC1-25CB-24V	24 V AC 3 Pole Contactor	11 kW-25A	40	1NO + 1NC
UEC1-32CB-24V	24 V AC 3 Pole Contactor	14 kW-32A	50	1NO + 1NC
UEC1-38CB-24V	24 V AC 3 Pole Contactor	17 kW-38A	50	1NO + 1NC
UEC1-50CB-24V	24 V AC 3 Pole Contactor	22 kW-50A	80	1NO + 1NC
UEC1-65CB-24V	24 V AC 3 Pole Contactor	30 kW-65A	80	1NO + 1NC
UEC1-80CB-24V	24 V AC 3 Pole Contactor	37 kW-80A	125	1NO + 1NC
UEC1-95CB-24V	24 V AC 3 Pole Contactor	45 kW-95A	125	1NO + 1NC

Product Code	Description	Rated Power (kW) Rated Current (A 380/400 V) AC-3	Thermal Current (A)	Auxiliary Contact
UEC3-09C	AC 3 Pole Contactor	4 kW-9A	25	1NO
UEC1-09C	AC 3 Pole Contactor	4 kW-9A	25	1NO + 1NC
UEC3-12C	AC 3 Pole Contactor	5.5 kW-12A	25	1NO
UEC1-12C	AC 3 Pole Contactor	5.5 kW-12A	25	1NO + 1NC
UEC3-18C	AC 3 Pole Contactor	7.5 kW-18A	32	1NO
UEC1-18C	AC 3 Pole Contactor	7.5 kW-18A	32	1NO + 1NC
UEC1-25C	AC 3 Pole Contactor	11 kW-25A	40	1NO + 1NC
UEC1-32C	AC 3 Pole Contactor	15 kW-32A	50	1NO + 1NC
UEC1-38C	AC 3 Pole Contactor	18 kW-38A	50	1NO + 1NC
UEC1-40C	AC 3 Pole Contactor	18.5 kW-40A	60	1NO + 1NC
UEC1-50C	AC 3 Pole Contactor	22 kW-50A	80	1NO + 1NC
UEC1-65C	AC 3 Pole Contactor	30 kW-65A	80	1NO + 1NC
UEC1-80C	AC 3 Pole Contactor	37 kW-80A	125	1NO + 1NC
UEC1-95C	AC 3 Pole Contactor	45 kW-95A	125	1NO + 1NC
UEC1-115C	AC 3 Pole Contactor	55 kW-115A	200	-
UEC1-150C	AC 3 Pole Contactor	75 kW-150A	200	-
UEC1-170C	AC 3 Pole Contactor	90 kW-170A	200	-
UEC1-185FM7	AC 3 Pole Contactor	95 kW-185A	230	-
UEC1-225FM7	AC 3 Pole Contactor	130 kW-225A	260	-
UEC1-330FM7	AC 3 Pole Contactor	200 kW-330A	400	-
UEC1-400FM7	AC 3 Pole Contactor	250 kW-400A	500	-
UEC1-500FM7	AC 3 Pole Contactor	300 kW-500A	600	-
UEC1-630FM7	AC 3 Pole Contactor	400 kW-630A	1000	-

OVERLOAD PROTECTION RELAYS



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



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	●	●	●	●	●				●					●						●			●	●	●	●



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		●



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
DAV-120	Digital Voltmeter & Ammeter (50/60 Hz)	DIN TYPE	6 x 9 mm	150V - 260V	1A - 100A		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DAV-300	Digital Voltmeter & Ammeter (50/60 Hz)	DIN TYPE	6 x 9 mm	150V - 260V	2A - 250A		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DAV-72D	Digital Voltmeter & Ammeter (50/60 Hz)	72 x 72	6 x 14 mm	150V - 260V	1A - 100A		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

DC VOLTMETER



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



DC AMMETER (60 mV SHUNT)

