

LifeGuard® Series

Protection Panels



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Device features

- For grounded and high-resistance grounded systems
- Voltage options up to 600 VAC
- Single-phase or three-phase AC systems
- Works on systems with DC components and systems with variable frequency drives (VFDs)
- Inverse time curve to help prevent nuisance tripping
- Options for adjustable trip level
- ON and Trip indication
- Test and Rest pushbuttons
- Option for digital display showing ground fault current in real time; also supports BENDER's remote communication system
- Open type (no enclosure) models
- Closed type (enclosed) models

Approvals



Product description

BENDER LifeGuard series protection panels detect ground leakage currents in all stages of power conversion equipment, from simple rectifiers to sophisticated variable frequency drives. LifeGuard series can detect both AC and DC ground leakage current. A wide range of voltages, load amperages, and options are available. LifeGuard panels are simple to install and require a minimal amount of connections. LifeGuard protection panels are UL Listed Enclosed Industrial Control Panels.

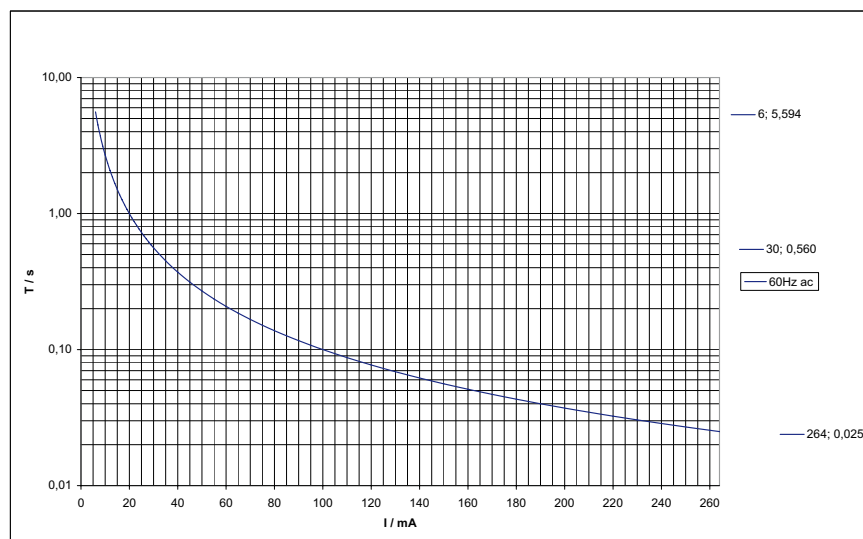
Applications

- Ground fault interruption in single- or three-phase AC systems up to 600 VAC
- Systems with DC components
- Systems with variable frequency drives (VFDs)

6 mA Trip Level with Inverse Time Curve

Certain LifeGuard models feature a 6-mA fixed trip level. These units trip in accordance with the UL 943 Standard. Their fastest response time is 25 ms at leakage currents of 250 mA and above. An inverse-time characteristic and harmonic filter help to prevent nuisance tripping, particularly in systems with long cable runs or variable frequency drives (VFDs).

Trip Level



- 6 mA trip level with UL 943 compliant inverse time characteristic.
- Steplessly adjustable trip levels with adjustable definite-time delays for AC or AC/DC protection

See ordering information for a complete list of options.

Enclosure

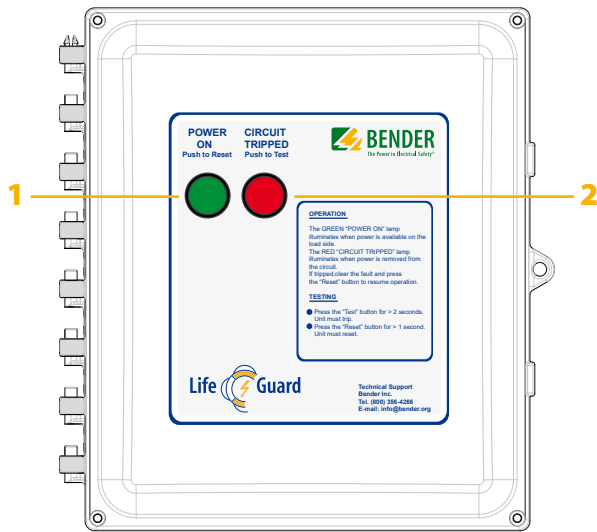
Enclosure options include NEMA 4X polycarbonate, NEMA 4X stainless steel, and non-enclosed.

