

INSTALLATION, OPERATION AND MAINTENANCE MANUAL

RGMESP Series

ReliaGear® Wall Mounted Surge Protective Devices (SPD)



Guide to installation and assistance

WARNING

The SPD warranty is voided if the unit is damaged as a result of improper installation. Improper installation or misapplication may result in serious personal injury or damage to the electrical system. Read the complete installation instructions before proceeding with installation.

La garantie du SPD est annulée si l'appareil est endommagé à la suite d'une mauvaise installation. Une mauvaise installation, ou utilisation, peut entraîner des blessures graves ou des dégâts au système électrique. Lisez les instructions d'installation en intégralité avant de procéder à l'installation.

WARNING

The equipment covered by these instructions should be installed and serviced only by competent qualified personnel utilizing proper safety practices and procedures. These instructions are written for such personnel and are not intended as a substitute for adequate training and experience in safe procedures for this type of equipment.

L'équipement couvert par ces instructions doit être installé et entretenu uniquement par un personnel compétent et qualifié, utilisant des pratiques et des procédures de sécurité appropriées. Ces instructions sont rédigées à l'intention de ce personnel et ne sauraient se substituer à une formation adéquate et à une expérience des procédures de sécurité pour ce type d'équipement.

WARNING

Remove all power to the electrical panel before installing or servicing the SPD. All work must be performed by licensed and qualified personnel. Follow applicable electrical codes and regulations for the country/location in which the unit is being used.

Coupez l'alimentation du panneau électrique avant d'installer ou de procéder à l'entretien du SPD. Tous les travaux doivent être effectués par un personnel qualifié et agréé. Respectez les codes et réglementations électriques en vigueur dans le pays / lieu où l'appareil est utilisé.

WARNING

Do not HIPOT the SPD unit or the electrical system to which the SPD unit is connected without disconnecting the SPD unit's conductors, including phases, neutral and ground.

Ne procédez PAS à des ESSAIS DE RIGIDITÉ DIÉLECTRIQUE sur le SPD ou le système électrique auquel il est connecté sans déconnecter les conducteurs des SPD, y compris les phases, le neutre et la terre.

WARNING

Check to ensure that a proper bond is installed between neutral and ground at the transformer upstream from all 3-phase wye, 3-phase high-leg or 2-phase SPD devices. If the transformer is not accessible, check the main service disconnect/panel for the NG bond. Lack of a proper bond may damage the SPD and void the warranty. Failure to provide this bond, as required per article 250.30 of the National Electrical Code, can result in elevated phase-to-ground source voltage potentials. These voltages can cause damage to electrical equipment as well as safety hazards including fire, electrical shock, serious injury or death.

Vérifiez qu'une liaison correcte est installée entre le neutre et la terre au niveau du transformateur en amont de tous les SPD triphasés en étoile, triphasés en triangle ou biphasés. Si le transformateur n'est pas accessible, vérifiez la liaison NG sur le sectionneur / panneau de service principal. L'absence d'une liaison appropriée peut endommager le SPD et annuler la garantie. L'absence de cette liaison, telle que requise par l'article 250.30 du Code national de l'électricité, peut entraîner des potentiels de tension élevés entre la phase et la terre. Ces tensions peuvent causer des dégâts aux équipements électriques ainsi que des risques en matière de sécurité, notamment des incendies, des chocs électriques, des blessures graves ou la mort.

WARNING

Installation by person with electrotechnical expertise only.

WARNING!

Installation nur durch elektrotechnische Fachkraft.

AVERTISSEMENT!

Installation uniquement par des personnes qualifiées électrotechnique.

IADVERTENCIA!

La instalación deberá ser realizada únicamente por electricistas especializados.

Pre-installation requirements

The SPD warranty is void if the unit is damaged as a result of improper installation. Improper installation or misapplication may result in serious personal injury or damage to the electrical system. Read the complete instructions provided by this manual before proceeding with installation.

1. System configuration and voltage



Prior to installation, ensure the system configuration and voltage are equivalent to the SPD unit being installed. Avant l'installation, assurez-vous que la configuration et la tension du système sont équivalentes à celles du SPD en cours d'installation.

The SPD model number can be found on the UL label affixed to the SPD enclosure. The SPD selection can be verified by comparing the model number to the correct electrical system described in the "VOLTAGE RATINGS AND POWER SOURCE CONFIGURATIONS" chart.

