Prok dv's®

Total reliability in power system protection & monitoring

. . . . a mark of quality

PRODUCT CATALOG

Reputed Manufacturers and Exporters of Electrical Power System Protection Relays and Digital Meters

www.prokdvs.com | An ISO 9001:2008 Certified Company

AN ISO 9001-2008 CERTIFICATION

BUREAU VERITAS
Certification

PROK DEVICES PRIVATE LIMITED

No. B-80, " Kamadhenu Arcade 2nd & 3rd Floor,
Rajajinagar Industrial Estate (KSSIDC), 4th Main Road, Rajajinagar
6th Block, Bengaluru, 560 010, Karnataka, India.

Bureau Veritas Certification certify that the Management System of the above organization has been audited and found to be in accordance with the requirements of the management system standard detailed below

Standard

ISO 9001:2008

Scope of certification

DESIGN, MANUFACTURE, SALES & SERVICING OF SOLID STATE, MICRO CONTROLLER BASED PROTECTIVE RELAYS & DIGITAL METERS

Certification cycle start date: **03 May 2015**
Subject to the continued satisfactory operation of the organization's Management System, this certificate expires on: **02 May 2018**
Original certification date: **03 May 2006**
Certificate No.: **IND15.5184N/0** Version: 1 Revision date: **28 April 2015**

Signed on behalf of BVCH SAS UK Branch
Hemant KORNGAVE
General Manager, CERTIFICATION
South Asia Region

KARCH

Local Office: Mahavir Center, 4th Floor, Anchanwadi Mahavir Marg, Opp. Ansa Industrial Estate, Off Saki Vihar Road, Andheri (East), Mumbai – 400 072, India

Further clarifications regarding the scope of this certificate and the applicability of the management system requirements may be obtained by consulting the organization. To check this certificate validity please call +91 22 6695 6000.

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E-mail: marketing@prokdvs.com | www.prokdvs.com

PRODUCT RANGE

COMPANY PROFILE

Prok Devices Private Limited an ISO 9001-2008 Certified Company established in the year 1991, set up by four Engineers and are highly motivated experienced professionals in the field of Electrical and Electronics Engineering. The Promoters / Directors of the company has the Intention of producing quality oriented & time tested / trusted & establishing a reputed brand and brand equity in Electrical Power System Protection Engineering. Prok Devices ear marked itself as a blue chip company in Indian and global business scenario within a decade of its establishment.

The Company employs reputed & well trained technical team with an excellent 24x7 service support. the strengths of the technical team relies on its vast & varied field experience gained by number of Electrical & Electronic Engineers working in Production/ Quality Control and Testing.

Prok Devices as a brand has functioned with the registered trade mark Prok dv's® a reputed manufacturer of Static Microcontroller based protection relays and digital meters used in power system applications. The R & D team with its in house product design and Development have converted all the existing products from Static version to state-of-the-art. Microcontroller based versions to meet ongoing Static Technology / Trends in the field of Electrical Power System Protection Engineering.

The reputed brand Prok dv's® products are exported to many International destinations and the company has participated in a number of National and International Exhibitions, Conferences and Seminars having won various Awards, Citations, Grants and Certifications.

All Prok dv's® Products are approved with reputed and leading Technical Consultants Electricity Boards, Public Sectors. OEM, Etc.

Prok Dv's Products are widely used in Major Projects like Mining, Cement, Steel, Oil Refineries Software Industries, Sub-Stations, Power Plants, Industries, Commercial & High Rise Buildings Residential & Educational Institutions.

The company is in lieu with like-minded global; Partners & JV's to implement the trend with ongoing technology in the field of Power System Protection.

Prok Devices Pvt Ltd which swears by Quality as its maiden name has proven its track record by obtaining International Standards at Authorised Labs in INDIA like C.P.R.I., E.T.D.C., L.R.D.E., SAMEER, etc.

ISO 9001 BUREAU VERITAS Certification Excluding Design

NABCB QM 003

UKAS QUALITY MANAGEMENT 008

E-mail: marketing@prokdvs.com

TEST STANDARDS

PRODUCT	TESTED FOR	ACCORDANCE WITH	TESTED AT
Numerical over current and earth fault relay	· Power Line Conducted Emission Test · Impulse Test · HV Test · Insulation Resistance	CISPR 11 (2003) IEC 61000 SERIES IEC 60255-5 CLAUSE 8 IEC 6025-5 CLAUSE 6 IEC 60255-5 CLAUSE 7	ETDC
Numerical over current and earth fault relay	· Ac Burden Test · Pick-up And Drop-off Test · Accuracy Test For Trip Time · Instantaneous High Set Test · Limiting Dynamic Value Test · Auxilary frequency Variation Test · Contact Performance Test · Environmental Test	IEC 60255-6 CLAUSE 8 IEC 60255 - 23 CLAUSE4.4.2 IEC 60255-6 CLAUSE 7.0 IEC 60255-6 CLAUSE 7.0 IEC 60255-6 CLAUSE 6.0 IEC 60255-6 CLAUSE 3.2.7 IEC 60255-0-20 CLAUSE 3.5 IEC 60068E	ETDC
Numerical over current and earth fault relay	· Damped Oscillation Test	ANSI 37.90a	ETDC
Numerical over current and earth fault relay	· Vibration(sinusoidal) · Bump Test	IEC-68-2-29 IEC571-1	ETDC
Numerical over current and earth fault relay	· Shock Test	IEC60255-21-2/4.2.1	LRDE
Numerical over current and earth fault relay	· Radio Frequency Disturbance Test	IEC-61000-4-3	SAMEER-CENTER FOR ELECTRO-MAGNETICS.
Numerical over current and earth fault relay	· Accuracy Test Before Electrostatic Discharge Test · Determination Of Errors Relating To Characteristic Quantity · Determination Of Errors Relating To specified Time	IEC:60255-3,1989CL.4.1.2&6.2 IEC:60255-3,1989CL.4.3.2&6.3	CPRI BANGALORE
Numerical over current and earth fault relay	· Electrostatic Discharge Test	IEC:60255-22-2,1996 CL.4	CPRI BANGALORE
Numerical over current and earth fault relay	· Accuracy Relating To Characteristic Quantity/operating Time · Pick-up Value Test · Drop-out Test · Operating Time Test · Contact Resistence Test · Insulation Resistance Test	IEC 60255-23,CLAUSE4.4.2 IEC 60255-23,CLAUSE4.4.2 IEC 60255-23,CLAUSE4.4.2 IEC 60255-23,CLAUSE4.4.2 IEC 60255-23,CLAUSE4.4.2	CPRI BANGALORE
Numerical over current and earth fault relay	· Fast Transient Disturbance Test	IEC:60255-22-4,1992 CL.4	CPRI BANGALORE
Numerical over current and earth fault relay	· Accuracy Test After Fast Transient Disturbance Test · Determination Of Errors Relating To Characteristic Quantity · Determination Of Errors Relating To specified Time	IEC:60255-3,1989CL.4.1.2&6.2 IEC:60255-3,1989CL.4.3.2&6.3	CPRI BANGALORE
Numerical over current and earth fault relay	· Accuracy Relating To Characteristic Quantity/operating Time · Pick-up Value Test · Drop-out Test · Operating Time Test · Contact Resistance Test · Insulation Resistance Test	IEC 60255-23,CLAUSE4.4.2 IEC 60255-23,CLAUSE4.4.2 IEC 60255-23,CLAUSE4.4.2 IEC 60255-23,CLAUSE4.4.2 IEC 60255-23,CLAUSE4.4.2	CPRI BANGALORE

TEST STANDARDS

Numerical over current and earth fault relay	Contact Performance Test (DC)	IEC 60255-23,1994	
Numerical over current and earth fault relay	· Tests After Contact Performance Test, Accuracy Relating To Characteristic Quantity/operating Time · Pick-up Value Test · Drop-out Test · Operating Time Test · Contact Resistance Test · Insulation Resistance Test · Di Electric Test	IEC 60255-23,CLAUSE4.4.2 IEC 60255-23,CLAUSE4.4.2 IEC 60255-23,CLAUSE4.4.2 IEC 60255-23,CLAUSE4.4.2 IEC 60255-23,CLAUSE4.4.2 IEC 60255-23,CLAUSE4.4.2 IEC 60255-23,CLAUSE4.4.2	CPRI BANGALORE
Numerical over current and earth fault relay	· DNP 3.00 Protocol Test (ASE 2000 Simulation) Parameters · Reset Link · Class 0 · Class 1,2,3 · Binary Input · CROB · Analogue Input · Binary Counter · Time & Date	ASE 2000 SIMULATION	ETDC BANGALORE
KWH Meter PDM 9022 Counter Type	· Accuracy Test	IS:13010-1990 For Accuracy Check	TRANSCAL
ACCL-1 PHASE	Functional Check Performance Test	----------	ETDC BANGALORE
Earth Leakage Relay With CBCT	Performance Test	IEC755 & IEC60255	ETDC BANGALORE
Earth Fault Relay (5A)	Performance Test	IEC755 & IEC60255	ETDC BANGALORE
ACCL -1-PHASE- μp (EB 30A-DG 3A) 660WATTS	Performance Test · Functionality Test · Insulation Resistance Test · Di-electric Test · Functionality Test After Insulation Tests	MANUFACTURERS	ETDC BANGALORE
ACCL -1-PHASE- μp (EB 30A-DG 3A) 660WATTS	· Impulse Test	IEC-60255-5(1977)	ETDC BANGALORE
ACCL -3-PHASE- μp (EB 25A-DG 5A) 1.1kw	Performance Test · Functionality Test · Insulation Resistance Test · Di-electric Test · Functionality Test After Insulation Tests	MANUFACTURERS	ETDC BANGALORE
ACCL -3-PHASE- μp (EB 25A-DG 5A) 1.1kw	· Impulse Test	IEC-60255-5(1977)	ETDC BANGALORE
Earth Leakage Relay With CBCT- μp Based Model-MPEL-01	Performance Test · Verification Of The Operating Characteristics · Insulation Test · Vibration Test · Verification Of The Operating Characteristics (After Insulation & Vibration Test)	IEC 755 CLAUSE 8,3 & IEC 60255-5 CLAUSE REF 5 & 7 IEC 60255-21-1 MANUFACTURERS	ETDC BANGALORE

