

Intelligent Surge Protective Device (iSPD)

iSPD...

The PROSURGE iSPD is an intelligent and auto self-protected SPD for the single phase or multi phase power systems. It's an innovative solution for most commercial and industrial environments with critical operations, to make your surge protection smart and intelligent.

The iSPD is composed of three essential parts: surge protective device (SPD), intelligent surge & power monitor (iSPM) or Lightning/Surge event counter LEC-AT and surge circuit breaker (SCB).

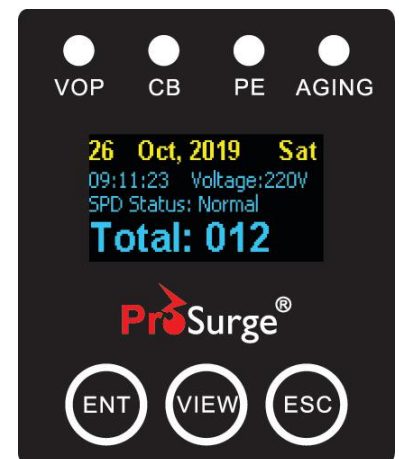


PROSURGE high performance SPDs (Class I or Class II per IEC 61643-11) of iSPD can protect sensitive equipment from the harmful transient voltage surges resulting from:

- Direct and indirect lightning strikes
- Power company load switching
- Upstream load switching at other facilities

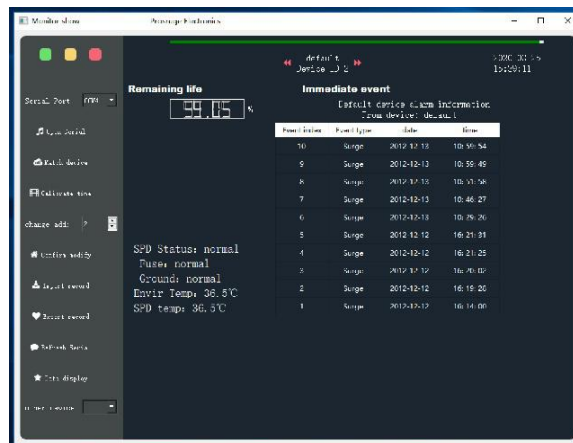
PROSURGE iSPM/LEC-AT technology makes it easy to monitor the power & lightning protecting system. This device allows end user to monitor real time power quality for SPD and Lightning/Surge event and get alarm feedback on failure and fault from power system and device self:

- SPD working status with alarm for SPD Failure, **-Model: iSPM02**
- SPD's aging with alarm while close to end-of-life of SPD, **-Model: iSPM02**
- Lightning and surge event (time-to-event, total events quantity) , **- Model: iSPM02/LEC-AT**
- Buzzer alarm when the number of surge events reaches a settable number, **-Model: LEC-AT**
- Backup over-current protection device working status (circuit breaker or fuse) with alarm for CB or fuse open, **-Model: iSPM02**
- Voltage on SPD in real-time, alarm for overvoltage event, **-Model: iSPM02**
- Grounding conditions of SPD with alarm for Grounding fault, **-Model: iSPM02**
- N line lost alarm (screen light off while lost, alarm by remote signal contact), **-Model: iSPM02**



User interface of iSPM-02

PROSURGE SCB provides backup over-current protection for the SPD, which is fully coordinated with the surge protective device. Comparing to normal backup circuit breaker/fuse, the integrated PROSURGE SCB achieve a better balance between surge withstand performance (no tripping while expected surge occurs) and sharp reaction against short circuit and abnormal leakage current.



Brows information on PC

The iSPD can communicate with computer or smart terminal. It can connect RS485 half-duplex MODBUS RTU protocol communication mode to the remote monitoring center, so that end user can get accurate and convenient information from PC system.