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

SHUNTS

Product Code	Description
SNT60-30	30A , 60mV Shunt
SNT60-40	40A , 60mV Shunt
SNT60-50	50A , 60mV Shunt
SNT60-60	60A , 60mV Shunt
SNT60-100	100A , 60mV Shunt
SNT60-150	150A , 60mV Shunt
SNT60-250	250A , 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
DJ-V96	Digital Voltmeter 1V - 500V AC (50/60 Hz)	96 x 96	3 x 20 mm			●	
DJ-V72	Digital Voltmeter 1V - 500V AC (50/60 Hz)	72 x 72	3 x 14 mm			●	
DJ-V48	Digital Voltmeter 1V - 500V AC (50/60 Hz)	48 x 48	3 x 9 mm			●	
DJ-V36	Digital Voltmeter 1V - 500V AC (50/60 Hz)	36 x 72	3 x 14 mm			●	
DV-DIN	Digital Voltmeter 1V - 500V AC (50/60 Hz)	DIN TYPE	3 x 9 mm				●
DJ-V96T	3 Phase Digital Voltmeter 5V - 500V AC (50/60 Hz)	96 x 96	3 x 14 mm	●	●	●	
DJ-V96S	Digital Selective Voltmeter 5V - 500V AC (50/60 Hz)	96 x 96	3 x 20 mm	●	●	●	
DJ-V72S	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
RG-96	Digital Voltmeter (For Regulators) 1V - 300V AC (50/60 Hz)	96 x 96	3 x 20 mm 3 x 14 mm	●	●											●
RG-72E	Digital Voltmeter (For Regulators) Economic Type 3V - 300V AC (50/60 Hz)	72 x 72	6 x 14 mm	●	●											●
RG-72EB	Digital Voltmeter with Buzzer (For Regulators) 3V - 300V AC (50/60 Hz)	72 x 72	6 x 14 mm	●	●						●					●
RG-96K	Digital Voltmeter (Servo control for regulators) 1V - 300V AC (50/60 Hz)	96 x 96	3 x 20 mm 3 x 14 mm	●	●	●	●	●	●	●	●		●		●	●
RG-72K	Digital Voltmeter (Servo control for regulators) 1V - 300V AC (50/60 Hz)	72 x 72	6 x 14 mm	●	●	●	●	●	●	●	●		●		●	●
RG-72AK	Digital Voltmeter (Servo and current control for regulators) 1V - 300V AC (50/60 Hz)	72 x 72	3 x 9 mm	●	●	●	●	●	●	●	●	●	●	●	●	●
RG-72C	Digital Voltmeter (Servo control for Regulators without switch) 1V - 300V AC (50/60 Hz)	72 x 72	6 x 14 mm	●	●	●	●	●	●	●	●		●		●	●
DV-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
DJ-A96	Digital Ammeter, (50/60 Hz)	96 x 96	100mA - 9995A	4 x 20 mm	●	●										
DJ-A96D	Digital Ammeter, (50/60 Hz)	96 x 96	1A - 100A	3 x 20 mm	●			●								
DJ-A72	Digital Ammeter, (50/60 Hz)	72 x 72	100mA - 9995A	4 x 14 mm	●		●									
DJ-A72D	Digital Ammeter, (50/60 Hz)	72 x 72	1A - 100A	3 x 14 mm	●				●							
DJ-A48	Digital Ammeter, (50/60 Hz)	48 x 48	100mA - 9995A	4 x 9 mm	●		●									
DJ-A48D	Digital Ammeter, (50/60 Hz)	48 x 48	1A - 100A	3 x 9 mm	●				●							
DJ-A36	Digital Ammeter, (50/60 Hz)	36 x 72	100mA - 9995A	4 x 10 mm	●		●									
DJ-A36D	Digital Ammeter, (50/60 Hz)	36 x 72	1A - 100A	3 x 14 mm	●				●							
DA-120	Digital Ammeter, (50/60 Hz)	DIN TYPE	1A - 100A	3 x 9 mm		●		●								
DA-300	Digital Ammeter, (50/60 Hz)	DIN TYPE	2A - 250A	3 x 9 mm		●			●							
DJ-A96T	Digital Three-Phase Ammeter, (50 Hz)	96 x 96	150mA - 995A	3 x 20 mm, 3 x 14 mm	●		●									
DJ-A96S	Digital Ammeter With Set, (50 Hz)	96 x 96	150mA - 995A	3 x 20 mm, 3 x 14 mm	●		●			●	●	●	●	●	●	●
DJ-A72S	Digital Ammeter With Set, (50 Hz)	72 x 72	150mA - 995A	3 x 14 mm, 3 x 9 mm	●		●			●	●	●	●	●	●	●
DA-VIP04	Digital Ammeter With Set, (50 Hz)	96 x 96	250mA - 800A	3 x 20 mm, 3 x 14 mm	●		●			●			●			



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
DAKR-01D	Under Current Control Relay 1-10.000/5A or 0.5A - 5A Direct		0,5 sec. - 2,5 sec.								
TRM-12	Digital Thermal Overload Relay (Direct)	3A - 12.0A	0,1 sec. - 20 sec.								
TRM-25	Digital Thermal Overload Relay (Direct)	1A - 25.0A	0,1 sec. - 20 sec.								
TRM-30F	Digital Thermal Overload with Phase Protection (Direct)	0,5A - 30A	0,1 sec. - 20 sec.								
TRM-50	Digital Thermal Overload Relay	15A - 50.0A	0,1 sec. - 20 sec.								
TRM-100	Digital Thermal Overload Relay	40A - 100A	0,1 sec. - 20 sec.								
TRM-200	Digital Thermal Overload Relay	90A - 200A	0,1 sec. - 200 sec.								
TRM-300	Digital Thermal Overload Relay	190A - 300A	0,1 sec. - 200 sec.								
TRM-400	Digital Thermal Overload Relay	290A - 400A	0,1 sec. - 200 sec.								