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TEST STANDARDS

Earth Leakage Relay With CBCT- µp Based Model-MPEL-01	· Impulse Test	IEC-60255-5(1977)	ETDC BANGALORE
Earth Leakage Relay With CBCT- µp Based Model-MPEL-02	· Performance Test · Verification of The Operating Characteristics · Insulation Test · Vibration Test · Verification of The Operating Characteristics (After Insulation & Vibration Test)	IEC 755 CLAUSE 8.3 & IEC 60255-5 CLAUSE REF 5&7 IEC 60255-21-1 MANUFACTURERS	ETDC BANGALORE
Earth Leakage Relay With CBCT- µp Based Model-MPEL-02	· Impulse Test	IEC-60255-5(1977)	ETDC BANGALORE
Earth Fault Relay - µp Based	· Performance Test · Verification of the Operating Characteristics · Insulation Test · Vibration Test · Verification of the Operating Characteristics (After Insulation & Vibration Test)	IEC 755 CLAUSE 8.3 & IEC 60255-5 CLAUSE REF 5&7 IEC 755 CLAUSE 8.3	ETDC BANGALORE
Earth Fault Relay - µp Based	· Impulse Test	IEC-60255-5(1977)	ETDC BANGALORE
Over Current Relay - µp Based	· Performance Test · Verification of the Operating Characteristics · Insulation Test · Vibration Test · Verification of the Operating Characteristics (After Insulation & Vibration Test)	IEC 755 CLAUSE 8.3 & IEC 60255-5 CLAUSE REF 5&7 IEC 755 CLAUSE 8.3	ETDC BANGALORE
Over Current Relay - µp Based	· Impulse Test	IEC-60255-5(1977)	ETDC BANGALORE
Earth Leakage Relay With CBCT- µp Based Model-MPEL-01	Climatic Test	IEC 68-2-1, IEC 68-2-2, IEC 68-2-30	ETDC BANGALORE
Earth Leakage Relay With CBCT- µp Based Model - MPEL-02	Climatic Test	IEC 68-2-1, IEC 68-2-2, IEC 68-2-30	ETDC BANGALORE
KWH Meter-Digital Model PDM9025	· Impulse Test AC High Voltage Test Test of Meter Constant Test of Starting Test of No Load Condition Test of Influence Quantities Test of Power Consumption Test of Influence Of Supply Voltage Test of Influence Short Time Over Currents Test of Influence Of Self Heating Test Of Influence Of Immunity To Earth Fault Ri Suppression Fast Transient Burst Test Damped Oscillatory Waves Immunity Test Test Of Immunity To Electro Magnetic Rf Fields Test Of Immunity To Conducted Disturbances,	IEC60060-1, IEC62053-21 IEC62053-21 IEC62052-11 IEC61000-4-4 IEC61000-4-12 IEC61000-4-3 IEC61000-4-6 IEC61000-4-2	ETDC BANGALORE

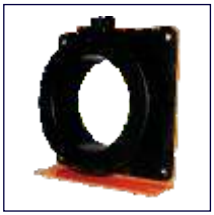
	Induced by RF Fields Test of Immunity To ESD Surge Immunity Test Dry Heat Test Cold Test Damp Heat Cyclic Test Solar Radiation Test Vibration Test Shock Test Spring Hammer Test Test Of Protection Against Penetration Of Dust Test of Protection Against Penetration of Water Test of Resistance to Heat and Fire	IEC61000-4-5 IEC60068-2-2 IEC60068-2-1 IEC60068-2-30 IEC60068-2-6 IEC60068-2-27 IEC60068-2-75 IEC 60529 IEC 60529 IEC60695-2-11	
Micro Processor Based Voltage Relay	Performance Test		ETDC BANGALORE
Numerical Over Current and Earth Fault Relay	Mod Bus Conformance Testing Read Input Register (Function Code 0x04) Write Multiple Register (Function Code 0x10)	As per the MODBUS Standards	CPRI BANGALORE
Earth Leakage Relay With CBCT- DMPEI02 with 100mm CBCT	Radiated Susceptibility Test	As per IEC 61000-4-3, 2006	SAMEER
Earth Fault Relay with CBCT- EFSPL-1	Verification of Operating Characteristics Test for Insulation Resistance, Dielectric & Impulse Test Verification of Operating Characteristics Post Insulation & Impulse Test	As per IEC 60755 Clause 8.3 As per IEC 60255-5-2012 Clause 5.0 & 6.0 As per IEC 60755 clause 8.3	ETDC BANGALORE
Earth Leakage Relay With CBCT MPEL-01 MPEL-02 & Earth Fault Relay EFSPL-1	Verification of Operating Characteristics 1) @1.0 Times the Rated Auxiliary Voltage (220VAC @60hz) 2) @1.1 Times the Rated Auxiliary Voltage (242VAC @60hz) 3) @0.85 Times the Rated Auxiliary Voltage (187VAC@60hz)	As Per IEC 755 Clause 8.3	NISAKI TECHNOLOGY SERVICES
	1) Insulation Resistance Test 2) Di-electric Test	As per Clause 5 & 7 of IEC 60255-5 As per Clause 5 & 6 of IEC 60255-5	NISAKI TECHNOLOGY SERVICES
Numerical Over Current and Earth Fault Relay PNA442	IP 51 Test Category 2 Protection Against Ingress Of Solid Foreign Objects (dust Test)	As per IS/IEC 60529 Edition 2.2, 2013-08 standard Clause 13.4	
	IPX1 Test Protection Against Harmful Ingress Of Water Dripping Rain 1+0.5mm Per Min With Sample On Turnable Duration 10 Minutes	As per IS/IEC 60529 Edition 2.2, 2013-08 standard Clause 14.2.1	CPRI BENGALORE
	Functional Test Before IP5X Test After IP/5X Test/before IPX1 Test After IPX1 Test	As per Manufacturer's Details	

E-mail: marketing@prokdvs.com

EARTH LEAKAGE RELAY
IEEE Device code - 64

FEATURES:

- Consistent reliability with Accuracy
- Fixed or variable sensitivity
- Detection of CBCT open(in μC based model)
- High barrier connector at rear end for easy termination and safety standard
- True RMS measurement of leakage current
- Trip Circuit Failure indication
- Tamper proof polycarbonate cover
- Serial RS485 communication port with Modbus Protocol (optional)
- External Test, Reset, Fault & Healthy indication suitable for Mining application



APPLICATIONS:

- Earth Leakage protection for Feeders / Motors / Generators / Transformers / Mobile Operating Equipments
- Protection for hazardous sensitive environments like Oil / Refineries / Cement Plant / Chemical Plant / Steel Plant /
- Pulp Industries and General Electrical Distribution
- Protection for Mining and Control Engineering
- Software and Telecom sector

CLASSIFICATION BASED ON DESIGN:

A) solid state ELRs-EL/DEL Series.(D-Dinmounting)
B) Microcontroller based ELR/MPEL Series (D-Dinmounting)

INTRODUCTION:

Earth Leakage Current give rise to generation of heat and result in progressive failure of insulation, which leads to earth faults, sparking flashovers, deterioration of earthing and finally results in catastrophic fires which destroys costly equipments, gadgets and precious lives. It is therefore essential to detect earth leakage current well before they cross the threshold limits and isolate the circuit in the event of leakages.

Prok dv's make Earth Leakage Relays(ELRs) with Core Balance Current Transformer (CBCT/ZCT) are used to detect leakage currents in electrical power systems. ELR transmits a signal to activate the trip coil of the MCCB/ACB/OCB/CONTACTOR in the event of earth leakage, resulting in automatic isolation of the load. ELR have been widely used and accepted because of field adaptability and are economical.

PRINCIPLE OF OPERATION:

Earth Leakage Relays (ELR) employs Core Balance Current Transformer (CBCT) to sense the leakage current. The (CBCT) is mounted externally and load current carrying cable are passed through the (CBCT). Ideally in a leakage free system the incoming and outgoing currents are equal and opposite in direction, which means that the vector sum of the three phase currents is zero and can be expressed as

$Ir + Iy + Ib = 0$ for 3 phase 3 wire system

$Ir + Iy + Ib + In = 0$ for 3 phase 4 wire system.

For the above condition the CBCT/ZCT produces zero resultant magnetic flux keeping the system healthy.

In case of earth leakage either due to insulation degradation/chemical corrosion etc. the vector sum of currents is not zero and CBCT/ZCT generates voltage which is fed to the ELR. This signal is compared with the set value of leakage current and trip command is initiated if the leakage current is more than the set values of current and time. It is worthwhile to emphasize that the unequal/unbalanced loading on phases does not effective the vector sum and as such there is no difficulty in the use of Earth Leakage Relay (ELR) on electrical distribution system with unbalanced loading.

Earth leakage Relay for IT, BT, UPS application, Mining, Cement, Petroleum & oil refineries, Steel plants, Paper & Pulping Industries:

Prok dvs recommends the use of Microcontroller based ELR with CBCT for the above application for greater reliability and user friendly.

NOTE:
For UPS/SOFTSTARTER APPLICATION MPEL/DMPEL MODEL RECOMMENDED FOR UFD APPICATION. THE ACCURACY VARY BETWEEN +25% to -25% TILL IT REACHES SYSTEM FREQUENCY OF 50Hz.

- CBCT TO RELAY S1,S2 RECOMMENDATION IN USING TWISTED CABLE FOR BETTER PERFORMANCE.
- CBCT HAS TO BE MOUNTED AWAY FROM STRONG MAGNETIC FIELD FOR HEALTHY OPERATION.
- POWER CABLES R, Y AND B HAS TO BE PLACED SYMMETRICALLY INSIDE THE CBCT FOR BETTER PERFORMANCE.

SPECIFICATIONS:

IEEE Device code - 64

PARAMETER	TYPE & RANGE:EL/DEL SERIES (solid state) (leakage range)	MPEL\DMPEL series (μC based) (leakage setting-steps)
Current setting range	Setting range: 30-300mA(EL-02) in 6steps 30-3000mA(EL-05) in 8 steps 50-2000mA(ELSPL52) in 6 steps 300-3000mA(EL03) in 6 steps 1-4A(EL04) in 6 steps 1-8A(EL01) in 8 steps 1-10A(EL06) in 8 steps 4-12A(EL07) in 8 steps Fixed: 30mA,100mA,500mA & User specified.	300mA-12A (MPEL-01)(18-STEPS) 30mA-3.0A (MPEL-02) (18-STEPS)
Tripping time	Variable Delay : 0.15-3.0 Sec in 6 steps FixedDelay:100mS,500mS,1Sec & 3Sec.	Instantaneous to 5Sec Step size- 0.05Sec
Auxiliary voltage	24V, 85-275 AC/DC,50/60Hz 50-500V AC/DC(On request only)	24V, 85-275 AC/DC,50/60Hz 50-500V AC/DC(on request only)
Communication with Modbus protocol rs485	NA	Device ID:1-30, Baud Rate:9600 Protocol: ModBus
Core balance current Transformer type	Tape wound or Resin cast	Tape wound/moulded Case or Resin Cast
CBCT standard size Internal diameter	CIRCULAR: 40mm,65mm,100mm,150mm, 200mm,250mm&300mm RECTANGULAR: User specified dimensions	CIRCULAR: 40mm,65mm,100mm, 150mm, 200mm,250mm&300mm RECTANGULAR: User specified dimensions
Contact rating	5A@230V AC/5A@30VDC 1C/O OR 2C/O	5A@230V AC/5A@30VDC 1C/O OR 2C/O
Mounting	Flush / Din	Flush / Din
Dimension	Flush: 96x96x75mm Din: 80x95x75mm (W x H x D)	Flush: 96x96x75mm Din: 80x95x75mm (W x H x D)
Panel cutout (size)in mm	90x90 +1mm	90x90 +1mm
Operating temperature	-5°C to +55°C	-5°C to +55°C
Reference standards NOTE: ELR / DEL-02 / MPEL-02 / DMPEL-02 / EL-05 / DEL-05 can be calibrated to the following CBCT sizes- 40mm,65mm,100mm &150mm	IEC 60255/IEC 755 a)IEC-755 clause 8.3 Verification of operating characteristic(Perf.test) b)Insulation test IEC-60255 Insulation resistance test -as per IEC-60255-C 5&7 Di-electric test-as per IEC 60255-C 5&6 Impulse voltage test-as per IEC-60255-CL-5&8	IEC 60255/IEC 755 a)IEC-755 clause 8.3c Verification of operating characteristic(Perf.test) b)Insulation test IEC -60255v Insulation resistance test- As per IEC-60255-CL-5&7 Dielectric test- As per IEC 60255-CL-5&6 Impulse voltage test-as per IEC-60255-CL-5&8

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EARTH FAULT RELAY

IEEE Device code - 50N

FEATURES:




μC BASED EFR:

- Compact
- IDMT (4 IEC curves), Definite Time & Instantaneous
- Wide setting ranges
- Fully digital acquisition & processing of data
- LCD display of operated current & fault current
- LED indication for digital operation status
- Rugged and Tropicalized design

SOLID STATE:

- Static device
- Definite time
- Wide setting ranges
- Compact size
- LED indication of fault status
- Rugged & tropicalized design
- LED indication of healthy status

APPLICATIONS:

- Earth Fault Protection for Generators/Alternators
- Earth Fault Protection for Transformers & Feeders

SPECIFICATIONS:

PARAMETER	MPEFSPL/DMPEFSPL(μC)	EFSPL/DEFSPL(Solid State)
Auxiliary Voltage	85-275 V AC/DC	24V DC,85-275V AC/DC, 50-550VAC/DC Note: For Flush mounting only
Frequency	50Hz/60Hz	50Hz/60Hz
Rated Current-In	1A/ 5A (Field Selectable)	1A or 5A Factory set
Burden on CT	<0.2VA	<0.2VA
Sensitivity Settings Plug Setting Range(PS) In% of the relay Rating.	PS Range: (5%-80%) of In. In steps of 5%, In=1A(10%-80%)In In=5A(5%-80%)In	PS Range: (10%-80%) of In. in steps of 10%, In 8 Steps
Definite Time Settings in Sec	0.1-20Sec in step of 0.1	1.With instantaneous trip 0.15 to 3.0 Sec (6 Steps) 2. With time in Steps : 0.15, 0.25, 0.50, 1.00, 2.00 and 3 Sec.
IDMT Curves	4 IDMT Curves: Normal Inverse (NI) 1.3 Sec, 3.0 Sec, Long Time Delay (LTD)	NA
Time Setting Multiplier (TMS)	(0.1-20) In steps of 0.05	NA
CBCT size for EFR	CIRCULAR: 40mm, 65mm, 100mm, 150mm, 200mm, 250mm & 300mm with Secondary 1A only RECTANGULAR: Prices on request	CIRCULAR: 40mm, 65mm, 100mm, 150mm, 200mm,250mm&300mmwith Secondary 1A only RECTANGULAR: Prices on request
Contact capacity(A)	5A@230V AC, 5A@30V DC	5A@230V AC, 5A@30V DC
Contact type	NC-C-NO Two Change Over 2 C/O, or 1 C/O	NC-C-NO One change over (Optional-2Change Over)
Operating Temperature(°C)	-5°C --- +55°C	-5°C --- +55°C
Standard	IEC – 60255	IEC – 60255
Relay setting Mode	Setting through push button · Setting of relay rating 5A or 1A(In) · PS-selection, · Curve selection, · TMS selection for IDMT · Time for DEFT, · Relay TEST& RESET	Setting through DIP switch. · PS · Definite time
Display /Indication	Backlit LCD DISPLAY Two line 8 characters · Trip value of the current w.r.t secondary of CT · Set PS value · Red LED-DEFT/IDMT trip	LED for indicating the status · Green LED –Healthy · Red LED –Trip
Relay Test Facility	Available through push button	Available through dip switch
Mounting Type	Flush, Din / Surface	Flush, Din / Surface
Dimensions in mm	**Flush:** 96x96x75, **Din:** 80x95x75 **(W x H x D)**	**Flush:** 96x96x75, **Din:** 80x95x75 **(W x H x D)**
Panel cut out in mm (Flush type)	90 x 90 + 1 mm	90 x 90 + 1 mm

RESTRICTED EARTH FAULT RELAY

IEEE Device code - 87N

FEATURES:

- Microprocessor Based Design
- Wide Setting Ranges
- Universal Auxiliary supply 85-275V AC/DC
- Rugged and Compact Design
- 2 Line 8 Character Back-lit LCD
- Display of fault current

APPLICATIONS:

- Transformer and Generator protection

SPECIFICATIONS:

PARAMETER	Type: MPREFR – Microprocessor Based
Rated Current	5 Amps or 1Amps
Plug setting Range	5% – 80% in steps of 1%
Operating Time	Instantaneous(<100ms)
Burden	<0.2 VA
Frequency	50 Hz
Auxiliary supply	85-275V AC/DC 50-60Hz
Output Relay	2 C/O, 5A@230V AC 5A@30V DC
Operating Temperature	-5°C to +55 °C
Panel cut out size in mm	90 x 90+1mm
Dimensions in mm	96 x 96 x 75 mm Flush.

NOTE: STABILIZING RESISTOR OF 300 OHMS 150 WATTS IS SUPPLIED ALONG WITH THE RESTRICTED EARTH FAULT RELAY

E-mail: marketing@prokdvs.com

OVER CURRENT RELAY

IEEE Device Code-50

FEATURES:

- TRUE RMS measurements
- Compact
- IDMT(4-IEC Curves) & Definite time
- Wide setting ranges
- Fully digital acquisition of data
- LCD display of operated current
- Tropicalized and rugged design
- Accuracy class 1.0

APPLICATIONS:

- Feeder /Distribution Boards
- Generator control panel

SPECIFICATIONS:

PARAMETER	MPEFSPL/DMPEFSPL(μC)
Auxiliary Voltage	85-275 V AC/DC
Frequency	50Hz/60Hz
Rated Current-In	1A or 5A
Burden on CT	<0.2VA
Sensitivity Settings Plug Setting Range(PS) In % of the relay Rating.	PS Range: (50%-200%) of In. In steps of 5%
Definite Time Settings in Sec	0.0-20 Sec. (200 Steps) In steps of 0.10 Sec.
IDMT Curves	4 IDMT Curves: Normal Inverse (NI), 1.3 Sec, 3.0 Sec, Long Time Delay (LTD)
Time Setting Multiplier(TMS)	(0.1-2.0)In steps of 0.05
Contact capacity(A)	2 C/O, 5A@230V AC, 5A@30V DC
Operating temperature(°C)	-5°C --- +55°C
Standard	IEC – 60255
Relay Setting Mode	Setting through push button PS – selection, Curve Selection, TMS - selection for IDMT Time - for DEFT, Relay TEST/ RESET
Display/Indication	Back-Lit LCD display · Two line 8 characters, · Trip value of the current w.r.t. Secondary of CT · Set PS value, · Red LED-DEFT/IDMT trip
Relay Test Facility	Available through push button
Mounting Type	Flush, Din / Surface
Dimensions in mm	**Flush:** 96 x 96 x 75, **Din:** 80 x 95 x 75 (W x H x D)
Panel cut out in mm (Flush type)	90 x 90 + 1 mm

NUMERICAL OVER CURRENT AND EARTH FAULT RELAY

IEEE Device code -50, 51, 50N & 51N

FEATURES:

- Three phase low-set, non - directional Over current relay with Inverse
- Definite Minimum Time (IDMT) or definite time characteristics
- High-set, non-directional Over current relay with instantaneous or definite time function
- Low-set non -directional Earth fault Relay with Inverse Definite Minimum Time (IDMT) or definite time characteristics
- High-set non-directional Fault Relay with instantaneous time or definite time function
- Modular Integrated Draw Out System (MIDOS)for field adaptability and Tropicalised design
- Password protection
- 2 line 16 characters industrial grade LCD with back-lit module for numerical display of setting values and measured values
- Trips for default/previously selected curve if the fault occurs during settings of the relay
- Membrane key pad for easy operation, dust proof front panel
- Enabling /Disabling of High-Set
- LED indications for power , pick-up, phase fault trip or Earth Fault trip for IDMT and High-set
- RS485 communication port with Modbus/DNP3protocol
- Relay test facility with relay trip & without relay trip
- Separate heavy duty output contacts provided for time delayed phase fault with high-set and time delayed Earth Fault with high-set
- Choice of8 Inverse Time Characteristics Curve , for Phase Fault & Earth Fault Separately Selectable like:

    - Normal Inverse
    - Extremely Inverse
    - Restricted Inverse
    - Very Inverse
    - 1.3 Seconds
    - 3 Seconds
    - Long Time Delay
    - DEFT
    - 0.6 Sec curve

- Definite time curve for both Phase & Earth along with optional user defined curve.
- Low AC burden
- Reliable auxiliary supply of wide range input of 18-85 or 85-275 volts AC or DC
- Non-Volatile memory for data retention and retrieval in the event of power failure
- Unique combination of 50/51/50N/51N in a single gadget
- Consistent repeat accuracy
- High Drop-off/Pick-up ratio
- Polycarbonate front cover with external reset switch
- 99 previous faults data along with nature of faults will be recorded with date and time stamping
- Auto Re-closure with four shots with time intervals of 0.0 to 10minutes, step size of 0.5minute

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NUMERICAL OVER CURRENT AND EARTH FAULT RELAY

IEEE Device code - 50, 51, 50N & 51N

SPECIFICATIONS:

PARAMETER	TYPE : PNA – Series IDMT/DEFINITE TIME/INSTANTANEOUS LOW-SET/HIGH-SET NON-DIRECTIONAL NUMERICAL/MICROPROCESSOR BASED OVER CURRENT RELAY (OCR) WITH EARTH FAULT RELAY (EFR)- PNA SERIES
Accuracy Of Operating Time For IDMT Definite Time Instantaneous	±5%, ±3%, Less than 2 Cycles
Relay Rated Current (in)	1A or 5A user selectable.
Frequency	50Hz or 60Hz.
Auxiliary Voltage Range	85V - 275V AC/DC, 21 -130V DC
Pick-up	103%
Drop-off	97%
Ac Burden	< 0.4VA for 5A < 0.2VA for 1A @ unity pf.
Dc Burden	< 5W during non operated condition < 7W during operated condition
Dimensions in mm	154 x181x195 mm (WxHxD) –DRAW OUT TYPE 154x181x210 mm(WxHxD) –NON DRAW OUT TYPE
Mounting	Flush
Panel Cut - Out Size In Mm	151 x 155 mm + 1mm- DRAW- OUT 151 x 155 mm + 1mm- NON DRAW- OUT
Contact Rating	AC: 230 V @ 30A DC: 24 V @ 30 AMPS, 2 C/O
Operating Temperature	- 5 ^{0}C to +55 ^{0}C

NUMERICAL OVER CURRENT AND EARTH FAULT RELAY

RELAY PLUG SETTING RANGES:

IEEE Device code -50,51,50N& 51N

Low- Set Range (IDMT):

Low Set PS	Setting Range	Step	TMS Range	TMS Step
Phase Low-Set PS	(0.1-2.5) In - 5A (0.5-2.5) In - 1A	0.01	(0.10-1.60)	0.01
Earth Low-Set PS	(0.1-0.8) In	0.01	(0.10-1.60)	0.01

High -Set Range:

High Set Current	Setting Range	Step	Time Range	Time Step
Phase High-Set	(2-30) In	0.1	(0.0-1.60)	0.1
Earth High-Set	(0.5-16) In	0.1	(0.0-1.60)	0.1

Definite Time Setting Ranges:

Low Set PS	Setting Range	Step	TMS Range	TMS Step
Phase Low-Set PS	(0.1-2.5) In - 5A (0.5-2.5) In - 1A	0.01	(1-160)	0.1
Earth Low-Set PS	(0.1-0.8) In	0.01	(1-160)	0.1

Output Relay Configuration:

Phase Low-Set	Relay1 or Relay2 can be assigned for Low-Set/High-Set
Earth Low-Set	Relay1 or Relay2 can be assigned for Low-Set/High-Set
Phase High-Set	Relay1 or Relay2 can be assigned for Low-Set/High-Set
Earth High-Set	Relay1 or Relay2 can be assigned for Low-Set/High-Set