Digital Display / Communication Options

The digital display has test, reset, POWER, and TRIPPED functions, as well as featuring a digital display which shows the ground leakage current in real time.

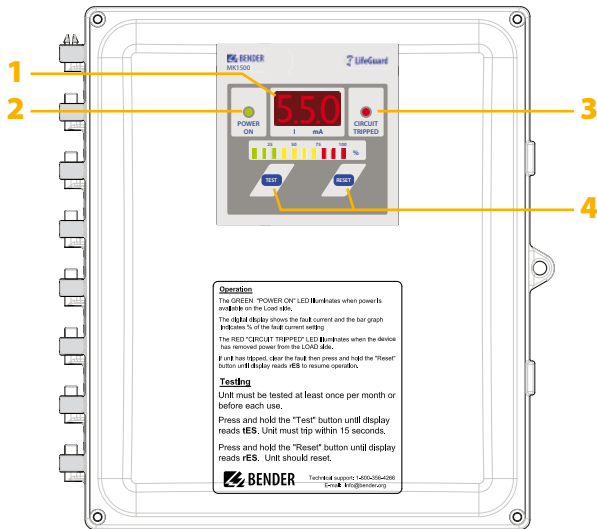
Models utilizing the digital option installed without an enclosure support the use of BENDER's COM465IP communication module, which allows connecting multiple units to a Modbus TCP/IP network for remote notification and monitoring.

Enclosure Front - Standard Enclosure



- 1 - POWER LED / RESET button: Illuminates when the panel is powered and is not tripped / Resets the panel if fault has been cleared (momentary push).
- 2 - TRIPPED LED / TEST button: Illuminates when the panel is tripped / Performs a functional test (hold for at least 2 seconds).

Enclosure Front - Digital Display Option



- 1 - Digital display: shows ground leakage current in real time.
- 2 - POWER LED
- 3 - TRIPPED LED
- 4 - TEST and RESET pushbuttons

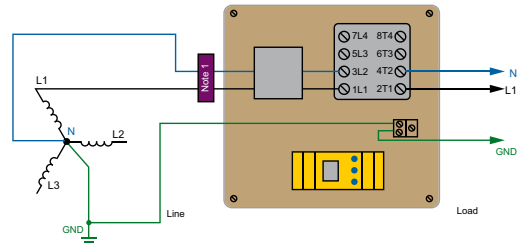
* Other enclosure options are available. Appearance and features may vary. Contact BENDER for more information.

Example Wiring Diagrams

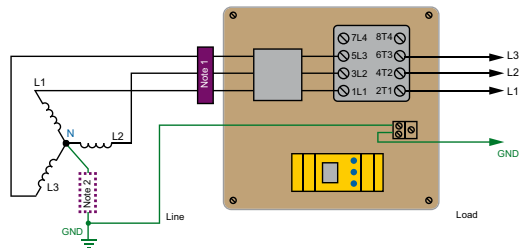
LifeGuard series are easy to install and simple to wire. Typical installations only require wiring the system conductors and the ground conductor.

Wiring LifeGuard varies based on system voltage and amperage rating. Consult BENDER or the LifeGuard quickstart for more information.

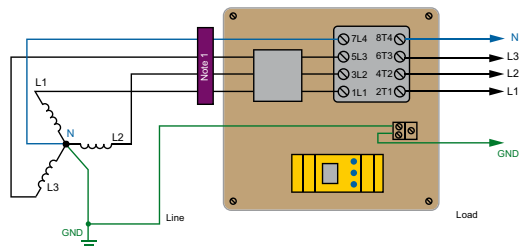
Single-Phase, Two-Wire Configurations (L1, N)