UNDER CURRENT CONTROL RELAY

DAKR-01D

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



VOLTAGE PROTECTED DIGITAL OVERLOAD RELAY

TRM-30F 30 A Direct

Innovative Solutions In Current Control

- It shows the current drawn. (0.5 - 30A)
- Current asymmetry 50%, voltage asymmetry 30% control
- Control of phase sequence, phase absence
- High voltage error 440V (Phase-Phase)
- Low voltage error 270V (Phase-Phase)
- Realistic measurement and response sensitivity
- It is not affected by the ambient temperature
- Savings in stock costs
- Digital current set can be adjustable (0.5 - 30A)
- Error delay time can be adjustable. (0 - 20 sec.)
- User friendly
- Easy setup
- With an internal current transformer



KON-TER-50



KON-TER-12



KON-TER-25



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
KON-TER-12	Contactor Thermal Overload (up to 4 kW)	100-240 VAC	1A - 12.0A	TYPE 1	1 sec. - 10 sec.	●	●	●	●	●	●	●	●
KON-TER-18	Contactor Thermal Overload (up to 7,5 kW)	100-240 VAC	1A - 18.0A	TYPE 1	1 sec. - 10 sec.	●	●	●	●	●	●	●	●
KON-TER-25	Contactor Thermal Overload (up to 11 kW)	100-240 VAC	1A - 25.0A	TYPE 1	1 sec. - 10 sec.	●	●	●	●	●	●	●	●
KON-TER-50	Contactor Thermal Overload (up to 22 kW)	120-240 VAC	25A - 50.0A	TYPE 2	1 sec. - 20 sec.	●	●	●	●	●	●	●	●

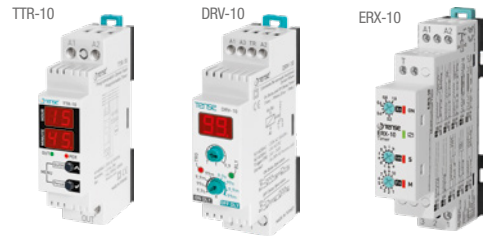
DIGITAL CONTACTOR & THERMAL OVERLOAD RELAY

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

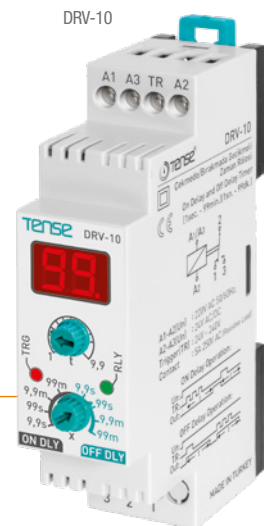
Product Code	Description	Dimensions (mm)	Time Range	24V AC DC	220V AC	Rail Type	Package Quantity
ERX-10	Multifunctional Time Relay (12-240 V AC / DC)	V-AUTOMAT DIN 2	0,1 sec.-30 hours	●	●	●	20
DRV-10	Multifunctional Time Relay (220/24V AC)	V-AUTOMAT DIN	0,1 sec.-99 minutes	●	●	●	20
TTR-10	Programable Time Relay (220V AC)	V-OTOMAT DIN	5-10-15-20-30 minutes		●	●	20



TTR-10 Programmable Timer

The TTR-10 is designed to control the daily operation of electrically powered equipment for specified time periods.

- 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 DIGITAL TIMER

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

CONTACTOR COIL SUPPLY

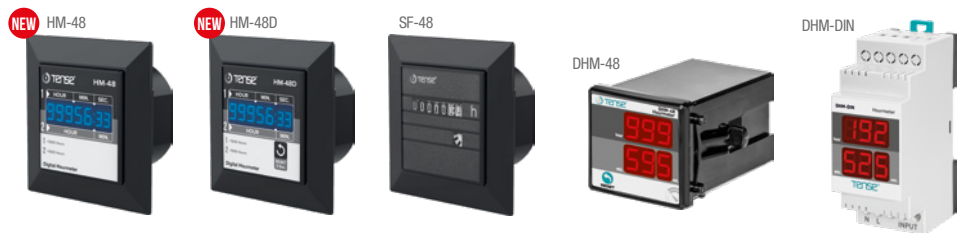


Product Code	Description	Working Voltage	Case Type
EB-185	3 Pole Electronic Contactor Coil Supply (150-185-225 A)	100-240 V AC	DIN



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
ERD-48T	Digital Timers 24V AC/DC 220V AC	48 x 48	On Delay - Off Delay	3 Digt 7 Segment	●	●	●						●			
ERD-72T	Digital Timers 24V AC/DC 220V AC	72 x 72	On Delay - Off Delay	3 Digits 7 Segment	●	●	●						●			
ERD-96T	Digital Timers 24V AC/DC 220V AC	96 x 96	On Delay - Off Delay	3 Digits 7 Segment	●	●	●						●			
ERD-48M	Digital Timers	48 x 48	13 different operating modes	2x4 Digits 7 Segment	●			●	●	●	●	●	●	●	●	●
ERD-72M	Digital Timers	72 x 72	8 different operating modes	2x4 Digits 7 Segment	●			●	●	●	●	●	●	●	●	●
ERD-96M	Digital Timers	96 x 96	8 different operating modes	2x4 Digits 7 Segment	●			●	●	●	●	●	●	●	●	●
ERD-48K	Digital Timers	48 x 48	Instant contact with Supply ON and Flasher	3 Digits 7 Segment	●	●							●	●		