Auto Re-closure: (optional)

Min - Minutes	
AR Shot 1	0.5 Min(0.0-10) Step_ 0.5Min
AR Shot 2	0.5 Min(0.0-10) Step_ 0.5 Min
AR Shot 3	0.5 Min(0.0-10) Step_ 0.5 Min
AR Shot 4	0.5 Min(0.0-10) Step_ 0.5 Min

Modbus Protocol:

Modbus Slave ID	1(1-31)
	1200bps
BAUD RATE	2400bps
	4800bps
	9600bps
	19.2kbps
	38.4kbps
	115.2kbps

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NUMERICAL UNDER AND OVER VOLTAGE RELAY

IEEE Device code - 27, 59, 47

FEATURES:

- IDMT & Definite time characteristics
- Negative sequence compact detection
- High drop/pickup off ratio
- Nonvolatile memory for data retention
- Wide range of system voltages
- High speed feature for under voltages and over voltages
- 2 line,16 character back-lit LCD display and key pad
- Very low burden on measurement and Aux circuits
- Accurate and reliable measurement of voltages
- Field selectable system voltages

APPLICATIONS:

- Protection of Motor and Generators
- Main or backup protection
- For detection of OV& UV in power plants and distribution system
- Protection of transformer panel & Capacitor control panel

TRIPPING CHARACTERISTICS:

1) **IDMT:** Over Voltage -t = k / log (ovf) Sec
Under voltage-t=k/log (2-uvf) Sec
K = time dial setting with range
0.1 to 1.0 Sec in steps of 0.1
Ovf = measured value/(set value x rated voltage)
Uvf = measured value/ (set value x rated voltage)
2) **Definite Time:** (0-300) Sec (time setting) in steps of 1 sec

SPECIFICATIONS:

PARAMETER	TYPE: PNV NSP
SYSTEM VOLTAGE	380V, 400V, 415V & 433V - 3Ph-4W 3Ph 3W-110V
FREQUENCY RANGE	45HZ- 65HZ
PICK - UP	Over Voltage-101%of set value Under Voltage-99%of set value
DROP - OUT	Over Voltage 1% below pick up voltage Under Voltage-1% above pick-up voltage
RESPONSE TIME	<100mSec
SETTING RANGE	Under Voltage: UV< 0.99 to 0.50 of Un in steps of 0.01 UV<< 0.99 to 0.50 of Un in steps of 0.01(High set) Over Voltage: OV> 1.01 to 1.30 of Un in steps of 0.01 OV>> 1.01 to 1.30 of Un in steps of 0.01(High set)
% OF NEGATIVE SEQUENCE	(1-25%) in steps of 1%
NEGATIVE SEQUENCE DEFINITE TIME	(0-300)Sec in steps of 1Sec
NEGATIVE SEQUENCE INSTANTANEOUS TIME(NS>>) FOR NS>> 25%	(0.0-5.0)Sec in steps of 0.1
TIME FOR HIGH SET (UV<<&OV>>)	(0.0-5.0)Sec in steps of 0.1
CONTACT RATING	5A 230VAC, 5A 30VDC
DIMENSIONS in mm	155 X 180 X 200 mm (WxHxD)
CUT OUT SIZE in mm	151 X 157 mm+1mm

AC VOLTAGE RELAY - LVM SERIES

IEEE Device code - 27, 59

FEATURES:

- Site selectable system voltage
- Continuous display of the measured voltage parameter
- 16 character 2 line LCD display with back-lit
- Accurate reading for balanced and unbalanced load
- Wide range of auxiliary input
- Independent contacts for both Under & Over voltage
- Self reset & site selectable reset gap
- Built in fixed instantaneous Under & Over voltage high- set trip
- User friendly setting modes using key pads
- Low power consumption
- Tropicalized design using micro controller & Ideal for industrial environment

APPLICATIONS:

- Monitoring & Supervision of Under and Over voltage in power generating plants & distribution system
- To protect Generators & AMF switch boards
- For protection of synchronous & induction motors
- For transformer feeder panel
- Protection for capacitor control panels

SPECIFICATIONS:

PARAMETER	3Ph,4-W	3Ph,3W
AUX. Voltage	85 to 275V AC/DC,24V DC	85 to 275V AC/DC,24V DC
System Voltage	220V/230V/240V/250VAC site selectable	110V/380V/400V/415V/433VAC site selectable 3 Ph 4W/ 3Ph 3W
Over Voltage Setting Range	101% to 120% in steps of 1% Site selectable	101% to 120% in steps of 1% Site selectable
Over Voltage Trip Time	0-30sec in steps of 0.1sec	0-30sec in steps of 0.1sec
Under Voltage Setting Range	70% to 99% in steps 1% Site selectable	70% to 99% in steps 1% Site selectable
Under Voltage Trip Time	0-30sec in steps of 0.1sec	0-30sec in steps of 0.1sec
Reset-gap	1% to 5% of Un in steps of 1%	1% to 5% of Un in steps of 1%
On-time Delay	0 -30sec in steps of 1sec	0 -30sec in steps of 1sec
Default High-set Setting With Instantaneous Trip	Fixed UV high set <70% of Un Fixed OV high set >120% of Un	Fixed UV high set <70% of Un Fixed OV high set >120% of Un
Contacts	Independent contact for UV/OV	Independent contact for UV/OV
Contact Rating	1 C/O or 2C/O , 5A@230V AC 5A@30V DC	1 C/O or 2C/O , 5A@230V AC 5A@30V DC
Indications	Display of the Magnitude and nature of fault by LCD and LED indications for relay trip	Display of the Magnitude and nature of fault by LCD and LED indications for relay trip
Dimensions In mm	144x144x105mm [H x W x D]	144x144x105mm [H x W x D]
Panel Cutout Size in mm	138 mmx138mm	138 mmx138mm
Model	LVM11-Both UV&OV LVM02-UV only LVM03-OVonly	LVM11A-Both UV&OV LVM02A-UVonly LVM03A-OVonly

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REVERSE POWER RELAY

IEEE Device code -32

FEATURES:

- Protection of Generator / Prime movers against Reverse Power
- Visual indication of power, pick-up and relay tripping
- Display of reverse power on the LCD
- Continuous display of sensing voltage, current, frequency and power factor with lead/lag indication
- Wide Auxiliary voltage range from 85–275V AC/DC
- Cost effective and highly reliable compact design
- Test Facility, allowing the user to check the NO and NC contacts of the relay
- Microcontroller based, hence accurate and precise

APPLICATIONS:

- Protection of Generator and Prime Mover/ Turbine.

SPECIFICATIONS:

PARAMETER	DESCRIPTION
Rated Current	5A/1A
Tripping Current	4% -20% of In in steps of 1%
Time Delay	0-20Sec,In steps of 0.1
Sensing Voltage	50-500V AC
Frequency	40- 60Hz
Aux. Supply	85-275V AC/DC
Out Put Relay	2 C/O, 5A@230V AC 5A@30V DC
Dimensions in mm	144X144X105(mm) FLUSH
Panel Cut Out in mm	138X 138mm+1mm

FREQUENCY RELAY

IEEE Device code - 81

FEATURES:

- Dedicated microcontroller based
- Accurate, reliable and tropicalized design
- Continuous display of the measured frequency
- User selectable upper frequency and lower frequency limits
- User selectable trip timings
- Wide operating range for Auxiliary Input 85V-285V AC/DC

APPLICATION:

- Generator and Captive Power Plant
- Over frequency relay applied as backup protection for mechanical over speed devices to avoid damages to prime mover
- Under frequency relay applied to protect field winding from excessive current, voltage regulator from overload
- Servo Controller and Invertors

SPECIFICATIONS:

PARAMETER	DESCRIPTION
Rated Voltage	230V AC/110V/415V AC
Frequency Range	40Hz-60Hz in steps of 0.1Hz
Power Supply Burden	<3W
Turn Off Delay	0.05 -10Sec in steps of 0.05Sec definite time
AUX. Supply	85-275V AC/DC 50/60Hz
Mounting	Flush
Out Put Relay	1 C/O or 2 C/O, 5A@230V AC 5A@30V DC ,two separate miniature relays one for low frequency and other for high frequency
Dimensions in mm	144X144X105(mm)
Panel Cut Out Size in mm	138X 138mm +1mm

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MICRO CONTROLLER BASED MOTOR PROTECTION RELAY PDMMPR-303

IEEE Device code - 49, 51, 46, 37, 47 and 49S

FEATURES:

- Accurate and Real Time TRUE RMS measurements.
- Motor Rated Current (Im) Selection by means of Potentiometer with markings.
- Earth Fault Setting provided by means of Potentiometer with markings.
- Selectable Thermal Trip Time characteristics Class - 10A, 10, 20 & 30.
- Pre-alarm at 105 % of Im by Potential Free Output Contacts.
- Provided the Thermal replica for motor overload condition.
- Continuous monitoring of Motor IDLE/Stop, COLD, WARM, HOT, I>& Various Fault status through visual LED indication.
- Motor protections - UB (Unbalance), UC (Under current), LR (Locked rotor), EF (Earth fault) can be enabled or disabled using Dip switch setting.
- Motor Trip class - Class 10A, Class 10, Class 20, Class 30 can be configured using dipswitch. If none of the trip class selected, Default: CLASS 20 Selected internally
- By default Fail safe mode provided for output TRIP and ALARM Relay
- Front end Communication through Modbus protocol with RS-485 Port for Fixed slave I.D- (optional).
- Various Models with different rated currents.
- Compact and Reliable.
- Manual TEST / RESET Facility.

APPLICATIONS:

- Protection of LV Motors up-to 75HP in Motor Control Center

MICRO CONTROLLER BASED MOTOR PROTECTION RELAY PDMMPR-303

IEEE Device code - 49, 51, 46, 47 and 49S

SPECIFICATIONS:

Thermal Over Load Protection	As per IEC 947-4-1
Trip Class	Trip Time Characteristics Class -10A,10,20 &30 as per IEC 947-4-1(Default: Trip class 20)
Earth Fault Protection	▪ Earth Fault Current Setting Range - 10% to 50% of Im, in steps of 10% ▪ Fixed Trip Time Delay - 0.5Sec ▪ Enable / Disable Option using Dip switch
Unbalance Protection	▪ Fixed Unbalance current setting - 40% of avg ▪ Fixed Trip Time Delay - 5.0Sec ▪ Enable / Disable Option using Dip switch
Locked Rotor Protection	▪ Locked Rotor Current - Greater than 3 times of Im ▪ Fixed Trip Time Delay - 0.5 Sec, Enable/Disable Option using Dip switch
Under Current Protection	▪ Fixed Under Current Setting - 15% of Im ▪ Fixed Trip Time Delay - 1 Sec, Enable/Disable Option using Dip switch
Loss of Phase / Single Phasing	▪ Applicable when one or two line currents falls below the 50% of motor rated current ▪ Fixed Trip Time 3.0 Sec
Phase Reversal Monitoring	▪ During Phase sequence reversal Fixed Trip Time Delay 0.1 Sec
Contacts	▪ C & NO 240V@5A AC, 30V@5A DC Potential-Free Output Contact for Overload Alarming Circuit ▪ C & NO 240V@ 5A AC, 30V@5A DC Potential-Free Output Contacts for Tripping Circuit for all seven Faults
Auxiliary Power Supply	85-275V AC / DC
Trip Accuracy	As per IEC 947-4-1, for Trip Class 10A, 10, 20, & 30
Pick-Up Accuracy	+/- 12.5%
Reset	Manual
Models	PD-MMPR-303-1(1.0A-10.0Amps), PD-MMPR-303-2 (10.0Amps-32.0Amps) PD-MMPR-303-3 (20.0Amps-64.0Amps), PD-MMPR-303-4 (30.0Amps-96.0Amps) NOTE: Model 1A/5A secondary current on request
Mounting	DIN Rail
Dimensions in mm	76X59X113 (WXHXD)
Operating Temp	0°Cto +55°C
Front end Communication	RS-485 MODBUS Protocol (HALF DUPLEX), fixed Baud rate: 9600 bps & For fixed device i.d-10, Data:8Bit, stop bit:1, (optional feature)