■ Typical Applications:

- Commercial
- Industrial
- Communications
- Renewable energy
- Critical power (hospitals, data centers, etc)

■ Features:

- High performance SPD inbuilt with limp 12.5kA 10/350 for Class I and In 20kA 8/20 for Class II application (based on the selected model), comply with IEC/EN 61643-1/11, UL1449 4th standards;
- Pluggable module of SPD for easy replacement
- Self protected by PROSUGE innovated Surge circuit breaker technology, SPD will never stop service in the life time and no fire risk while in the end of life
- Intelligent monitor (iSPM) helps end user to know all accurate information about power system abnormal conditions in order to take action in time.
- Surge events and system fault events logging, 999 events recording data (ISPM).
- Buzzer alarm when the number of surge events reaches a settable number(LEC-AT)
- OLED display is convenient for end user to view present or history information
- With RS485 network and Ethernet, end user can control and manage the system in short or remote distance
- Visual and audible alarm for several functions, like SPD degradation or Failure, abnormal Power system conditions, back up CB or Fuse open, Surge event counting to a pre-set alarm number etc.
- Easy installation
- IP20 enclosure to resist dirt, dust and water

■ Configure & Ordering Information:

| iSPD | -02 | /C | 320 | -PN | -SCB |
|------------------------------|---|---|-----------------------------|--|-------------------------------|
| Intelligent SPD Model series | Intelligent Surge & Power Monitor Model Series | SPD category per IEC/EN | Max. operating voltage (Uc) | SPD config | Back up Surge Circuit Breaker |
| iSPD | -02 : iSPM02 -AT : LEC-AT ... | B : Class I or T1 C : Class II or T2 | 320 :75VAC~320 VAC | 2 : Two poles(2+0) PN : Two poles(1+1) 3 : Three poles(3+0) 4 : Four poles(4+0) 3PN : Four poles(3+1) | With or without |

■ Intelligent Surge & Power Monitor choice

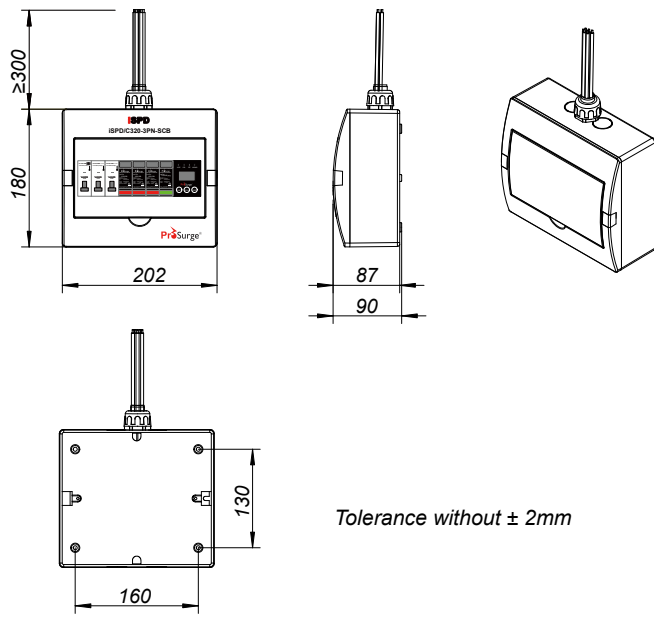
| Function | -02 | -AT |
|--|-----|-----|
| Lightning and surge event logging and (time-to-event, total events quantity) | ✓ | ✓ |
| Pre-set alarm number of surge event | | ✓ |
| SPD working status with alarm | ✓ | |
| SPD's aging with alarm | ✓ | |
| Backup over-current protection device working status with alarm | ✓ | |
| Voltage on SPD in real-time with alarm | ✓ | |
| Neutral line monitor with alarm | ✓ | |