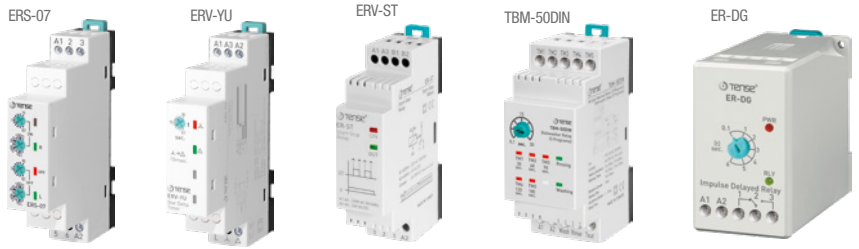
DIGITAL HOUR METER

Product Code	Description
DHM-48	Digital Hour Meter (maximum 99.999 hours), 6 digits 9 mm display, with reserve, resetable (48 x 48), panel type
HM-48 NEW	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
HM-48D NEW	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
DHM-DIN	Digital Hour Meter clock (maximum 99.999 hours), 6 digits 9 mm display, with reserve, resetable (DIN BOX), rail type
SF-48	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
ER-30	Timers	CLASSIC BOX	0,1 - 30 sec.	●			●	10
ER-60	Timers	CLASSIC BOX	0,1 - 60 sec.	●			●	10
ER-03D	Timers	CLASSIC BOX	0,1-3 min.	●			●	10
ER-12D	Timers	CLASSIC BOX	0,1-12 min.	●			●	10
ER-30D	Timers	CLASSIC BOX	0,1-30 min.	●			●	10
ER-60D	Timers	CLASSIC BOX	0-1-60 min.	●			●	10
ERV-08	Multifunctional Timers	V-AUTOMAT DIN	1 sec.-100 hours	●	●		●	20
ERV-08M	Multifunctional Timers (Operating Voltage 12V-240V AC/DC)	V-AUTOMAT DIN	1 sn-100 hours				●	20
ERV-03	Timers	V-AUTOMAT DIN	0,1 - 3 sec.	●	●		●	20
ERV-12	Timers	V-AUTOMAT DIN	0,1 - 12 sec.	●	●		●	20
ERV-30	Timers	V-AUTOMAT DIN	0,1 - 30 sec.	●	●		●	20
ERV-60	Timers	V-AUTOMAT DIN	0,1 - 60 sec.	●	●		●	20
ERV-03D	Timers	V-AUTOMAT DIN	0,1 - 3 min.	●	●		●	20
ERV-12D	Timers	V-AUTOMAT DIN	0,1 - 12 min.	●	●		●	20
ERV-30D	Timers	V-AUTOMAT DIN	0,1 - 30 min.	●	●		●	20
ERV-60D	Timers	V-AUTOMAT DIN	0,1 - 60 min.	●	●		●	20
ERS-03Y	Timers	48 x 48 (8 Pin Socket)	0,1 - 3 sec.	●		●		
ERS-12Y	Timers	48 x 48 (8 Pin Socket)	0,1 - 12 sec.	●		●		
ERS-30Y	Timers	48 x 48 (8 Pin Socket)	0,1 - 30 sec.	●		●		
ERS-60Y	Timers	48 x 48 (8 Pin Socket)	0,1 - 60 sec.	●		●		
ERS-03DY	Timers	48 x 48 (8 Pin Socket)	0,1 - 3 min.	●		●		
ERS-12DY	Timers	48 x 48 (8 Pin Socket)	0,1 - 12 min.	●		●		
ERS-30DY	Timers	48 x 48 (8 Pin Socket)	0,1 - 30 min.	●		●		
ERS-60DY	Timers	48 x 48 (8 Pin Socket)	0,1 - 60 min.	●		●		
ERP-03Y	Timers	48 x 48 (Plug-in Terminal)	0,1 - 3 sec.	●		●		
ERP-12Y	Timers	48 x 48 (Plug-in Terminal)	0,1 - 12 sec.	●		●		
ERP-30Y	Timers	48 x 48 (Plug-in Terminal)	0,1 - 30 sec.	●		●		
ERP-60Y	Timers	48 x 48 (Plug-in Terminal)	0,1 - 60 sec.	●		●		
ERP-03DY	Timers	48 x 48 (Plug-in Terminal)	0,1 - 3 min.	●		●		
ERP-12DY	Timers	48 x 48 (Plug-in Terminal)	0,1 - 12 min.	●		●		
ERP-30DY	Timers	48 x 48 (Plug-in Terminal)	0,1 - 30 min.	●		●		
ERP-60DY	Timers	48 x 48 (Plug-in Terminal)	0,1 - 60 min.	●		●		



COMMAND & CONTROL RELAYS

Product Code	Description	Package Quantity
ERS-07	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
ERV-YU	Star Delta Relay, V-Automat Type, 220V AC (50-60 Hz.), Star: 1sec. - 30 sec., Pass: 15 msec fixed.	20
ERV-ST	Start Stop Relay, Classic Box, 220V AC (50-60 Hz.)	20
ER-DG	Delay-On Time Relay, Classic Box, 220V AC (50-60 Hz.), 0.1 sec. - 6 sec.	10
TBM-50DIN	Dishwasher Relay, 5-Stage washing, 01 sec - 30 sec. rinsing, Industrial purpose, Classic Box, 220V AC (50-60 Hz.)	10