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INTELLIGENT POWER FACTOR CONTROLLER-PNF

IEEE Device Code - 55

FEATURES:

- Accurate compensation even in presence of harmonics
- Real time display of total Power Factor(PF) and fundamental wave power factor(DPF)
- User entered parameter is stored in non-volatile memory (EEPROM)
- Entry of parameter through key pad
- Display of Voltage and Current distortion
- Wide range of switching sequence of capacitor banks .i.e.,12 user selectable capacitor sequences
- Alarms for Distortion, over compensation and under compensation
- Target PF 0.7lag to 0.7 lead selectable through key board display
- Over and Under Voltage Protection
- Voltage harmonic protection
- Display of Voltage and Current Distortion
- Programmable capacitor discharge time
- Programmable capacitor ON/OFF time
- Low burden on CT
- No complicated setting procedure
- User friendly interface
- Auto/Manual mode

APPLICATIONS:

- Industrial application where inductive load which are critical like inching load & furnaces, i.e. Dynamic loads
- Application wherever energy conservation is vital

SPECIFICATIONS:

Current	CT secondary,0- 5Amps
Voltage	415V AC or 220VAC
Frequency	45-64Hz
Aux. Supply	220V AC
Indication	4-position red Nixie tube
Sensitivity	20mA
Capacitor Stage	4,6,8,10,12,14 &16 stages
Temperature	-5°C to +50° C
Dimension in mm	144 x 144 x 120 mm (H x W x D)
Panel Cut-out Size in mm	137 x 137mm

VOLTAGE MONITORING DEVICES

IEEE Device code - 27, 47, 59

FEATURES:

- Solid state circuitry
- Phase fail and phase reversal detection
- Definite fixed or variable time delay
- Low power consumption
- Auto reset
- Fail safe system
- LED indication for healthy and fault indication
- DIN rail mounting

APPLICATION:

- Protection of synchronous and induction motors of any HP rating
- Protection of generators, AMF switch Boards
- Transformer feeder panel regulator from overload
- Distribution boards
- Voltage regulators
- Protection of or UPS and single phase applications

SPECIFICATIONS:

PARAMETER	VD-02	VD-03
Sensing Voltage(Un): Contacts & rating:	110V/230V/415VAC+20%,50Hz 2 C/O contacts, 5A@230VAC, 5A@30VDC	110V/230V/415VAC+20%,50Hz 2 C/O contact, 5A@230VAC, 5A@30VDC
Trip Voltage settings: Under voltage Over voltage Phase to phase Unbalance	80% - 95% of Un, in steps of 3% 105% - 120% of Un, in steps of 3% 50V fixed-110V Sensing voltage 100V fixed -415V Sensing voltage	80% - 95% of Un, in steps of 3% 105% - 120% of Un, in steps of 3% 50V fixed-110V Sensing voltage 100V fixed -415V Sensing voltage
Reset gap (Max): a) Under /Over voltage b) Unbalance voltage	 15V+5V 5-10V	 15V+ 5V 5-10V
Trip time delay: a) Phase fail b) Under /Over voltage c) Resetting mode	 2-4Sec fixed. 100msec fixed. Auto	 2-4Sec fixed. 0-15 sec variable in steps of 3sec. Auto
Indication: a) Green LED b) Red LED	 System healthy 1)Phase fail/Phase reversal/Phase unbalance 2)Under voltage trip indication 3)Over voltage trip indication	 System healthy 1)Phase fail/Phase reversal/Phase unbalance 2)Under voltage trip indication 3)Over voltage trip indication
Dimension in mm	75x95x75 mm (WxHxD)	75x95x75 mm (WxHxD)
Mounting	Din rail mounting	Din rail mounting
Power consumption:	<4VA	<4VA
Insulation:	2KV, 50Hz for 1min	2KV, 50Hz for 1min

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VOLTAGE MONITORING DEVICES

IEEE Device code - 27, 47, 59

SPECIFICATIONS:

PARAMETER	VD-04 (1Ø)	VD-05 (UV)
Sensing Voltage(Un): Contacts & rating:	230VAC+20%,50Hz 2 C/O contacts,5A@230VAC 5A@30VDC	110V/230V/415VAC+20%,50Hz 2 C/O contact, 5A@230VAC, 5A@30VDC
Trip Voltage settings: a) Under voltage b) Over voltage c) Phase to phase Unbalance	 160V-210V variable in steps of 10V 240V-290V variable in steps of10 NA	80% - 95% of Un, in steps of 3% ---------- 50V fixed-110V Sensing voltage 100V fixed -415V Sensing voltage
Reset gap (Max): Under /Over voltage Unbalance voltage	 07V+3V ---------	 15V+ 5V 5-10V
Trip time delay: a) Phase fail b) Under /Over voltage	 --------- 100msec fixed.	 2-4Sec fixed. 0-15 sec variable in steps of 3sec.
Resetting mode:	Auto	Auto
Indication: a) Green LED b) Red LED	 System healthy 1)Under voltage trip indication 2)Over voltage trip indication	 System healthy 1)Phase fail/Phase reversal/Phase unbalance 2)Under voltage trip indication
Dimension in mm Mounting Power consumption: Insulation:	75x95x75 mm (WxHxD) Din rail mounting <4VA 2KV, 50Hz for 1min	75x95x75 mm (WxHxD) Din rail mounting <4VA 2KV, 50Hz for 1min

PARAMETER	VD-06(OV)
Sensing Aux. Voltage(Un):	110V/230V/415VAC+ 20%,50Hz
Contacts & rating:	2 C/O contacts,5A@230VAC 5A@30V DC
Trip Voltage settings: a) Under voltage b) Over voltage c) Phase to phase unbalance	 ---------- 105% - 120% of Un, in steps of 3% 50V fixed 50V fixed-110V System 100V fixed -415V System
Reset gap (Max): a) over voltage b) unbalance voltage	 15V+ 5V 5-10V
Trip time delay: phase fail under /over voltage	 2-4Sec fixed. 0-15 sec variable in steps of 3sec.
Resetting mode:	Auto
Indication: Green LED Red LED	 System healthy 1)Phase fail/Phase reversal/ Phase unbalance 2)Over Voltage trip indication
Dimension in mm	75x95x75 mm (WxHxD)
Mounting	Din rail mounting
Power consumption	<4VA
Insulation	2KV, 50Hz for 1min

PHASE FAILURE RELAY

STATIC PHASE FAILURE RELAY(PFR) /SINGLE PHASING PREVENTOR(SPP)-PHASE PHEE

IEEE Device Code - 47

FEATURES:

- Phase reversal and unbalance detection
- Low power consumption
- Selectable percentage unbalance settings
- Auto/Manual reset operation
- Fail safe system
- Accurate, reliable and tropicalised
- Din Rail mounting type

APPLICATION:

- Suitable for motors of any HP ratings
- Power supply distribution boards
- Agriculture pump control panels

SPECIFICATIONS:

PARAMETER	PHASE PHEE
SYSTEM VOLTAGE(UN)	110V,220V,415VAC 3 Phase 50Hz
Fixed tripping time delay	2.5 Sec ± 0.5 Sec.
Reset	Manual / Auto
Relay Contacts	2 C/O , Potential free contacts Normally energized (fail-safe) 5A@230V AC 5A@30V DC
Auxiliary voltage	110/220/415 VAC 50 Hz
Mounting	Din type (Fixing on 35 mm Din Channel)
Operating Temp	-5°C to +55°C
Dimensions in mm	75×95×75mm(L×H×D)

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TAP POSITION INDICATOR
(TPI)-005

FEATURES:

- Seven segment digital display
- ON/OFF switch with lamp indication provided for power supply status
- Potentiometer provision for trimming to compensate the lead resistance
- Panel mounting with aesthetic value
- Robust &Rugged i.e., suitable for industrial environment
- High degree of accuracy & consistent reliability

APPLICATIONS:

- OLTC panel to indicate tap position

SPECIFICATIONS:

PARAMETER	TYPE : TPI 005
Auxiliary Voltage	85-275V AC/DC, 50 Hz
Resistance	1kΩ per step
Tel-transmitter	3 wire connection
Display	1 to 99 positions2 digit 7 segment LED display
Accuracy	Tolerance + 2%
Lead compensation	Through a potentiometer adjustment in The front fascia
Type of mounting	Panel Mounting
Operating temperature	$0^{o}C$ to $55^{o}C$
Break down voltage	2KV, between all live terminal connected together And body for 1min
Dimensions in mm	96mmx96mmx75mm (Panel cutout size:90mmx90mm+1mm)

DIGITAL METER PDM SERIES

FEATURES:

- Accuracy class 0.5/1.0
- Solid State version
- Built in transducers
- Built in Selector Switch or without selector switch
- Compact in size with Aesthetic value
- 7 segment red LED Display
- Tropicalized Design and time tested
- Low power consumption

APPLICATIONS:

- Electrical Distribution Control & Relay Panel
- Power Control Center
- Motor Control Center
- Generator Control Panels
- Test Benches and Laboratory Equipments
- Wind Energy and Co-Generation Plants
- Air Conditioning/Refrigeration Plants

KW and PF METER

PARAMETER	KW METER		KW & PF METER	
	NOMINAL	RANGE	NOMINAL	RANGE
Aux. Supply Voltage (AC)	110V 230V	80-130V 160-300V	110V 230V	80-130V 160-300V
Sensing CT	5.0 A 1.0 A	0.25-6.0A 0.05-1.2A	5.0 A 1.0 A	0.25-6.0A 0.05-1.2A
Sensing Input Voltage Three PH.3W	415V	300-500V	415V	300-500V
Power Factor Range	—	—	0.5 lag-uPF-0.5lead	
Full Scale Reading	3.59KWxMF or 999KW(direct reading)		0.99lag or lead	
Accuracy	Acc. class 1.0(±(1%of full scale reading+ 1count)		Acc. class 1.0(±(1%of full scale reading+ 1count)	
Burden	0.26VA max/phase (Voltage / Current Input) 3VA max on Aux. supply		0.26VA max/phase (Voltage / Current Input) 3VA max on Aux. Supply	
Operating Temp	-5º to + 55ºC		-5º to + 55ºC	
Mounting	Flush		Flush	
Dimensions (in MM)	96 x 96 x 120		96 x 96 x 120	
Panel Cutout	90x90+.1mm		90x90+.1mm	
Also Available In Dimensions	144 x 144 x 95		144 x 144 x 95	
Panel Cut Out	137x137+.1mm		137x137+.1mm	

