



3 FASES D RST+N

Digital three-phase voltage electronic protector.

Overview

The BREAKERMATIC 3-Phase D RST+N Omega Rail monitors line and phase voltages in the supply for a three-phase appliance, protecting it against voltage fluctuations, imbalances, and neutral losses. It also prevents the machine from starting when the rotation direction dictated by the phases has been reversed, or when a phase is missing, or the grid frequency is out of range. It has settings for high and low cut-off voltage, imbalance, and delay time.

It has an output relay, which can control an external contactor or any stop signal that allows the machine to stop. The disconnection operation is automatic, and reset after a fault can be performed automatically or manually. 5 LEDs display faults and the protector's status.

The protector can be mounted using an omega rail (DIN rail) for electrical panels, or directly to a wall using screws placed through built-in fixing bracket.

Ideal for:

Control panels – Hydro pneumatic pumps - Elevators and three-phase motors - Refrigeration, ventilation, and air conditioning equipment, lighting systems or panels, industrial transportation.

Operation

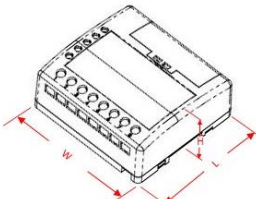
1. **Protection against steady-state voltage variations.** The BREAKERMATIC 3 Phase D RST+N Omega Rail disconnects the output if the steady-state voltage is above the voltage set on the "high voltage" knob or below the voltage set on the "low voltage" knob. The response time is 1 second. The voltage must remain outside the range longer than the response time for the disconnection to be activated. While the fault persists, the corresponding indicator will remain lit.
2. **Operating modes.** The protector can operate in **3-wire mode**, measuring only phase-to-phase voltages, or in **4-wire mode**, also measuring phase-to-neutral voltages.
3. **Unbalance.** In 3-wire mode, phase imbalance protection can be configured, allowing you to set a maximum phase imbalance range. If the phase imbalance exceeds the preset limit, the protector will disconnect the output. The response time to phase imbalance faults is 1 second.
4. **In 4-wire mode**, it is assumed that the load is inherently unbalanced and that we want to protect loads between phase and neutral. The protector disconnects the output if the neutral is not connected, indicating a neutral fault. It includes an additional label with the phase voltage values to facilitate setting the cutoff voltages in this mode.
5. **Reconnection delay or wait cycle.** When the protector is energized, or at the end of a voltage fault, the protector will initiate a time delay before connecting the output. The duration of the time delay can be adjusted using the "wait cycle" knob between 5 s and 300 s (5 min). The wait cycle protects sensitive equipment from short operating cycles.
6. **Manual or Automatic rearm:** This can be configured so that at the end of the standby cycle, the protector automatically reconnects the output or waits for a manual rearm. If manual rearm is selected, the cause of the trip will be indicated by flashing the corresponding indicator.
7. **Blackout detection, sag detection, etc.** The protector will disconnect the load if it detects a sudden voltage drop below 50% of the nominal voltage and initiate a standby cycle. The response time of the blackout detector is instantaneous; the minimum blackout duration is specified in the specifications, but it is guaranteed to be greater than the maximum transfer time on the distribution lines. Therefore, this maneuver does not affect the protector and does not disconnect the load.
8. **Absence of a phase.** The protector will disconnect the output and indicate a phase absence.

9. **Reversal of the direction of rotation or phase sequence.** If the phase sequence is reversed, the protector will immediately disconnect the output. The response time to this disturbance is less than one line cycle.
10. **Frequency:** The BREAKERMATIC 3 Phase D RST+N Omega Rail operates at a single frequency value. If the frequency deviates from this value, it disconnects the output.