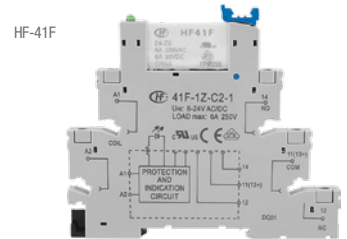
FLASHER RELAYS

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



POTENTIOMETER 22 MM (SINGLE TOUR)

Product Code	Description
WL9 PT 5K	5K 22 mm Plastic Potentiometer
WL9 PT 10K	10K 22 mm Plastic Potentiometer



RELAY + SOCKET

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

DIGITAL OUTPUT DIGITAL POTENTIOMETER

CODE	AÇIKLAMA
PTM-01	0-10V analogue output
PTM-02	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)

SSR-05



VSR-05



SSR-05D



SSR-09



SSR-19



LIQUID LEVEL RELAYS

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

SSE-10	Liquid Level Electrode (Stainless)
FLT-1.6	Cable Floater, 1.6 meters, 8A 250V AC (50/60 Hz), IP68
FLT-3	Cable Floater, 3 meters, 8A 250V AC (50/60 Hz), IP68
FLT-5	Cable Floater, 5 meters, 8A 250V AC (50/60 Hz), IP68
FLT-10	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
HSR-02X	Hydrophore Sequencing Relay	DIN TYPE		●		●	●	●	20
HSR-03X	Hydrophore Sequencing Relay	DIN TYPE			●	●	●	●	15
HSR-S	Hydrophore Sequencing Relay (with Adjustable Co-Aging)	DIN TYPE	●		●	●	●	●	

HSR-S



HSR-02X



HSR-03X



PHOTOCELL RELAYS

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

FTV-04



FT-GR



FT-G





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 ϕ 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
MDK-02	Single-Phase Submersible Control Relay	96 x 96	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
MDK-03	Single-Phase Submersible Control Relay With Digital Contactor (1-30 A Direct Operation) (150-270 V AC)	DIN TYPE	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
TDK-01	Three-Phase Submersible Control Relay (Without Neutral)	144 x 144	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
TDK-02	Three-Phase Submersible Control Relay (Without Neutral)	144 x 144	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
TDK-30	Three-Phase Submersible Control Relay With Digital Contactor (Direct up to 5.5kW Operation) (150-270 V AC)	DIN TYPE	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
TDK-96	Three-Phase Submersible Control Relay (Without Neutral)	96 x 96	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●



MDK-03 30 A Direct

- 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 Direct Up To 5.5 kW

- 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



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



TDK-01 120 A TDK-02 300 A

- 4x20 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
GK-03	Three-Phase Overvoltage Control Relay	CLASSIC BOX																10
GK-04S	Three-Phase Over-Low Voltage Control Relay	CLASSIC BOX																10
GKM-11	Single-Phase Over-Low Voltage Control Relay	DIN TYPE																12
GKV-12	Three-Phase Over-Low Voltage Control Relay Single-Phase Dial	V-AUTOMAT DIN																20
GKM-02	Three-Phase Over-Low Voltage Control Relay Single-Phase Dial	DIN TYPE																12
GKM-02F	Three-Phase Over-Low Voltage Control Relay Single-Phase Dial	DIN TYPE																12
GKT-03	Three-Phase Over-Low Voltage Control Relay Three-Phase Dial	DIN TYPE																12
GKT-03F	Three-Phase Over-Low Voltage Control Relay Three-Phase Dial	DIN TYPE																12
DGK-01	Single-Phase Digital Over-Low Voltage Control Relay	DIN TYPE																12
DGK-04	Three-Phase Digital Over-Low Voltage Control Relay	CLASSIC BOX																10
DGK-04F	Three-Phase Digital Over-Low Voltage Control Relay	CLASSIC BOX																10
DGK-04PF	Three-Phase Digital Over-Low Voltage Control Relay	CLASSIC BOX																10
GKE-40	Mono-Phase High-Low Voltage Protection Relay	DIN TYPE																10

GKE-40

MONO-PHASE HIGH-LOW VOLTAGE PROTECTION RELAY

- Easy setup
- 3 digit display led
- Direct single-phase connection
- High/Low voltage protection
- Adjustable 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





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
FK-01	Phase Protection Relay	CLASSIC BOX											10
FK-02	Phase Protection Relay	CLASSIC BOX											10
FK-04	Phase Protection Relay	CLASSIC BOX											10
FK-05F	Phase Protection Relay Without Neutral	CLASSIC BOX											10
FKM-05	Phase Protection Relay %5 - %25	DIN TYPE											12
FKM-05F	Phase Protection Relay %5 - %25	DIN TYPE											12
FKT-06	Phase Protection Relay %5 - %25 Without Neutral	DIN TYPE											12
FKT-06PF	Phase Protection Relay %5 - %25 Without Neutral	DIN TYPE											12
FKV-03F	Phase Protection Relay	V-AUTOMAT											20
FK-14	Phase Protection Relay	DIN TYPE											12
FK-14P	Phase Protection Relay	DIN TYPE											12
FKV-11	Phase Protection Relay	V-AUTOMAT DIN											20
FKV-14	Phase Protection Relay	V-AUTOMAT DIN											20
FKV-14P	Phase Protection Relay	V-AUTOMAT DIN											20
FKV-03N	Phase Protection Relay Without Neutral	V-AUTOMAT DIN											20
FKV-24F	Phase Protection Relay Without Neutral	V-AUTOMAT DIN											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
FKD-01F	Digital Phase Protection Relay Without Neutral	CLASSIC BOX								10
DFK-05F	Digital Phase Protection Relay Without Neutral	CLASSIC BOX								10





