

# Installation and Operating Instruction

## ACDC Surge Protectors Type - PI (780; 7100; 7125; 7200) 3/3 - M - RS

NINE (9) STAGES SERIES PROTECTOR 1/1 & 3/3

Single Phase & Three Phase CLASS I+II+III

Hard Wire Installation - Modular System

- Cascade bi-directional EMI-RFI filtering of phase (L), neutral (N) and ground (GND) wire
- Indication for bad grounding, remote alarm



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## Mounting of ACDC Surge Protectors

ACDC Surge Protectors Type-PI 3/3 - M - Red Series have to be installed at ENTRY POINT before the Main Power Distribution Boards (MDB) or internal Sub Distribution Boards (SDB) or right in front of the input power to the device that should be protected. The ACDC Surge Protector could be install in series or parallel configuration depending of total load per phase ( $>100A$ ).

- If the load per phase is  $<100A$  the ACDC Surge Protector have to be installed in SERIES configuration.
- If the load per phase is  $>100A$  the ACDC Surge Protector must be installed in PARALLEL configuration.

**⚠** If the the load per phase is  $<100A$ , our RECOMMENDATION is to install the surge protector in SERIES configuration because only in this state your electrical devices will be fully protected.

**⚠** If the total load per phase is  $>100A$  and ACDC Surge Protector is installed in PARALLEL configuration our RECOMMENDATION is to install another ACDC Surge Protector in SERIES configuration ( before Sub Distribution Board), downstream power grid where the load per phase drops bellow 100A,

**⚠ CAUTION** Only in SERIES configuration all nine (9) protection stages are in function.

### Condition for Installations:

- provides adequate electrical and safety protection
- Prevents the ingress of moisture and water
- Allows operating diagnostic status to be inspected

### Mounting:

ACDC Surge Protectors are designed to fixed to the wall with screws.

### Terminal and Wire size:

Each terminal is designed to accept wire sizes from 4mm<sup>2</sup> to 25mm<sup>2</sup> solid or stranded conductor. The wire insulation should be stripped back 8mm

**⚠ DANGER** THIS UNIT SHOULD BE INSTALLED AND SERVICED ONLY BY QUALIFIED PERSONNEL.

Before installing the ACDC Surge Protector, AC power must be OFF.

### During the installation please check:

1. The voltage of the ACDC Surge Protector matches actual system voltage.
2. All conductors are in accordance with the appropriate installation drawings.

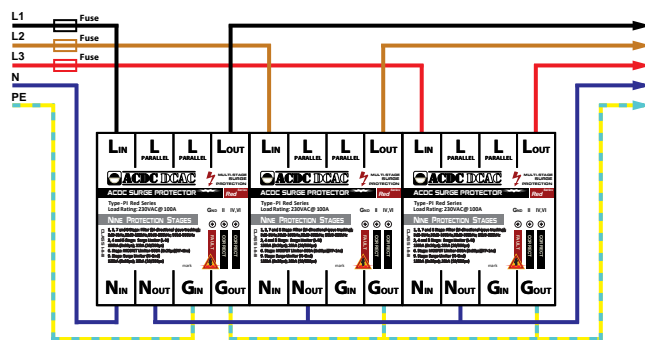
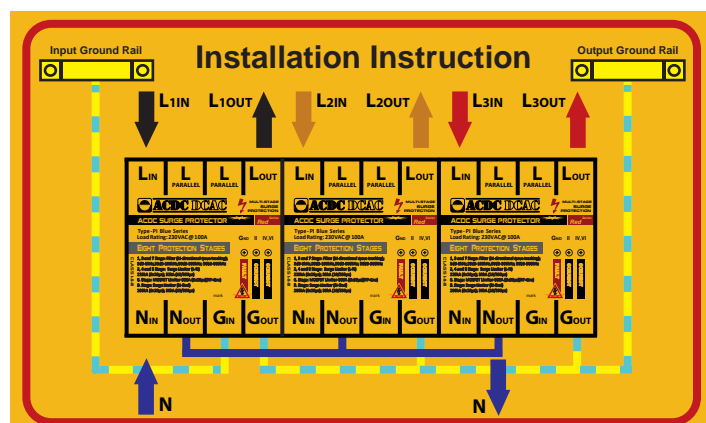
**⚠ CAUTION** CORRECT INSTALLATION - THE LIGHTS GREEN AND YELLOW ARE LIT