2. System grounding and bonding

Verify that an NEC (National Electrical Code) compliant X0 bond has been made at the upstream transformer or other separately derived system that feeds the SPD. Per NEC Article 250.30, this bond must be in place on all 3-Phase WYE, 3-Phase Hi-Leg Delta and Single-Phase Split-Systems. Refer to diagram "EXAMPLE OF AN NEC COMPLIANT GROUNDING ARRANGEMENT FOR A SEPARATELY DERIVED SYSTEM" for an example of an installation that complies with these NEC recommendations.

Verify that there have not been multiple instances of neutral-to-ground bonds on the electrical system. These bonds, while either intentional or accidental, result in ground currents that can create differential voltage potentials between neutral and ground. Redundant neutral-to-ground connections can result in damage to the SPD and are in violation of the NEC.

3. SPD installation on ungrounded power systems

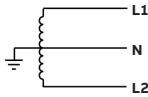
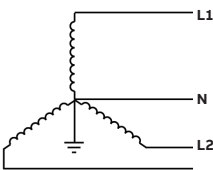
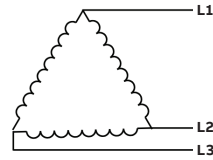
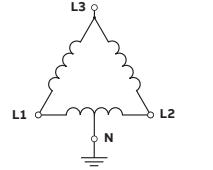
Ungrounded power systems are inherently unstable and can produce excessively high line-to-ground voltages during certain fault conditions. During these fault conditions, any electrical equipment, including an SPD, may be subjected to voltages that exceed their designed ratings. This information is being provided to the user so that an informed decision can be made before installing any electrical equipment on an ungrounded power system.

4. SPD location / primary overcurrent protection

Per the National Electrical Code (NFPA 70 Article 242, Formerly 285), Type 1 SPDs are allowed to be installed at any location, including line side of the service disconnect OCPD without restriction unless otherwise prohibited by SPD mfg instruction. Type 2 SPDs are allowed only on the load side of the service OCPD.

Pre-installation requirements

Table 1: Voltage ratings and power source configurations

Model	Nominal voltage (50/60Hz)	Maximum continuous operating voltage (MCOV)	System type	Source configuration
RGMESP120S	120/208–240 V	150 V (L-N/L-G)	Single-phase 3 wire + ground	
RGMESP120Y	120/208 V	150 V (L-N/L-G)	Three-phase WYE, 4 wire + ground	
RGMESP220Y	220/380 V	320 V (L-N/L-G)		
RGMESP240Y	240/415 V	320 V (L-N/L-G)		
RGMESP277Y	277/480 V	320 V (L-N/L-G)		
RGMESP240D	240 V	270 V (L-G)	Three-phase Delta, 3 wire	
RGMESP480D	480 V	550 V (L-G)		
RGMESP240H	120 / 240 V	150 V (L-N / L-G) Phase A & C 270 V (L-N / L-G) Phase B	Three-phase Delta Hi-Leg, 4 wire + ground	

Installation

4. Wire routing

In order to keep wire impedance to a minimum, wire lengths should be short and have straight runs. Adding necessary length or bends will increase impedance and reduce the SPD's effectiveness.

5. Circuit breaker

A dedicated circuit breaker is not required for ReliaGear models. If a dedicated branch breaker is to be used to connect the SPD to the power system, ABB recommends a 30 A or higher rated breaker.

6. Remote alarm contacts

Contacts are provided for remote alarm monitoring on the ABB ReliaGear product series, via a 3-wire pigtail (white, black, brown). This is a dry, form C, contact rated for 2 A maximum at up to 250VAC/220VDC. When the SPD is powered and detects no alarm conditions the relay will be in a "normal" state. If the SPD detects an alarm condition or if the SPD loses power, the relay will be in an "alarm" state. This remote alarm does not need to be used for normal operation of the SPD.

7. Pre-energization check

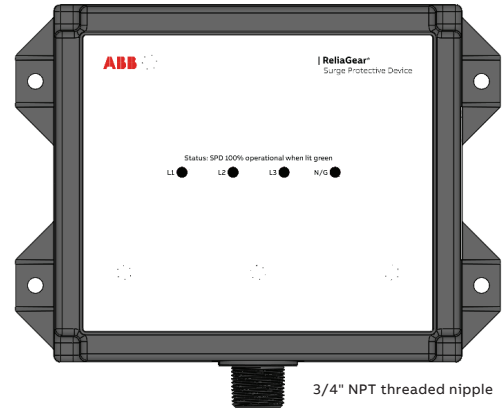
Once all of the pre-installation conditions have been met and the SPD has been installed, the SPD can now be energized. For SPD operational status, refer to Operation and Maintenance sections. models. If a dedicated branch breaker is to be used to connect the SPD to the power system, ABB recommends a 30 A or higher rated breaker.