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
DT-36 EM	Temperature Controller	36 x 72	J,K,S,R,T,Pt100	2x4 Digit 7 Segment	●	●	●	●	●	●	●	●	●	●	●	●	●	●
DT-48 EM	Temperature Controller	48 x 48	J,K,S,R,T,Pt100	2x4 Digit 7 Segment	●	●	●	●	●	●	●	●	●	●	●	●	●	●
DT-72 EM	Temperature Controller	72 x 72	J,K,S,R,T,Pt100	2x4 Digit 7 Segment	●	●	●	●	●	●	●	●	●	●	●	●	●	●
DT-96 EM	Temperature Controller	96 x 96	J,K,S,R,T,Pt100	2x4 Digit 7 Segment	●	●	●	●	●	●	●	●	●	●	●	●	●	●
DT-36Y	Temperature Controller	36 x 72	J,K,S,R,T,Pt100	2x4 Digit 7 Segment	●	●	●	●	●	●	●	●	●	●	●	●	●	●
DT-48Y	Temperature Controller	48 x 48	J,K,S,R,T,Pt100	2x4 Digit 7 Segment	●	●	●	●	●	●	●	●	●	●	●	●	●	●
DT-72Y	Temperature Controller	72 x 72	J,K,S,R,T,Pt100	2x4 Digit 7 Segment	●	●	●	●	●	●	●	●	●	●	●	●	●	●
DT-96Y	Temperature Controller	96 x 96	J,K,S,R,T,Pt100	2x4 Digit 7 Segment	●	●	●	●	●	●	●	●	●	●	●	●	●	●
DT-D	Temperature Controller	96 x 48	J,K,S,R,T,Pt100	2x4 Digit 7 Segment	●	●	●	●	●	●	●	●	●	●	●	●	●	●
DT-Y	Temperature Controller	48 x 96	J,K,S,R,T,Pt100	2x4 Digit 7 Segment	●	●	●	●	●	●	●	●	●	●	●	●	●	●
DTZ-48	Temperature Controller with Internal Time Relay	48 x 48	J,K,S,R,T,Pt100	2x4 Digit 7 Segment	●	●	●	●	●	●	●	●	●	●	●	●	●	●
DTZ-72	Temperature Controller with Internal Time Relay	72 x 72	J,K,S,R,T,Pt100	2x4 Digit 7 Segment	●	●	●	●	●	●	●	●	●	●	●	●	●	●
DTZ-96	Temperature Controller with Internal Time Relay	96 x 96	J,K,S,R,T,Pt100	2x4 Digit 7 Segment	●	●	●	●	●	●	●	●	●	●	●	●	●	●
DT-36E	Temperature Controller	36 x 72	J (Fe-Const)	3 Digit 7 Segment	●	●	●	●	●	●	●	●	●	●	●	●	●	●
DT-48E	Temperature Controller	48 x 48	J (Fe-Const)	3 Digit 7 Segment	●	●	●	●	●	●	●	●	●	●	●	●	●	●
DT-72E	Temperature Controller	72 x 72	J (Fe-Const)	3 Digit 7 Segment	●	●	●	●	●	●	●	●	●	●	●	●	●	●
DT-96E	Temperature Controller	96 x 96	J (Fe-Const)	3 Digit 7 Segment	●	●	●	●	●	●	●	●	●	●	●	●	●	●
DT-321	Temperature Controller (-30 to +150 °C)	36 x 72	NTC-105, NTC-150, NTC-S-150	3 Digit 7 Segment	●	●	●	●	●	●	●	●	●	●	●	●	●	●
DT-322	Temperature Controller (-19.9 to +99.9 °C)	36 x 72	NTC-105, NTC-150, NTC-S-150	3 Digit 7 Segment	●	●	●	●	●	●	●	●	●	●	●	●	●	●
DT-321DIN	Temperature Controller (-30 to +150 °C)	DIN TYPE	NTC-105, NTC-150, NTC-S-150	3 Digit 7 Segment	●	●	●	●	●	●	●	●	●	●	●	●	●	10
AD-96	Temperature Controller with Analog Adjustment and Digital Display	96 x 96	J (Fe-Const)	3 Digit 7 Segment	●	●	●	●	●	●	●	●	●	●	●	●	●	●
HT-310	Digital Temperature and Humidity Controller	36 x 72		3 Digit 7 Segment	●	●	●	●	●	●	●	●	●	●	●	●	●	●

THERMOCOUPLES

Product Code	Description
NT-310	Humidity And Temperature Probe
NTC-105	Temperature Probe
NTC-150	Temperature Probe
NTC-S-150	Temperature Probe

AIR PROBE
NT-310



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



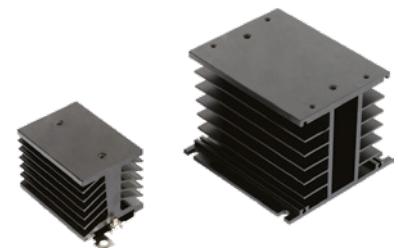
SOLID STATE RELAYS (SSR)