Model: iSPD-xx/...-SCB

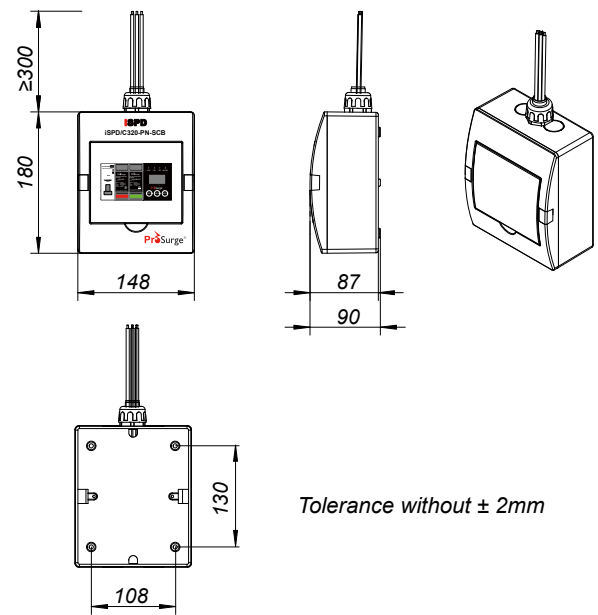
■ Technical Specification

| | | iSPD-xx/B320-PN-SCB | iSPD-xx/B320-3PN-SCB | iSPD-xx/C320-PN-SCB | iSPD-xx/C320-3PN-SCB |
|---|------------------|--|--------------------------|---------------------------|----------------------|
| SPD Specification | | | | | |
| SPD Category IEC/EN | | Class I / T1 | Class I / T1 | Class II / T2 | Class II / T2 |
| Power System | | TT/TN 1ph | TT/TN 3ph | TT/TN 1ph | TT/TN 3ph |
| System Voltage | Un | 220/380V ~ 240/415V | | | |
| Max. Continuous Operating Voltage AC | Uc | 320VAC | | | |
| Lightning Impulse Current (10/350 μ s) | Iimp | L-N: 12.5kA N-PE:25kA | L-N: 12.5kA N-PE:50kA | (blank) | (blank) |
| Nominal Discharge Current (8/20 μ s) | In | L-N: 25kA N-PE:25kA | L-N: 25kA N-PE:50kA | 20kA | 20kA |
| Max. Discharge Current (8/20 μ s) | I _{max} | 80kA | 80kA | 50kA | 50kA |
| Voltage Protection Level | Up | 1.5kV | 1.5kV | 1.5kV | 1.5kV |
| Residual Current | I _{pe} | <0.1mA | | | |
| TOV- Withstand Mode | U _{tov} | L-N:335V/5s; N-PE:1200V/200ms | | | |
| Short Circuit Current Rating | I _{sc} | 25kArms | | | |
| Response Time | T _a | ≤25 ns | | | |
| Thermal Disconnecter / Indication | | Internal red - failure | | | |
| iSPM Specification or LEC-AT (alternative) | | | | | |
| Model | | iSPM02 (iSPD-02/xxxx-SCB) | | LEC-AT (iSPD-AT/xxxx-SCB) | |
| Display Screen | | OLED screen | | | |
| Event Logging | | 999 events | | | |
| Surge Event Counting | | Counting Current ≥100A (adjustable) | | | |
| Communication Interface | | RS485 | | | |
| Indication | | Buzzer / Indicator/remote signal | | Buzzer / Indicator | |
| SCB Specification | | | | | |
| Operating Short-Circuit Breaking Capacity | I _{cs} | ≥10kA | | | |
| Trip Current | I _t | 3 ± 1A | | | |
| Trip Time | T _t | ≤40ms | | | |
| Surge Withstand Capability | I _w | Match with SPD Max. Surge current | | | |
| General Parameters | | | | | |
| Connection | | Connection in parallel | | | |
| Connecting Cable | | Power line:10-35mm ² ; Remote signal:1.5mm ² | | | |
| Operation Temperature Range | | -40 °C~+70 °C | | | |
| Humidity | | 30%~90% | | | |
| Degree Of Protection | | IP20 | | | |
| Housing Material | | UL94V0 | | | |
| Mounting | | Wall mounting | | | |
| Dimension (mm) | | 3 Phase : 200*180*87 ; 1 Phase: 148*180*87 | | | |

■ Dimensions (unit: mm)

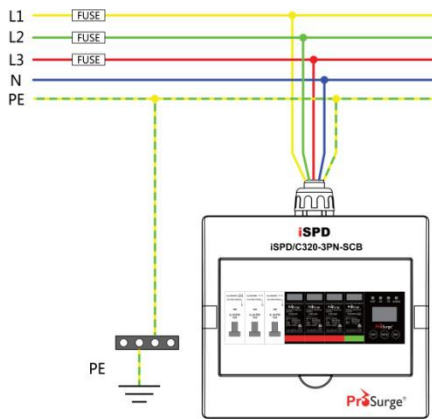


iSPD for three phase (TT/TN)

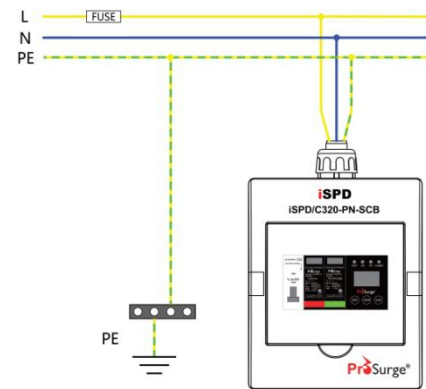


iSPD for single phase (TT/TN)

■ Typical Installation Diagram



Three phase wiring (TT/TN)



Single phase wiring (TT/TN)

■ Product pictures



iSPD for three phase



iSPD for single phase

Model: iSPD-AT/...