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DIGITAL METER PDM SERIES

TECHNICAL SPECIFICATION: VOLTMETER, AMMETER & FREQUENCY METER

DESCRIPTION	AMMETER		VOLTMETER		FREQUENCY METER	
	NOMINAL	RANGE	NOMINAL	RANGE	NOMINAL	RANGE
Aux. Supply Voltage AC	110V 230V	80-130 V 160-300V	110V 230	80-130V 160-300V	110V 230V	80-130 V 160-300V
Sensing CT	5.0 A 1.0 A	0.25-6.0A 0.05-1.2A	— —	— —	— —	— —
Sensing Input Voltage Single Phase/ Three Phase 3 Wire/4Wire AC	— — — —	— — — —	230.0 63.5V 110V 415V	160-300V 50-76V 80-130V 300-500V	— — — —	— — — —
Sensing frequency Input	—	—	—	—	50 Hz	20Hz-99.99Hz
Accuracy	Acc. class 1.0(±(0.1%of full scale reading+1count)		Acc. class 1.0(±(0.1%of full scale reading+1count)		Acc. class 1.0(±(0.1%of full scale reading+1count)	
Burden	0.25VA max/Phase (Voltage/Current Input) 3.0VA max on Aux. Supply		0.25VA max/Phase (Voltage/Current Input) 3.0VA max on Aux. Supply		3VA max on Aux. Supply	
Operating Temperature	-5° to +55 °C		-5° to +55 °C		-5° to +55 °C	
Mounting	Flush		Flush		Flush	
Dimensions in mm	96x96x70		96x96x70		96x96x70	
Panel Cutout Size	90x90+.1mm		90x90+.1mm		90x90+1mm	
Dimension Also available	144 X 144 X 95mm		144 X 144 X 95mm		144 X 144 X 95mm	
Panel Cutout Size	137x137+0.1mm		137x137+0.1mm		137x137+0.1mm	

THREE PHASE ENERGY METER
-COUNTER TYPE

FEATURES:

- Accuracy class 1.0
- Confirms to IEC 62052-11, 62053-21
- Compact size & ideal for industrial environment
- Accurate, reading for balanced and unbalanced loads
- Gives tamper indication
- Accurate under rapid current fluctuation
- No mechanical ware and tare
- Accurate, reliable and tropicalized design
- No auxiliary supply is essential

APPLICATION:

- Electrical panels - HT and LT panels
- Generator Panel and captive power plant
- Furnaces and Ovens
- Special OEM application
- Test benches and laboratory equipments

SPECIFICATIONS:

MODEL NO AND WIRING	PDM9022 – 3Ph. 4 – Wire, PDM 9022A – 3Ph. 3 – Wire, PDM 9022 1P (1Phase)
Accuracy Class	Class 1.0
Frequency	50Hz ± 5%
Display	5 + 1 digit
System Voltage	415VAC/110VAC
Operating Voltage	-40% to 20% of phase to neutral voltage
Phase Reversal Indication	By glowing of red LED
Aux. Voltage	Self powered from input voltage
Operating Temp. Range	-5°C to +55°C
Power Consumption	Less than a watt / phase
Ct - Ratio Selection	Fixed i.e. Used specified
Mounting	Flush mounting
Dimension in mm	96 x 96 x 70mm
Impulses/KWHR	1600

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THREE PHASE ENERGY METER
-LCD TYPE

FEATURES:

- True RMS Measurements
- Accuracy class 1.0
- Continuous display of the measured-Kwh
- User selectable CT-ratio
- Confirms to IEC 62052-11, 62053-21
- Compact size & ideal for industrial environment
- Accurate, reading for balanced and unbalanced loads
- 2 line 16 character backlit LCD display
- MODBUS protocol-RS485 (optional)
- Gives tamper indication
- Accurate under rapid current fluctuation
- Direct reading up to 100A (No external CT required) (optional)
- No mechanical wear and tare
- Accurate, reliable and tropicalized design

APPLICATION:

- Electrical panels - HT and LT panels
- Generator Panel and captive power plant
- Furnaces and Ovens
- Special OEM application
- Test benches and laboratory equipment

INTRODUCTION:

Prokdv's make PDM-series is the State-of –the-art Three Phase Energy meter. It uses state of the art technology. All measurements fall within the accuracy class of 1.0 the design incorporates anti tamper proof features, which make the meter dependable in field use. Satisfactory operation is guaranteed in the frequency range of 50Hz ±5%.CT ratio are field programmable. The design is tropicalized and rugged.

SPECIFICATIONS:

MODEL NO.	PDM-9023-3P 4W, PDM-9023RS-3 Ph 4wire with RS-485 PORT, PDM-9023-1Ø.
Accuracy Class	Class 1.0
Frequency	50Hz ± 5%
Display	6 + 1 digit
System Voltage	415VAC
Operating Voltage	60% to 120% of phase to neutral voltage
Phase Reversal Indication	By glowing of red LED
Aux. Voltage	85-275V AC/DC 50/60Hz
Operating Temp. Range	-5°C to +55°C
Power Consumption	Less than a watt / phase
Ct - Ratio Selection	Fixed selectable(5/5 to 3000/5) and (1/1 to 600/1)
Mounting	Flush mounting
Dimension in mm	96 x 96 x 75mm
Cutout in mm	90x90+1mm

ENERGY METER WITH POWER MONITOR

FEATURES:

- True RMS measurements
- Accuracy class 1.0
- 2–Line, 16 Char back lit LCD display
- Display parameters:
  1. EB and DG Energy (6.3 format)
  2. Line voltages (Vr, Vy, and Vb with respect to Neutral)
  3. Line currents (Ir, Iy, and Ib)
  4. Line Frequency.
  5. Average power factor lag or lead
  6. Active power- R ph, Y ph, B ph & summation
  7. EB and DG ON
- LED Indications:
  1. Presence of phases (R, Y, B)
  2. Reverse polarity
- Confirms to IS-13779/ IEC-62052-11& IEC-62053-21
- CT ratio- selectable from 5/5 to 3000/5
- RS485 PORT – Modbus protocol
- Direct reading up to 100A(No external CT required) Compact and ideal for industrial environment

APPLICATION:

- Electrical Panels- HT & LT panels
- Generator Panel and Capacitive power plant
- OEM application
- Test benches and laboratory equipment.

ADRESS	DESCRIPTION	ADRESS	ADRESS
0001	Single/Dual kWh	Unsigned Int	1= single 2=Dual
0002	CT -type	Unsigned Int	1=/1, 5=/5
0003	CT -ratio	Unsigned Int	
0004	Phase R- VRMS	Unsigned Int	
0005	Phase Y- VRMS	Unsigned Int	
0006	Phase B- VRMS	Unsigned Int	
0007	Phase R- IRMS	float	
0009	Phase Y- IRMS	float	
0011	Phase B-IRMS	float	
0013	Frequency	float	
0015	EB- Energy	float	Format 6.3
0017	DG- Energy	float	Format 6.3
0019	pf	float	
0021	Reactive power sign	Unsigned Int	0= lag 1=lead
0022	Phase R - kW	float	
0024	Phase Y - kW	float	
0026	Phase B - kW	float	
0028	Total- kW	float	
0030	EB On Hour	float	
0032	DG On Hour	float	

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ENERGY METER WITH POWER MONITOR

SPECIFICATIONS:

PARAMETER	TECHNICAL SPECIFICATIONS
System Voltage	415V line to line [same as 3x240 V P-N]
Current	5A through CT
Frequency	50Hz ±5%
Starting Current In Phase	0.2% of Ib
No Load Test	At 80% Vref&120% Vref
Accuracy (Active) Accuracy (Current) Accuracy (Voltage)	Class 1.0 2% to 120% of nominal 80% to 120% of nominal
Display	2 Line back-lit 16 characters LCD Display
Displayed Parameters a. Current [IR, IY & IB] b. Voltage [L-N] c. Frequency d. Power Factor e. Kilo Watt f. Kilo Watt Hour g. Cumulative KWH	 EB or DG EB or DG EB or DG EB or DG EB or DG EB or DG EB or DG
Software & Communication	Rs485 communication port with MODBUS PROTOCOL(optional)
Memory	Non volatile memory independent of battery backup
Field Confirurable	CT Ratios
Calibration	Software
Dimensions	Flush mount black ABS case with a 96x96x70mm(WxHxD)
Specifications Measurements Auxiliary Supply Frequency System Voltage Reverse Polarity Ct Ration-field Programmable	 4 Quadrant True RMS value 85-275 V AC/DC 50Hz +/- 5% 415 V AC/110 V AC Indication by red LED a)Direct reading upto 40Amps (CT mounted in the unit) b)5/5 to 3000/5 in steps of 5 field selectable
Temperature	-5 ^{0}C to +55 ^{0}C
Power Consumption	Less than 1Watt/Phase
Models	PDM9023 PM, 3Ph. 4W, PDM9023 PM with Rs.485 port 3Ph.4W

Note: 1. Energy meter reading Overflows after recording- 999999.999 KWH
2. Energy EB ON Hour / DG ON Hour reading Overflows after recording- 99999.59 H

THREE PHASE ENERGY METER
-DUAL

FEATURES:

- Records energy from two sources
- True RMS Measurements
- Accuracy class 1.0
- Continuous display of the measured-KWH
- User selectable CT-ratio
- Confirms to IEC 62052-11, 62053-21
- Compact size & ideal for industrial environment
- Accurate, reading for balanced and unbalanced loads
- 2 line 16 character backlit LCD display
- MODBUS protocol-RS485 (Optional)
- Gives tamper indication
- Accurate under rapid current fluctuation
- Direct reading up to 100A(No external CT required)(optional)
- No mechanical wear and tare
- Accurate, reliable and tropicalized design
- Energy recorded from either sources can be read at any instant of time

APPLICATION:

- Electrical panels - HT and LT panels
- Generator Panel and captive power plant
- Furnaces and Ovens
- Special OEM application
- Test benches and laboratory equipment

SPECIFICATIONS:

MODEL NO.	PDM9025-3 Ph.4wire, PDM9025RS-3 Ph. 4wire.
Accuracy Class	Class 1.0
Frequency	50Hz ± 5%
Display	6 + 1 digit
System Voltage	415VAC
Operating Voltage	60% to 120% of phase to neutral voltage
Phase Reversal Indication	By glowing of red LED
Aux. Voltage	85-275V AC/DC 50/60Hz
Operating Temp. Range	-5°C to +55°C
CT –ratio Range /5A & /1A	5/5A …. 3000/5A direct reading 1/1A……600/1A direct reading
Power Consumption	Less than a watt / phase
CT - Ratio Selection	Fixed selectable
Mounting	Flush mounting
Dimension in mm	96 x 96 x 75mm
Cutout in mm	90x90+1mm

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DUAL ENERGY METER WITH POWER MONITOR

FEATURES:

- True RMS measurements
- Accuracy class 1.0
- 2–Line, 16 Character back-lit LCD display
- **Display parameters:**
  1. E.B or DG Energy (6.3 format)
  2. Line voltages (Vr, Vy, and Vb with respect to Neutral)
  3. Line currents (Ir, Iy, and Ib)
  4. Line Frequency.
  5. Average power factor lag or lead
  6. Active power- R ph, Y ph, B ph & summation
  7. EB or DG ON hours
- **LED Indications:**
  1. Presence of phases (R, Y, B)
  2. Reverse polarity
- Confirms to IS-13779/ IEC-62052-11& IEC-62053-21
- CT ratio- selectable from 5/5 to 3000/5
- RS485 PORT – Modbus protocol (optional)
- Direct reading upto 100A(No external CT required) (optional)
- Compact and ideal for industrial environment

APPLICATION:

- Electrical Panels- HT & LT panels
- Generator Panel and Capacitive power plant
- OEM application
- Test benches and laboratory equipment.