NOTICE

Hi-Leg Delta power systems:

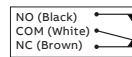
RGMESP240H SPD model types are intended for Hi-Leg Delta systems and are marked with the Phase B as the intended Hi-Leg connection point. Attempting to connect the SPD conductor to the system Hi-Leg will result in immediate SPD failure.

Power terminals and remote alarm locations



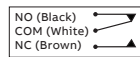
Normal status indication:

NC-COM = Closed
NO-COM = Open

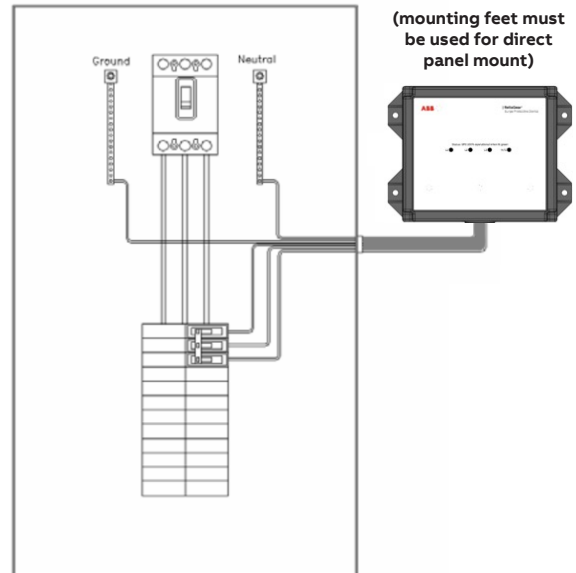


Alarm status indication:

NC-COM = Open
NO-COM = Closed



The illustration above represents the SPD in a vertical orientation. Other orientations are possible depending on the type of equipment in which the SPD is installed. The SPD features will be the same regardless of application.



Installation



Upon energization of the SPD, if any of the lamps or alarms indicate an abnormal condition, power should be disconnected promptly from the SPD. The electrical system should be inspected and the pre-installation requirements should be validated. Do not attempt to leave power applied to the SPD, or re-energize the SPD in the event of an alarm condition.

Lors de la mise sous tension du SPD, si l'une des lampes ou des alarmes indique une condition anormale, l'alimentation du SPD doit être coupée rapidement. Le système électrique doit être inspecté et les exigences de pré-installation doivent être validées. N'essayez pas de laisser le SPD sous tension, ou de le remettre sous tension en cas d'alarme.

Operation

ReliaGear surge protective devices require minimal attention after installation. ReliaGear Series SPDs contain diagnostic circuits which monitor the suppressor's status continuously and automatically. All phase LEDs and Alarm LED are located on the front of the unit.

Maintenance

ABB does not provide a specific schedule for preventative maintenance as conditions will vary based on location and the environmental factors presented at each installation site. However, periodic inspections should be scheduled to verify that the SPD does not indicate a failure mode. Inspections should also be made to check the integrity of the electrical supply connections to the SPD to ensure continued reliable performance.

The unit's heavy-duty construction is designed to provide years of uninterrupted service.

The unit contains no serviceable parts.

L'unité ne contient aucune pièce réparable.

Servicing/troubleshooting

Should a condition occur that results in premature failure of the SPD, the integral SPD suppression thermal fusing will safely interrupt current flow through the SPD without disrupting power to the protected equipment. This will remove the SPD from the power system, and the load equipment will remain unprotected from subsequent surge activity until the SPD is replaced.

If a change in operational status/alarm indication occurs, a qualified (licensed) electrician should inspect the electrical system to verify electrical system integrity. If the SPD remains in alarm after inspection/corrections have been made, the SPD should be replaced.

NOTICE

In the event of an SPD alarm condition, do not attempt to disassemble the SPD to replace fusing or other components. The SPD contains thermally protected MOVs that will only open when the SPD has failed in a non-serviceable condition. The entire SPD must be replaced.

En cas de condition d'alarme du SPD, n'essayez pas de démonter le SPD pour remplacer les fusibles ou d'autres composants. Le SPD contient des MOV protégés thermiquement qui ne s'ouvrent que lorsque le SPD tombe en panne et ne fonctionne plus. L'ensemble du SPD doit être remplacé.