**⚠ CAUTION** TROUBLESHOOTING - IF THE RED LED IS BLINKING THE GROUND WIRE IS NOT CONNECTED OR THE GROUND OF THE POWER GRID SYSTEM IN NOT WELL PERFORMED

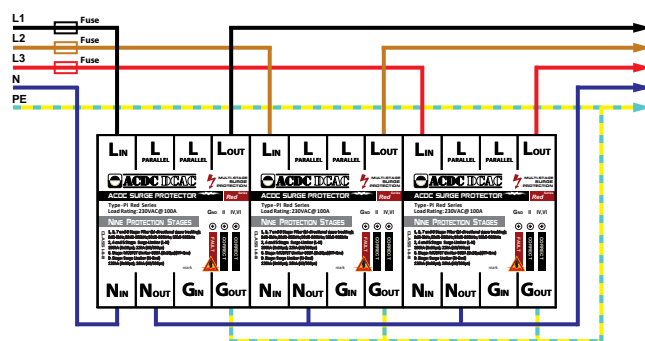
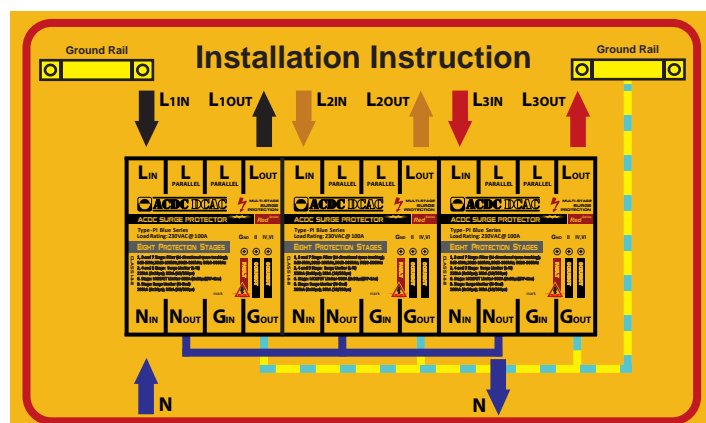
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- The model could be installed in series configuration with or without ground filtering or in parallel configuration

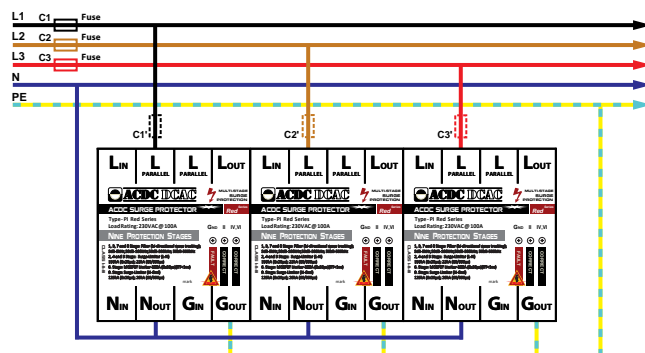
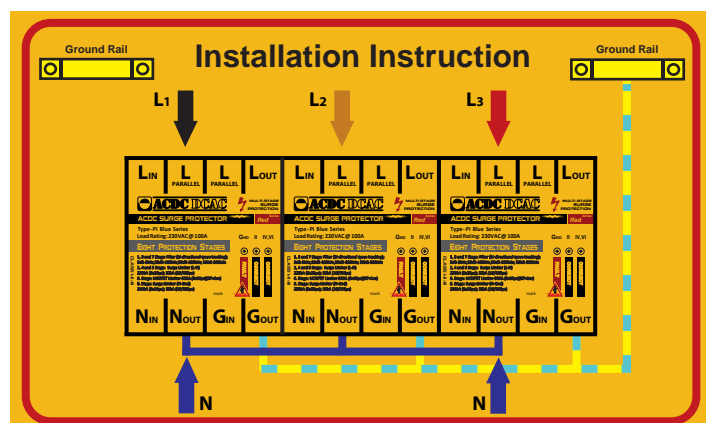
#### - SERIES - Three Phase Installation with phase (L), neutral (N) and ground (GND) filtering