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



RAIL MOUNTED COOLERS

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



RAIL MOUNTED SSR WITH COOLER

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

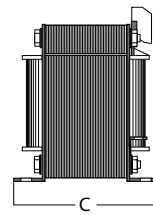
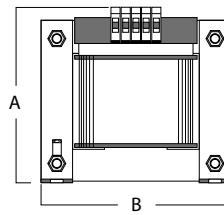
PERMANENT CIRCUIT CAPACITORS INITIAL MOVEMENT CAPACITORS

Capacity	Package Quantity
3	10
4	10
5	10
6	10
7	10
8	10
10	10
12	10
12,5	10
15	10
20	10
25	10
30	10
35	10
40	10
45	10
50	10
60	10
80	10
100	10

Capacity	Package Quantity
124-149	10
130-156	10
145-175	10
161-193	10
189-227	10
216-259	10
233-280	10
280-333	10

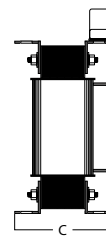
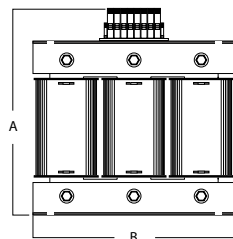


SINGLE-PHASE SHUNT REACTORS (INDUCTIVE LOAD REACTORS)



Product Code	Description	Power (kVA) 230V AC	Thermal Protection	Sheet Type	A (mm)	B (mm)	C (mm)	Inductance (mH)	Current (A)	Weight (kg)
TNS-0,5	Shunt Reactors	0,5	●	E-I	120	120	77	338	2,17	3,1
TNS-1	Shunt Reactors	1,0	●	E-I	145	150	100	169	4,35	6,3
TNS-1K	Shunt Reactor With Step	0,25-0,5-0,75-1,0	●	E-I	145	120	100			7
TNS-1,5	Shunt Reactors	1,5	●	E-I	145	150	120	113	6,52	9,2
TNS-1,66S	Shunt Reactors	1,66	●	E-I	145	150	120	103	6,82	10
TNS-2,5	Shunt Reactors	2,5	●	E-I	185	192	120	67,6	10,87	12,5
TNS-3	Shunt Reactors	3	●	E-I	185	192	145	56,3	13,04	17,5
TNS-3,33S	Shunt Reactors	3,33	●	E-I	185	192	145	50,5	14,40	22,5
TNS-5	Shunt Reactors	5,0	●	E-I	185	192	210	33,8	21,74	30,5
TNS-6,67S	Shunt Reactors	6,67	●	U-I	240	180	300	28,5	30,0	26,0
TNS-7.5	Shunt Reactors	7,5	●	U-I	240	180	360	22,5	32,61	29,2
TNS-10S	Shunt Reactors	10	●	U-I	240	180	360	16,9	43,48	37,6

THREE-PHASE SHUNT REACTORS (INDUCTIVE LOAD REACTORS)

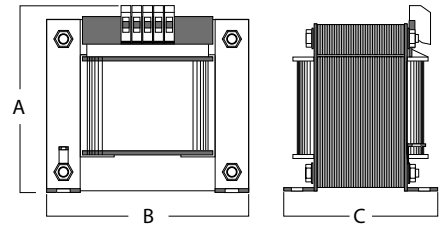


Product Code	Description	Power (kVA) 400V AC	Thermal Protection	Sheet Type	A (mm)	B (mm)	C (mm)	Inductance (mH)	Current (A)	Weight (kg)
TNS-0,5/400V	Shunt Reactors	0,5	●	TiP1	145	150	84	1020	0,72	3
TNS-1/400V	Shunt Reactors	1	●	TiP1	152	180	80	505	1,44	7,8
TNS-1,5/400V	Shunt Reactors	1,5	●	TiP1	152	180	100	336	2,17	9,5
TNS-2,5/400V	Shunt Reactors	2,5	●	TiP1	225	240	100	202	3,61	11,9
TNS-3 /400V	Shunt Reactors	3	●	TiP1	225	240	110	170	4,33	16,7
TNS-5/400V	Shunt Reactors	5	●	TiP1	275	300	146	101	7,22	30,5
TNS-7,5/400V	Shunt Reactors	7,5	●	TiP1	315	300	156	68	10,83	32
TNS-10/400V	Shunt Reactors	10	●	TiP1	360	360	166	51	14,43	44
TNS-15/400V	Shunt Reactors	15	●	TiP2	350	420	176	34	21,65	63
TNS-20/400V	Shunt Reactors	20	●	TiP2	350	420	196	25,5	28,87	81
TNS-25/400V	Shunt Reactors	25	●	TiP2	405	480	216	20,4	36,09	102
TNS-30/400V	Shunt Reactors	30	●	TiP2	405	480	236	16,8	43,30	125
TNS-40/400V	Shunt Reactors	40	●	TiP2	405	480	256	12,63	57,80	141
TNS-50/400V	Shunt Reactors	50	●	TiP2	510	600	270	10,2	72,20	180