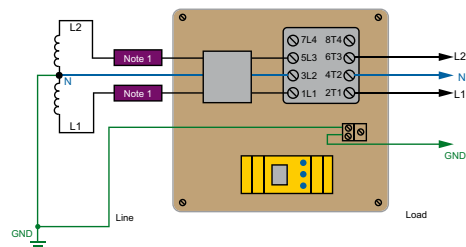
Three-Phase, Three-Wire Configurations (L1, L2, L3)



Three-Phase, Four-Wire Configurations (L1, L2, L3, N)



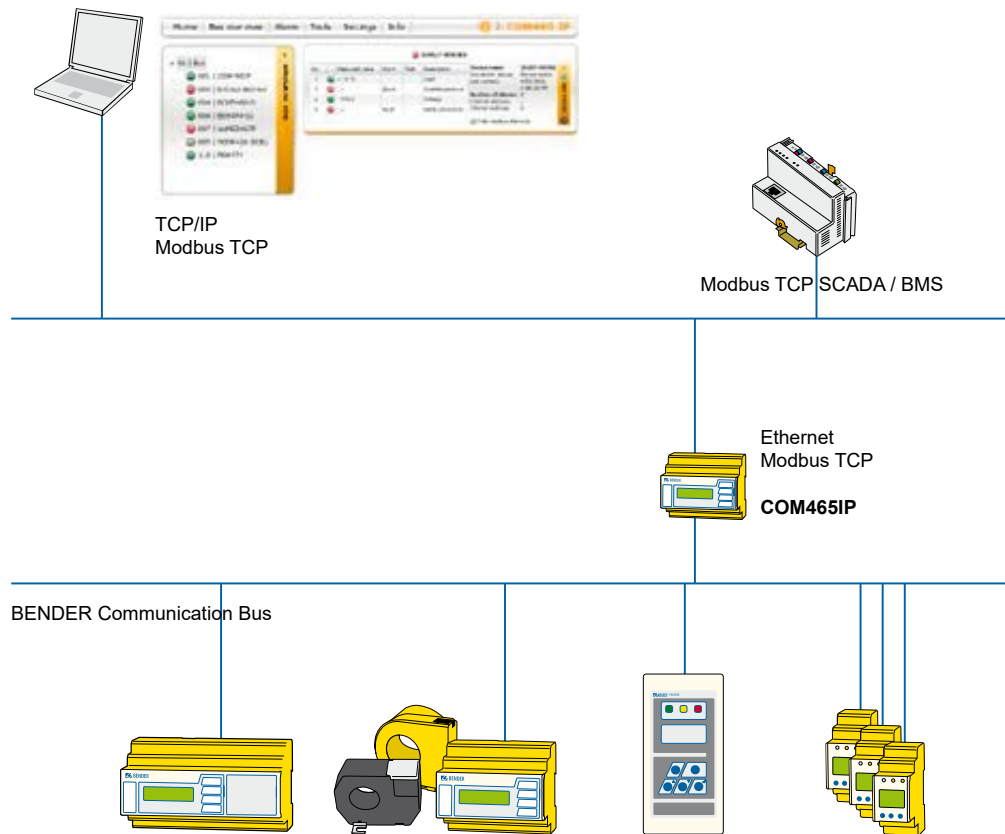
240/120 V Configurations (L1, L2, N)



Note 1: Disconnect switch, branch circuit protection and/or overload relay to be provided by installer.

Note 2: Three-phase three-wire supplies can be solidly, or resistance grounded.

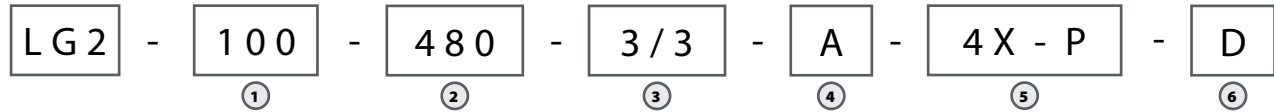
Backplate Only Models With Digital Option: Remote Communication



When installing the digital version of BENDER's open panel in a single / isolated installation, provisions are made for connecting a single MK1500-D remote indicator. However, when connecting digital units together with RS-485, all of the LifeGuard panels can be managed from a single location. BENDER's MK2430 remote indicating station provides alarm notification of all connected units from a single remote. Additionally, connecting to BENDER's COM4651P communication module allows for the managing of all connected units with a web browser based GUI, or from a Modbus/TCP system. Monitoring your facility's protection panels has never been easier.