#### - SERIES - Three Phase Installation with phase (L) and neutral (N) and without ground filtering



#### - PARALLEL - Three Phase Installation (for current > 100A per phase)



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- The Surge Protectors are installed in Metal Distribution board with degree of protection IP54

### **DANGER**

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH













### **CAUTION**

- This equipment must only be installed and serviced by qualified electrical personnel.
- Turn off all power supplying this equipment before working on or inside equipment.
- During installation into an electrical system, it must not be energized until completely inspection.

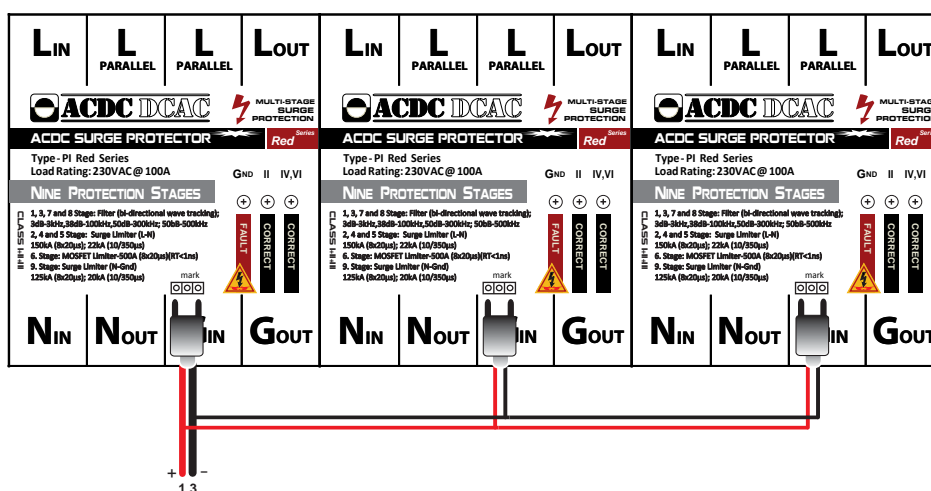
Failure to follow these instructions will result in serious injury.



## Operation Diagnostic System

| Normal:                     | Red   | Yellow  | Green   |   |
|-----------------------------|---|---|---|---|
| Continuous yellow and green |  |  |  | Led Indication for correct stage no. 2,4 and 6. The stages no. 1,3,7 and 8 (high garde bi-directional filtering) are always in function along with ultimate (5-th) protection stage.    |
| <b>Fault:</b>               |   |   |   |   |
| Continuous green            |  |  |  | Led Indication for correct stage no. 4,6 and un correct no 2. The stages no. 1,3,7 and 8 (bi-directional filtering) are always in function along with ultimate (5-th) protection stage. |
| <b>Fault:</b>               |   |   |   |   |
| Blinking red                |  |  |  | Led Indication for bed grounding (Low impedance equipotential ground is not provided)   |
| <b>Fault:</b>               |   |   |   |   |
| Continuous red              |  |  |  | Only stages 1,3,7 and 8 are still in function along with ultimate (5-th) protection stage.  |

## Connections for common contact alarm



## Free Contact Alarm

Every ACDC Surge Protector Type -PI (740; 780; 7125; 7200) Red Series have free contact alarm as basic option. The alarm is activate in two cases:

1. When some of the protection stages (2, 4 or 6) are damaged or burned and Red Led is ON. Alarm contacts 1-3 are permanently closed.
2. When the ground of the power grid system is not well performed (pour grounding). Alarm contacts 1-3 are closing with frequency of 2Hz (0,5s) Red led is blinking.

Free contacts are on the cover of the protector with contact no. 1 and 3. (see picture)

The contact is a optocoupler with maximum value of voltage 70VDC and current of 10mA. In normal condition it is open.