SINGLE-PHASE HARMONIC FILTER REACTORS

SINGLE-PHASE HARMONIC REACTORS RESONANCE FR 189Hz P:% 7 RATED VOLTAGE 230V

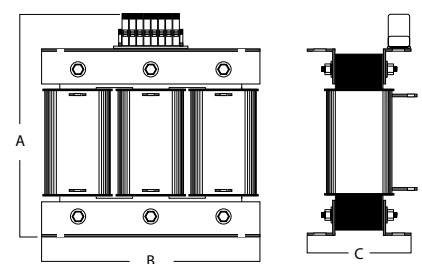
Product Code	Power	A (mm)	B (mm)	C (mm)	Inductance (mH)	I _{rms} (A)	I _{lin} (A)	Weight kg
HRM-0.40-07	0.40 kVAr	89	75	57	34,8	1,91	3,33	0,90
HRM-0.55-07	0.55 kVAr	89	75	66	25,3	2,63	4,59	1,20
HRM-0.83-07	0.83 kVAr	87	85	64	17,4	3,83	6,67	1,30
HRM-1-07	1 kVAr	87	85	64	13,9	4,78	8,32	1,35
HRM-1.50-07	1.50 kVAr	87	85	78	9,28	7,17	12,50	1,85
HRM-2-07	2 kVAr	87	85	89	6,96	9,57	16,70	2,00
HRM-2.50-07	2.50 kVAr	88	95	82	5,57	12,00	20,90	2,50
HRM-3-07	3 kVAr	88	95	86	4,64	14,30	25,00	2,70
HRM-4-07	4 kVAr	109	110	100	3,48	19,10	33,30	3,85
HRM-5-07	5 kVAr	120	120	100	2,78	23,90	41,60	4,60
HRM-7.50-07	7.50 kVAr	145	150	120	1,85	35,90	62,50	8,00
HRM-10-07	10 kVAr	145	150	130	1,39	47,80	83,20	9,30



THREE-PHASE HARMONIC FILTER REACTORS

THREE-PHASE HARMONIC REACTORS RESONANCE FR 189Hz P: 7% RATED VOLTAGE 400V

Product Code	Power	Sheet Type	A	B	C	Inductance (mH)	I _{rms} (A)	I _{lin} (A)	Weight kg
HRT-0.50-07	0.50 kVAr	TIP1	120	120	63	76,80	0,79	1,03	1,4
HRT-1-07	1 kVAr	TIP1	120	120	63	38,40	1,59	2,07	1,45
HRT-1.50-07	1.50 kVAr	TIP1	120	120	63	25,60	2,38	3,09	1,52
HRT-2.50-07	2.50 kVAr	TIP1	120	120	74	15,36	3,97	5,16	2,2
HRT-5-07	5 kVAr	TIP1	145	150	74	7,68	7,94	10,32	3,52
HRT-6.25-07	6.25 kVAr	TIP1	145	150	84	6,14	9,92	12,90	4,4
HRT-7.50-07	7.50 kVAr	TIP1	145	150	84	5,12	11,91	15,48	4,54
HRT-10-07	10 kVAr	TIP1	175	180	84	3,84	15,88	20,64	5,7
HRT-12.50-07	12.50 kVAr	TIP1	175	180	84	3,07	19,85	25,81	5,8
HRT-15-07	15 kVAr	TIP1	175	180	104	2,56	23,82	30,97	6,3
HRT-20-07	20 kVAr	TIP2	200	240	100	1,92	31,76	41,29	11,25
HRT-25-07	25 kVAr	TIP2	200	240	100	1,54	39,69	51,60	11,5
HRT-30-07	30 kVAr	TIP2	200	240	110	1,28	47,63	61,92	14,25
HRT-40-07	40 kVAr	TIP2	200	240	120	0,96	65,51	85,16	17,1
HRT-50-07	50 kVAr	TIP2	250	300	126	0,77	79,39	103,21	23
HRT-60-07	60 kVAr	TIP2	250	300	146	0,64	95,27	123,85	31,5
HRT-75-07	75 kVAr	TIP2	250	300	146	0,51	119,08	154,80	33,5
HRT-80-07	80 kVAr	TIP2	300	360	156	0,48	127,02	165,13	40,5
HRT-100-07	100 kVAr	TIP2	300	360	156	0,38	158,78	206,41	45



ANALOG AMMETERS AND VOLTMETERS



A96-100



V72-500



A72-150

DIRECT ANALOG AMMETERS

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

ANALOG VOLTMETERS

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

ANALOG AMMETERS

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



We provide products and technical support to more than 50 countries.

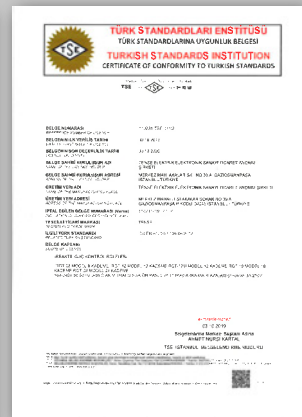
Customer Support
 export@tense.com.tr



Technical Support
 support@tense.com.tr



tenseelektronik





RGM-12S

Reactive Power Control Relay

The RGM-12S Reactive Power Control Relay was designed in order to minimize the inductive power flowing from the network that is not used by the system.

- 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)