- Connects to standard Ethernet network
- Computers connected to the network can access device via web browser
- Manage connected LifeGuard panels, see status
- Optional visualization add-on allows for creating a plant/facility overview with locations and status
- Special mobile version for monitoring status via WiFi connected smartphone / tablet
- Modbus/TCP add-on allows for complete panel management from Modbus/TCP industrial Ethernet system
- Connects to many other BENDER devices

Ordering Information



Code 1: Load Amperage (Choose One)

Code	Load Amperage
20	20 A
40	40 A
60	60 A
80	80 A
100	100 A

Higher load ampere ratings available upon request. Contact Bender for more information.

Code 2: System Voltage (Choose One)

Code	Voltage
120	120 VAC
208	208 VAC
240	240 VAC
277	277 VAC
480	480 VAC
575	575 VAC
600	600 VAC

Other voltages available upon request. Contact Bender for more information.

Code 3: Phases (Choose One)

Code	Quantity of poles / phases
1/2	Single-phase, two-wire (L1, N)
2/2	Single-phase, two-wire (L1, L2)
2/3	Single-phase, three-wire (L1, L2, N)
3/3	Three-phase, three-wire (L1, L2, L3)
3/4	Three-phase, four-wire (L1, L2, L3, N)

Code 4: Trip Level (Choose One)

Code	Trip Level	System Type	Timing
A ¹⁾	6 mA, fixed	AC/DC	Inverse time curve
D	10...500 mA, field adjustable	AC/DC	0...10 s (adjustable)
E	10 mA...10 A, field adjustable	AC only	0...10 s (adjustable)
F ²⁾	6 mA, fixed	AC/DC	Inverse time curve

Notes: ¹⁾ Code A is for voltages over 240 V

²⁾ Code F is for 240 V and lower

Code 5: Enclosure (Choose One)

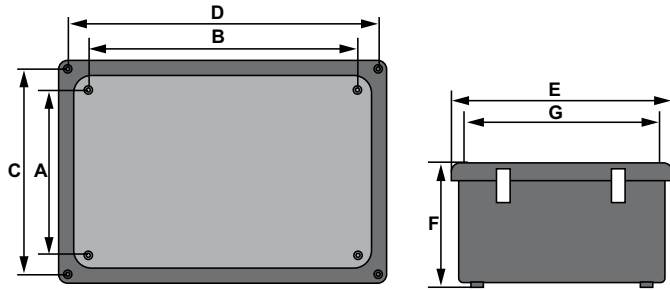
Code	Enclosure Type
4X-P	NEMA 4X polycarbonate enclosure with clamp and lockable (recommended)
4X-SS	NEMA 4X stainless steel enclosure
N	No enclosure (backplate only)

Code 6: Additional Options (Choose One)

Code	Enclosure Type
Nothing (blank)	No additional options
S	Emergency stop button
D ³⁾	Door-mounted remote with digital display ²⁾

³⁾ Digital remote option is only available with options A or F under Code 4. The digital display replaces the test/reset buttons on the front of the panel on the standard version. Test and reset pushbuttons are built into the digital display module.

Dimensions: Standard NEMA 4X Polycarbonate Enclosure



Type	Enclosure	A x B	C	D	E	F	G
Compact	8x6x4	6.25" x 4.25" (159 x 108)	8.75" (222.5)	6.75" (171.5)	9.4" (239)	5.7" (145)	8.3" (211)
Standard	12x10x6	10.25" x 8.25" (260.5 x 209.5)	12.75" (324)	10.75" (273)	13.4" (340)	7.7" (195.5)	12.3" (312.5)
100 A models	14x12x6	12.25" x 10.25" (311 x 260.5)	14.75" (375)	12.75" (324)	15.4" (391)	7.7" (195.5)	14.3" (363)

Please contact BENDER or refer to the LifeGuard user manual for dimension information on other enclosure options.



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