MOD-BUS address:

ADDRESS	DESCRIPTION	DATA TYPE	CT TYPE
0001	Single/Dual kWh	Unsigned Int	1= single 2=Dual
0002	CT -type	Unsigned Int	1=/1, 5=/5
0003	CT -ratio	Unsigned Int	-
0004	Phase R- VRMS	Unsigned Int	-
0005	Phase Y- VRMS	Unsigned Int	-
0006	Phase B- VRMS	Unsigned Int	-
0007	Phase R- IRMS	float	-
0009	Phase Y- IRMS	float	-
0011	Phase B- IRMS	float	-
0013	Frequency	float	-
0015	EB- Energy	float	Format 6.3
0017	DG- Energy	float	Format 6.3
0019	pf	float	-
0021	Reactive power sign	Unsigned Int	0= lag 1=lead
0022	Phase R - kW	float	-
0024	Phase Y - kW	float	-
0026	Phase B - kW	float	-
0028	Total- kW	float	-
0030	EB On Hour	float	-
0032	DG On Hour	float	-

DUAL ENERGY METER WITH POWER MONITOR

SPECIFICATIONS:

PARAMETER	TECHNICAL SPECIFICATIONS
Voltage	415V L-L
Current	Through - 5A/1A CT
Frequency	50Hz ±5%
Starting Current In Phase	0.2% of Ib
No Load Test	At 80% Vref&120% Vref
Accuracy (Active) Accuracy (Current) Accuracy (Voltage)	Class 1.0 2% to 120% of nominal 80% to 120% of nominal
Display	2 Line back-lit 16 characters LCD Display
Displayed Parameters a. Current [IR, IY & IB] b. Voltage [L-N] c. Frequency d. Power Factor e. Kilo Watt f. Kilo Watt Hour g. Cumulative KWH h. DG Run Hours I. EB Run Hours	 Both on EB or DG Both on EB or DG Both on EB or DG Both on EB or DG Both on EB or DG Both on EB or DG Both on EB or DG Both on EB or DG
Software & Communication	Rs485 Serial communication port with MODBUS RTU Protocol
Memory	Non volatile memory independent of battery backup
Field Confirurable CT Ratios	Field Configurable -5/5 to 3000/5 insteps of 5 Direct reading 100A (No External Ct required) (Optional)
Calibration	Software
Dimensions	Flush mount black ABS case with a 96x96x70mm(WxHxD)
Specifications Measurements Auxiliary Supply Frequency System Voltage Reverse Polarity Ct Ration-field Programmable	 4 Quadrant True RMS value 85-275 V AC/DC 50Hz +/- 5% 415 V AC/110 V AC Indication by red LED a)Direct reading upto 40Amps (CT mounted in the unit) b)5/5 to 3000/5 in steps of 5 field selectable
Temperature	-5 °C to +55 °C
Power Consumption	Less than 1W/Phase
Models	PDM9025-3Ph.4W

Note: 1. Energy meter reading Overflows after recording- 999999.999 KWH
2. Energy EB ON Hour / DG ON Hour reading Overflows after recording- 99999.59 H

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VAF METER

FEATURES:

- Accuracy Class 1.0
- Microcontroller based.
- 3-Line 4 digit LED Seven Segment display.
- Parameters measured Voltage, Current and Frequency.
- Communication through MODBUS protocol RS485 Port (Optional).
- Easy programmability through keypads.
- Field Programmable CT and PT ratios.
- Auto scaling of Kilo LED.
- Wide operating range of auxiliary supply, 85-275V AC/DC 50/60Hz.
- Compact in size.
- Tropicalized Design & Time Tested.
- Low power consumption
- Continuous display of Line Voltage, Phase Voltage, Three Phase Currents and system Frequency.

APPLICATIONS:

- Electrical Distribution Control & Relay Panel.
- Power Control Centre's.
- Motor Control Panels & Genset Panels.
- Test Benches & Laboratory Equipments.
- Wind Energy & Co-Generation Plants.
- Air Conditioning / Refrigeration Plants.

SPECIFICATIONS:

PARAMETER	AMMETER		VOLTMETER		FREQUENCY METER	
	Nominal	Range			Nominal	Range
Aux Supply Voltage	85-275V AC/DC 50/60 Hz					
Sensing CT	5.0 A 1.0 A	0.25-6.0A 0.05-1.2A	–	–	–	–
Sensing Input Voltage Single Phase, Three Phase 4 Wire/3 Wire Ac	–	–	3 Ph 4 Wire 415V AC 50Hz 3 Ph 3 Wire 110V AC 50Hz		–	–
Sensing Frequency Input	–	–	–	–	50Hz	40 - 60Hz
Accuracy	Acc. class 1.0 ±(1.0%of full scale reading+1count)					
Burden	0.25VA max/Phase (Voltage/Current Input) 3.0VA max on Aux. Supply		0.25VA max/Phase (Voltage/Current Input) 3.0VA max on Aux. Supply		3.0VA max on Aux. Supply	
CT Ratio	CT Secondary 1A or 5A, Site Selectable, CT Ratio For 1A-1A to 1000A in steps of 5A For 5A-5A to 1000A in Steps of 5A & 1025 to 5000A in steps of 25A					
PT Ratio			PT Secondary -110V / 415V, Site selectable, PT Ratio for 110V-660,0 V ,1100V, 3300V, 6600V, 11.00KV, 22.00KV, 33.00 KV, 66.00KV,110.0KV, 220.0KV			
Operating Temperature Range	-5°C to 55°C					
Humidity	<95% RH Non condensing					
Mounting	FLUSH					
Dimensions in mm	96 X 96X75mm					
Panel cut out size in mm	90mmX90mm + 1 mm					
Models	Volt Meter ----------> PDM 9130A, Ammeter ----------> PDM 9131A, Frequency Meter ------> PDM 9132A, VAF Meter ----------> PDM 9133A					

HV 2KV with respect to all live parts together body Impulse 5KV

AUTOMATIC SOURCE CHANGEOVER WITH CURRENT LIMITER RELAY

FEATURES:

- While monitoring the Generator supply, Allows only limited load and functions asload limiter as per Desired current.
- Current sealing while monitoring the DG and EB will be factory-Set.
- Whenever the load current exceeds the preset limit, power is automatically switched- off and resets after 6sec and trips again if the overload exists, this cycle is (3Sec ON &6Sec OFF) is repeated every nine seconds. If overloading on DG persists the ACCL enterslock out mode after 5 ON & OFF cycles. The unit can be reset manually by reset switch.However tailormade units i.e., as percustomer requirement can be provided as it is a microcontroller basedunit .
- Display of each Phase Voltage, Current and Frequency in Three Phase ACCL by 2 line 16 character LCD.
- Over Voltage and Under Voltage cut-off limit for both EB and DG and is optional for 3 Phunit .
- On the resumption of the EB main supply, ACCL changes over from DG to EB and allows the full load current.
- Under and over voltage on DG side is optional in single phase contactor logic.

BENEFITS:

- Microcontroller based, hence precise and accurate
- It measures load current – true RMS
- Over Voltage and Under Voltage cut-off for EB and DG(optional)
- Significant saving on wall space and wiring.
- In Single Phase ACCL during the event of change over from DG to EB the neutral is first isolated, then the phase is isolated.
- Tropicalized and Rugged design.
- Three Phase AUTOMATIC SOURCE CHANGEOVER WITH CURRENT LIMITER (ACCL) are enclosed in aesthetically made powder coated sheet metal enclosures.
- Single Phase AUTOMATIC SOURCE CHANGEOVER WITH CURRENT LIMITER (ACCL) are enclosed in ABS grade Thermo plastic enclosure.
- LED indication of all operational status.
- Two line 16 Character LCD with Back-lit, Displays Voltage, Current.At any instant Mechanical inter-lock between 4 pole contactors in three phase models.
- ACCL are provided with different ON-TIME delay, so that generators are not loaded .This feature enhances the life of the generators and switchgear. Fire proof Teflon wires having very high insulations are used for the internal wiring.
- Wiring connections-using insulated feed through terminal blocks for Three Phase models.
- External control ACCL Logic for Currents greater than 100 Amps can be Tailored.

Classifications of models: 1Ø ACCL MODELS:

EB MAX CURRENT30Amps	DG CURRENT LIMITTING RANGE	DIMENSION (mm) WxHxD
1Ph EB 30A40Amps	0.5-10A –Relay Type	70x105x60 - DIN
1Ph 4A	0.5-40Amps-Contactor Type	102x180x102+1mm
		PD-1P-40A-ACCL-CNT

3Ø ACCL MODELS:

EB CURRENT	DG CURRENT LIMITTING	DIMENSION(mm)WXHXD
25A	1-25Amps	110X200X126 (MODEL-PD-3PH-25A-ACCL CNT)
32Amps & 40Amps	1-32Amps, 1-40Amps	130X200X126 (MODEL-PD-3PH-40A-ACCL-CNT)
63Amps	1-63Amps	177X225X162 (MODEL-PD-3PH-63A-ACCL-CNT)
80-100Amps	80-100Amps	290X225X164 (MODEL-PD-3PH-80A-ACCL-CNT)
More than 100Amps	LOGIC 5/5 --- 100/5	153X200X77 (3PH-WDLL-ACCL>100A)

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AUTOMATIC SOURCE CHANGEOVER WITH CURRENT LIMITER RELAY

DIGITAL MICROCONTROLLER BASED AUTOMATIC SOURCE CHANGEOVER CUM / WITHCURRENT LIMITER (ACCL)

For Single Phase and Three Phase Application

SPECIFICATIONS:

SPECIFICATIONS	SINGLE PHASE ACCL	THREE PHASE ACCL
EB Input	240V AC, 50 Hz	415V AC, 50 Hz, 3Ph 4W
DG Input	240V AC, 50 Hz	415V AC, 50 Hz, 3Ph 4W
LCD Display optional	-	2 line 16 Character back-lit LCD
EB LED ON	Load on EB	Load on EB
DG LED ON	Load on DG	Load on DG
DG current limiting	0.5 to 10A relay logic 0.5 to 40A contactor logic	0.5 to 100 A
Trip LED ON	Over Load	Over Load
Trip LED Blinks	Lock Out Mode	-
Relay Contact Rating	240V AC, 30A Max Making (Resistive)	-
Reset	-	Manually Through RESET Switch on the Unit
UV/OV protection (Optional- factory set)	UV; 160V-200V OV:250-280V DG side only for contactor logic	UV:160V-200V OV:250-280V EB side only
Trip time & OFF time	Trip time ON- 3sec OFF - Time 6Sec 5 ON - OFF cycles (other timings and cycles can be provided as per customer requirement)	Trip time ON- 3sec OFF –Time 6Sec 5 ON-OFF cycles (other timings and cycles can be provided as per customer requirement)
EB current	EB Current Carrying Capacity 30A Max	EB Current Limiting as per client request
Mounting	DIN	SURFACE

DUAL SOURCE AUTO TRANSFER SWITCH (ATS)

INTRODUCTION:

Prok dv's make ATS is an electrical switch that switches a load between two sources. An Automatic Transfer Switch is installed where a backup Generator is located, in turn Generator shall provide Temporary Electrical Power in Failure / Absence of Electricity Board (EB-Source / Utility) supply.

The control capability of Transfer Switch can be AUTOMATIC or MANUAL, This is an Open transfer switch, It breaks before making transfer from one Source to the other.

APPLICATION:

Prok dv's make ATS is a terminal type Auto-Transfer Device. It is suitable for 3 Phase 4 wire or 1 Phase Dual Source / Grid with rated Voltage of 440V / 230V AC 50Hz/60Hz and rated current up to 63Amps.