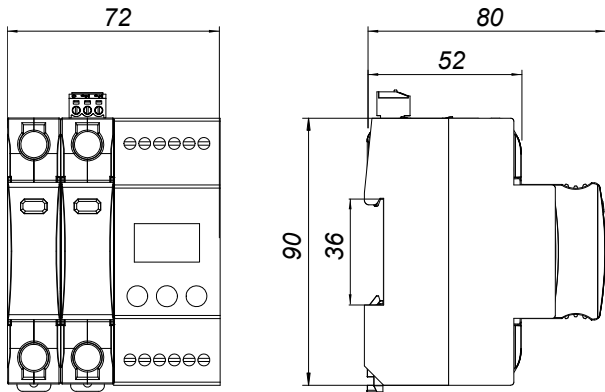
This model is composed of two essential parts: surge protective device (SPD) and Surge event counter LEC-AT, which is convenient to browse lightning and surge event information (time-to-event, total events quantity) locally or remotely.

Prosurge LEC-AT can work not only to count Lightning or surge events frequency but also to alarm when total Lightning or Surge events up to a pre-set alarm number, which is an important monitoring information for SPDs' surge life so that users can replace SPDs in time before SPDs surge service life end, to guarantee uninterrupted surge protection function in the system. Also, LEC-AT can provide convenient records review on display or output to computer in Excel form through RS485 terminal.

■ Technical Specification

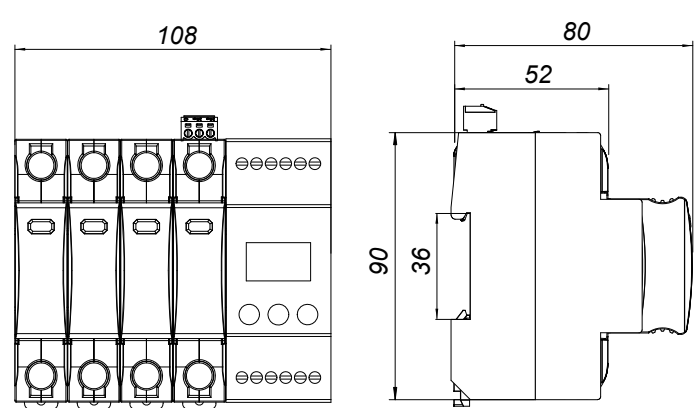
| | | iSPD-AT/B320-PN | iSPD-AT/B320-3PN | iSPD-AT/C320-PN | iSPD-AT/C320-3PN |
|---------------------------------------|------------------|--|--------------------------|-----------------|------------------|
| SPD Specification | | | | | |
| SPD Category IEC/EN | | Class I / T1 | Class I / T1 | Class II / T2 | Class II / T2 |
| Power System | | TT/TN 1ph | TT/TN 3ph | TT/TN 1ph | TT/TN 3ph |
| System Voltage | Un | 220/380V ~ 240/415V | | | |
| Max. Continuous Operating Voltage AC | Uc | 320VAC | | | |
| Lightning Impulse Current (10/350 μs) | Iimp | L-N: 12.5kA N-PE:25kA | L-N: 12.5kA N-PE:50kA | (blank) | (blank) |
| Nominal Discharge Current (8/20 μs) | In | L-N: 25kA N-PE:25kA | L-N: 25kA N-PE:50kA | 20kA | 20kA |
| Max. Discharge Current (8/20 μs) | I _{max} | 80kA | 80kA | 50kA | 50kA |
| Voltage Protection Level | Up | 1.5kV | 1.5kV | 1.5kV | 1.5kV |
| Residual Current | I _{pe} | <0.1mA | | | |
| TOV- Withstand Mode | U _{toV} | L-N:335V/5s; N-PE:1200V/200ms | | | |
| Short Circuit Current Rating | I _{sc} | 25kArms | | | |
| Response Time | T _a | ≤25 ns | | | |
| Thermal Disconnecter / Indication | | Internal red - failure | | | |
| LEC-AT specification | | | | | |
| Model | | LEC-AT | | | |
| Display Screen | | OLED screen | | | |
| Event Logging | | 999 events | | | |
| Surge Event Counting | | Counting Current ≥100A (adjustable) | | | |
| Communication Interface | | RS485 | | | |
| Indication | | Buzzer / Indicator | | | |
| General Parameters | | | | | |
| Connection | | Connection in parallel | | | |
| Connecting Cable | | Power line:10-35mm ² ; Remote signal:1.5mm ² | | | |
| Operation Temperature Range | | -40℃~+70℃ | | | |
| Humidity | | 30%~90% | | | |
| Degree Of Protection | | IP20 | | | |
| Housing Material | | UL94V0 | | | |
| Mounting | | Wall mounting | | | |
| Dimension (mm) | | Refer to dimension drawing as below | | | |

■ Dimensions (unit: mm)



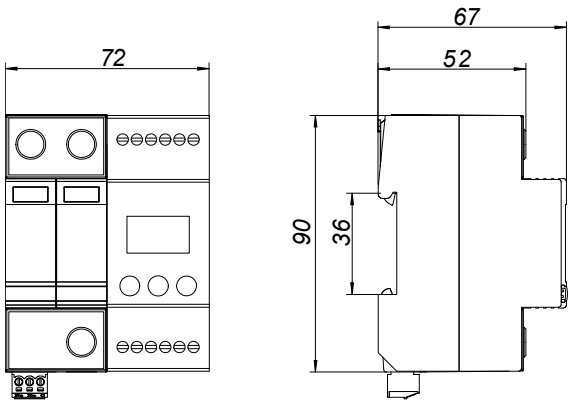
Tolerance without ± 2 mm

iSPD-AT T1/Class I for single phase (TT/TN)



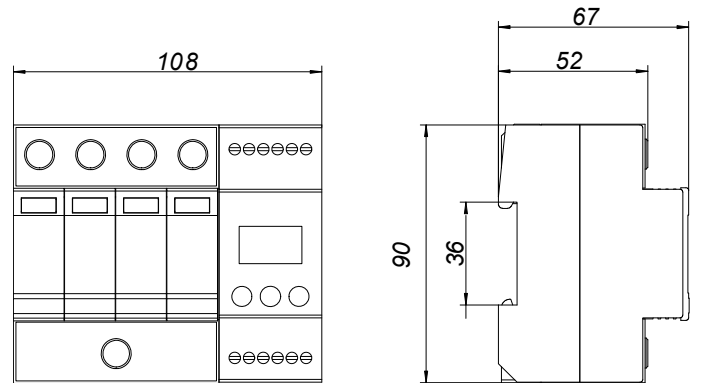
Tolerance without ± 2 mm

iSPD-AT T1/Class I for three phase (TT/TN)



Tolerance without ± 2 mm

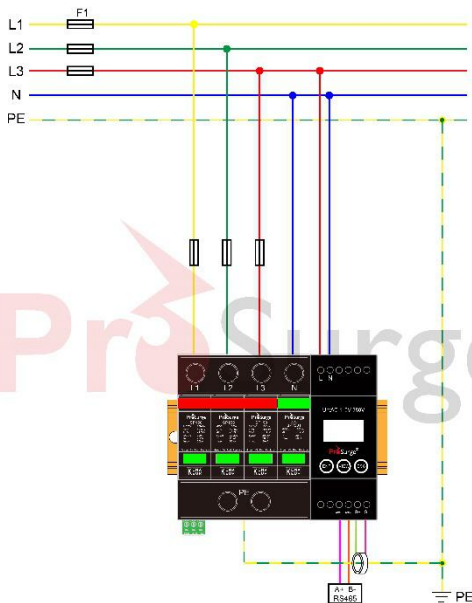
iSPD-AT T2/Class II for single phase (TT/TN)