In the event of failure of EB Source(Utility) it automatically changes from EB source (Utility) to Generator.

For functioning of ATS, The generator side R –phase and N – Neutral must be connected to the correspondingly marked terminal respectively.

DIRECTIONS FOR USE:

1) AUTOMATIC MODE: Set the Knob of controller to Automatic mode.
   Under this mode the unit monitors and supplies the load from EB Source (Utility Power). When EB Power fails, ATS will transfers load automatically from EB to Generator (standby power)
2) MANUAL MODE: If EB Power fails, ATS will not transfer the load automatically from EB to Generator (stand by power), the transfer from EB to Standby power has to operated MANUALLY.
3) When ATS is short circuit / over load, the MCB of ATS will protect tripping. User should set ATS to MANUAL MODE and operate the switch to dual separating brake by hand, and check the reason of trip. After trouble clearing set the controller at AUTO again to operate.
4) If ATS MODE is Changed from MANUAL to AUTO, during this,
   if two Sources i.e. EB and DG are present, Priority will be given to EB Source only.

OVER LOAD PROTECTION:

During over load, Either in EB or in DG Source, ATS will trip. The operator or user has to operate the ATS Manually and later switch it AUTOMATIC MODE.

SPECIFICATIONS:

Rated Current	0.5 to 63 Amps
Rated Voltage	240V to 415V AC
Breaking capacity	10kA – as per IEC -60898-1
Models	4 Pole and 2 Pole
Operating Temperature:	-5°C to + 70°C
Dimensions(mm):	122x220x157(HxWxD) – 4Pole 110x180x130(HxWxD) – 2Pole

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BATTERY CHARGER - PDBC SERIES

SWITCH MODE POWER SUPPLY

FEATURES:

- High efficiency
- Overload, short circuit & reverse polarity protection
- Very low load & line regulation
- Rugged, reliable and tropicalised design
- Work with natural convection cooling(No forced air cooling required)
- The operating temperature is -5° C to +55 ° C
- Input and output terminations and LED indications

ADDITIONAL PROTECTION AT THE INPUT:

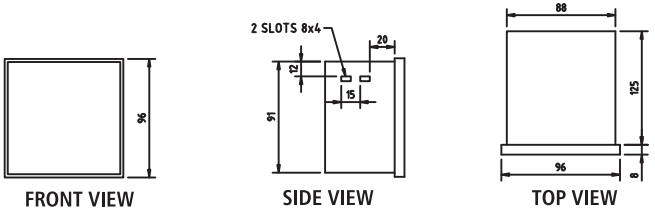
- Fuse (Slow Blow)
- Inrush current limit through NTC thermistor
- Transient / Surge voltage protection through MOV
- Common mode filter for EMI / EMC
- Forced cooling to reduce MOSFET temperature
- Potential free contact for input failure and output failure 5A @ 230V AC
- LED indications represent float and boost mode, fast blink represents boost mode and slow blink represents float mode

MODELS:

INPUT VOLTAGE	VOLTAGE AND CURRENT RATING	DIMENSIONS MM (WXHXD)
230V AC +/- 10%	24V, 20A	220X167X95
230V AC+/- 10%	24V,10A	195X168X95
230V AC +/- 10%	12V,10A	190X114X75
230V AC +/- 10%	12V,20A	245X180X96

MOUNTING: FLUSH

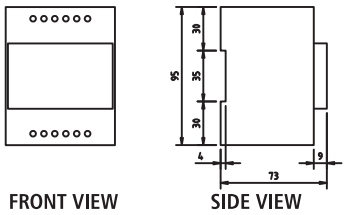
For : Microprocessor Based & Solid State Protection Relays & Digital Panel Meters



FRONT VIEW SIDE VIEW TOP VIEW

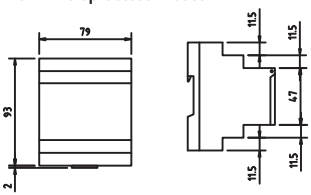
MOUNTING: DIN

For : Solid State Relays

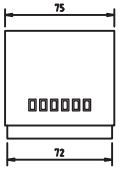


FRONT VIEW SIDE VIEW

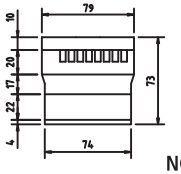
For : Microprocessor Based



FRONT VIEW SIDE VIEW



TOP VIEW

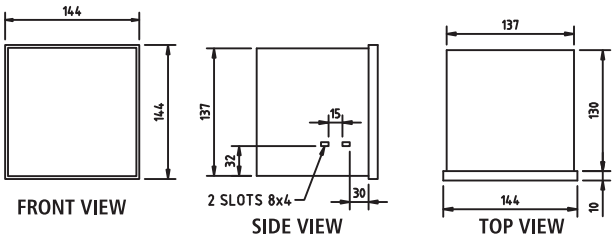


TOP VIEW

NOTE: ALL DIMENSIONS ARE IN MM
TOLERANCE:-±1MM

MOUNTING: FLUSH

For : Microprocessor Based VOLTAGE RELAYS [LVM Series] , INTELLEGENT POWER FACTOR CORRECTION RELAY, REVERSE POWER RELAY & DIGITAL METERS [144 x 144 mm]

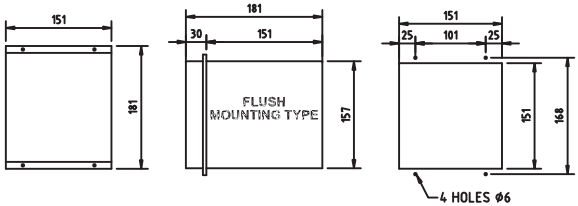


FRONT VIEW SIDE VIEW TOP VIEW

NOTE: ALL DIMENSIONS ARE IN MM TOLERANCE:-±1MM

MOUNTING: FLUSH

For : NUMERICAL OVER CURRENT & EARTH FAULT RELAY PNA Series



NOTE: ALL DIMENSIONS ARE IN MM
TOLERANCE:-±1MM

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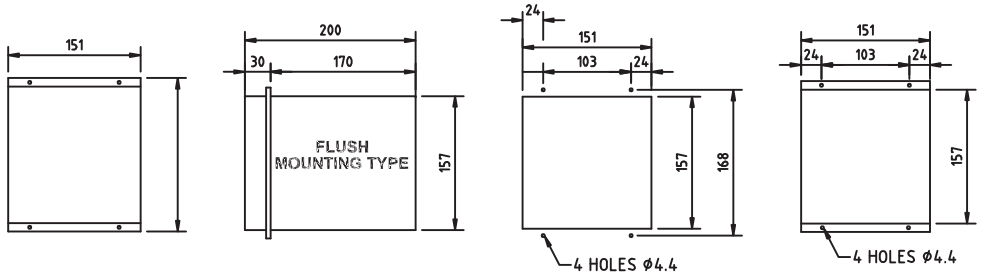
DIMENSIONAL DRAWINGS

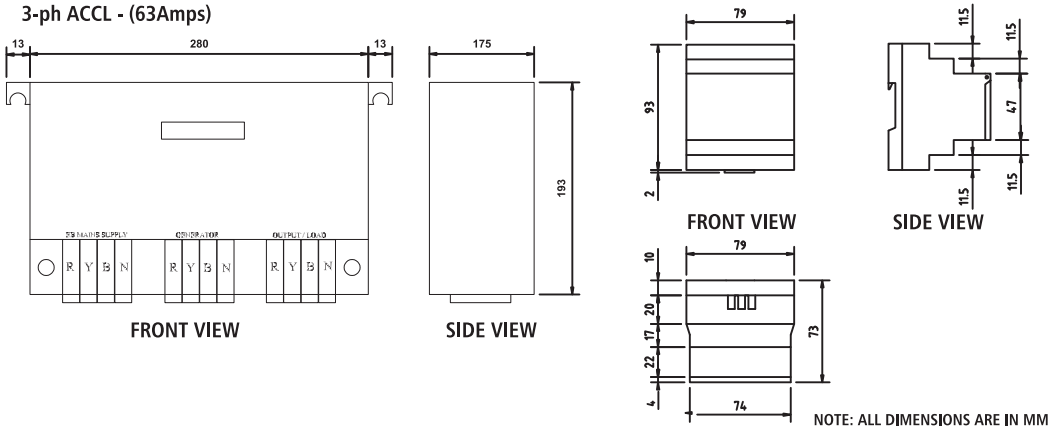
MOUNTING: FLUSH

For : NUMERICAL OVER VOLTAGE & UNDER VOLTAGE RELAY PNV NSP Series



For : AUTO SOURCE CHANGE OVER CUM CURRENT LIMITER [ACCL]

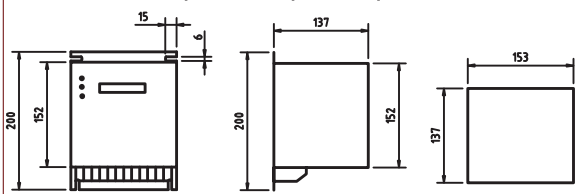
3-ph ACCL - (63Amps)



FRONT VIEW SIDE VIEW FRONT VIEW SIDE VIEW TOP VIEW

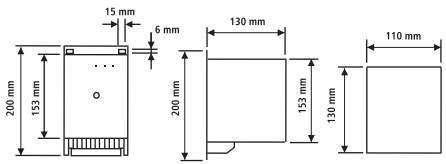
NOTE: ALL DIMENSIONS ARE IN MM
TOLERANCE:-±1MM

3-ph ACCL - (upto 40Amps)



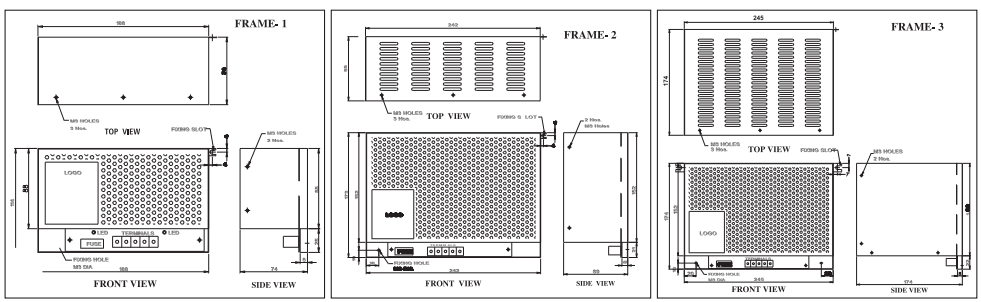
FRONT VIEW SIDE VIEW TOP VIEW

DIMENSIONS
3PHASE ACCL - UP TO 40A WITHOUT DISPLAY



FRONT VIEW SIDE VIEW TOP VIEW

For : SMPS / BATTERY CHARGERS



Note: Our policy is continuous design & development and accordingly the features and dimensions of our products may change any time.

SOME IMPORTANT CLIENT LIST

- LARSEN AND TOUBRO LTD
- SIEMENS LTD
- GE POWER CONTROLS
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- CONTROLS AND SWITCH GEARS COMPANY LTD
- SCHNIDER ELECTRIC COMPANY
- RELIANCE GROUP OF COMPANIES
- INFOSYS
- MANYATA TECH PARK
- BAGMANE GROUP OF COMPANIES
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- ITC GROUP OF COMPANIES
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- JSW
- BHEL
- WESTERN COAL FIELDS LTD
- SINGARENI COLLIERS LTD
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UCIL

JSW

BHILAI STEEL

COAL FIELDS/COLLERIES

TATA POWER

VEDANTA GROUP

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AUTHORISED DISTRIBUTOR

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