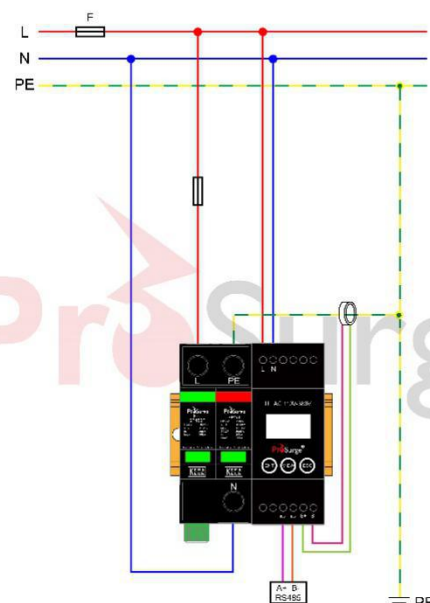
Tolerance without ± 2 mm

iSPD-AT T2/Class II for three phase (TT/TN)

■ Typical Installation Diagram



Three phase wiring (TT/TN)



Single phase wiring (TT/TN)

Model: iSPD-...-SCB

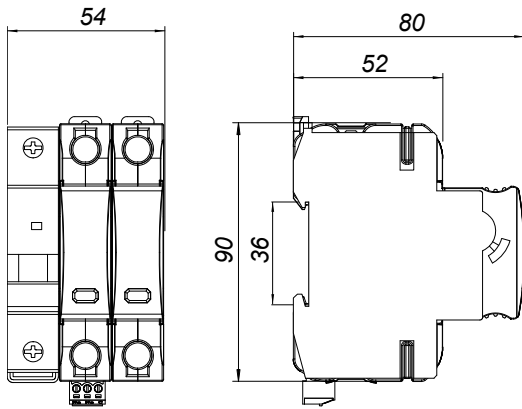
This model is composed of two essential parts: surge protective device (SPD) and surge circuit breaker (SCB). This product is pre-wired and easy to be installed as a completed unit, which is an upgraded design to replace the conventional installation assembly of the SPD and backup over-current protection devices.

PROSURGE SCB provides excellent backup over-current protection and fully coordinated with the SPD. Comparing to normal backup circuit breaker/fuse, the integrated PROSURGE SCB achieves a better balance between surge withstand performance (no tripping while expected surge occurs) and sharp reaction against short circuit and abnormal leakage current.

■ Technical Specification

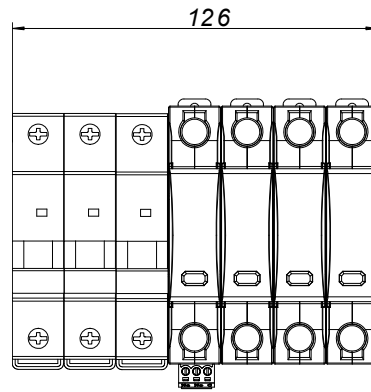
| | | iSPD-B320-PN-SCB | iSPD-B320-3PN-SCB | iSPD-C320-PN-SCB | iSPD-C320-3PN-SCB |
|--|------------------|--|--------------------------|------------------|-------------------|
| SPD Specification | | | | | |
| SPD Category IEC/EN | | Class I / T1 | Class I / T1 | Class II / T2 | Class II / T2 |
| Power System | | TT/TN 1ph | TT/TN 3ph | TT/TN 1ph | TT/TN 3ph |
| System Voltage | Un | 220/380V ~ 240/415V | | | |
| Max. Continuous Operating Voltage AC | Uc | 320VAC | | | |
| Lightning Impulse Current (10/350 μ s) | Iimp | L-N: 12.5kA N-PE:25kA | L-N: 12.5kA N-PE:50kA | (blank) | (blank) |
| Nominal Discharge Current (8/20 μ s) | In | L-N: 25kA N-PE:25kA | L-N: 25kA N-PE:50kA | 20kA | 20kA |
| Max. Discharge Current (8/20 μ s) | I _{max} | 80kA | 80kA | 50kA | 50kA |
| Voltage Protection Level | Up | 1.5kV | 1.5kV | 1.5kV | 1.5kV |
| Residual Current | I _{pe} | <0.1mA | | | |
| TOV- Withstand Mode | U _{tov} | L-N:335V/5s; N-PE:1200V/200ms | | | |
| Short Circuit Current Rating | I _{sc} | 25kArms | | | |
| Response Time | T _a | ≤25 ns | | | |
| Thermal Disconnecter / Indication | | Internal red - failure | | | |
| SCB Specification | | | | | |
| Operating Short-Circuit Breaking Capacity | I _{cs} | ≥10kA | | | |
| Trip Current | I _t | 3 ± 1A | | | |
| Trip Time | T _t | ≤40ms | | | |
| Surge Withstand Capability | I _w | Match with SPD Max. Surge current | | | |
| General Parameters | | | | | |
| Connection | | Connection in parallel | | | |
| Connecting Cable | | Power line:10-35mm ² ; Remote signal:1.5mm ² | | | |
| Operation Temperature Range | | -40℃~+70℃ | | | |
| Humidity | | 30%~90% | | | |
| Degree Of Protection | | IP20 | | | |
| Housing Material | | UL94V0 | | | |
| Mounting | | Wall mounting | | | |
| Dimension (mm) | | Refer to dimension drawing as below | | | |

■ Dimensions (unit: mm)



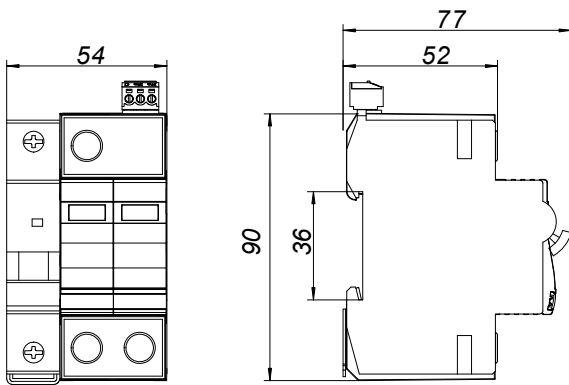
Tolerance without ± 2 mm

iSPD-SCB T1/Class I for single phase (TT/TN)



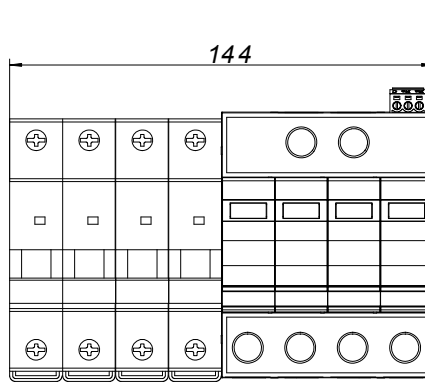
Tolerance without ± 2 mm

iSPD-SCB T1/Class I for three phase (TT/TN)



Tolerance without ± 2 mm

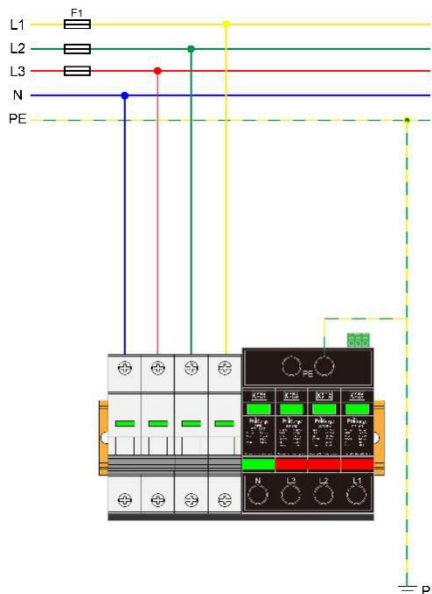
iSPD-SCB T2/Class II for single phase (TT/TN)



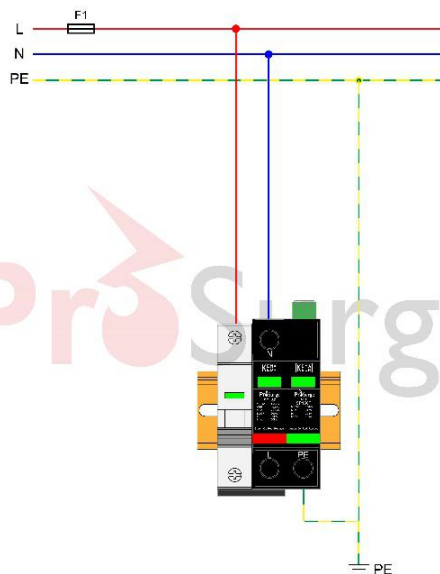
Tolerance without ± 2 mm

iSPD-SCB T2/Class II for three phase (TT/TN)

■ Typical Installation Diagram



Three phase wiring (TT/TN)



Single phase wiring (TT/TN)

(end)