Models

Model	Line Voltage	Nominal amperage	Freq.	No. Phases	Cut off voltages	Reconnection delay	Response delay	Unbalance	Phase Absence	Phase sequence	Language
PTE208-MD0EST	208VAC	5A	60 Hz	3	Adjustable	adjustable	1s	Yes	Yes	Yes	Spa. – Eng.
PTE440-MD0EST	440VAC	5A	60 Hz	3	Adjustable	Adjustable	1s	Yes	Yes	Yes	Spa. – Eng.
PTE380-MD0EST	380VAC	5A	50 Hz	3	Adjustable	adjustable	1s	Yes	Yes	Yes	Spa. – Eng.

Specifications

Electrical					
	Model	PTE208	PTE440	PTE380	
Nominal Line Voltage		208	440	380	VAC
Nominal Frequency		60	60	50	Hz
Steady state voltage protection 3 wires (Line Voltage)					
Low cut-off voltage, minimum position		140 +/- 3%	320 +/- 3%	308 +/- 3%	VAC
Low cut-off voltage, maximum position		210 +/- 3%	440 +/- 3%	380 +/- 3%	VAC
High cut-off voltage, minimum position		220 +/- 3%	460 +/- 3%	392 +/- 3%	VAC
High cut-off voltage, maximum position		280 +/- 3%	580 +/- 3%	464 +/- 3%	VAC
Unbalance minimum position		3	3	3	%
Unbalance maximum position		20	20	20	%
Reconnection Hysteresis		5 +/- 0.5			VAC
Response delay		1 +/- 20%			s.
Steady state voltage protection 4 wires(Phase voltage)					
Low cut-off voltage, minimum position		80 +/- 3%	180 +/- 3%	180 +/- 3%	VAC
Low cut-off voltage, maximum position		115 +/- 3%	250 +/- 3%	215 +/- 3%	VAC
High cut-off voltage, minimum position		120 +/- 3%	260 +/- 3%	225 +/- 3%	VAC
High cut-off voltage, maximum position		150 +/- 3%	330 +/- 3%	260 +/- 3%	VAC
Reconnection Hysteresis		3 +/- 0.3			VAC
Response delay		1 +/- 20%			s.
Stand by Cycle					
Reconnection delay time, minimum position		5 +/- 5%			sec
Reconnection delay time, maximum position		6:00 +/- 5%			min : sec.
Blackout detection					
Minimum blackout duration (0% nominal voltage)		32 -64			ms.
Minimum brownout duration (50% nominal voltage)		>100			ms.
Control output switch					
Interruption capacity		5			A
Current (Amperage) TC-NA		5			A
Current (Amperage) TC-NC		Nominal Voltage			
Voltage between Contacts					
Apparent Power (No load)		7	24	24	VA
Mechanicals					
Dimensions					
	Length L	102			mm
	Width W	109			mm
	Height H	43			mm
	Weight	260			gr.
Connection terminals					
Screw thread		6-32			
Screwdriver		PH2			
Phillips		1.0 x 5.5			mm
Flat		0.8 / 1			Nm
Tightening torque min. / max.					
Wire section / gauge (solid or multifilament) (see notes 1,2, and 3)		0.34/ 22			mm² / AWG
Minimum		4 / 8			mm² / AWG
Maximum					
Recommended wire stripping length		7-8			Mm
Isolation materials					
Enclosure		ABS			
Terminals block		PBT			
Printed circuit board		FR4			
Flame retardant classification (UL94)					
Enclosure		V0, 5VA			
Terminals block		V0			
Printed circuit board		V0			
Isolation resistance (NTC1650:2004 No. 17.1)		>550			Mohms
Dielectric strength (NTC1650:2004 no. 17.2)		>2			KV

Environmental		
Maximum operating ambient temperature	45	°C
Place of use: Indoor use, in a dry and ventilated place	Yes	
Outdoor use and/or in wet places	No	
Enclosure ingress protection IP (IEC 60529)	IP40	

Note 1: The supplied terminals are for 12-10 AWG (2.05-2.5 mm²) wire.

Note 2: For two identical conductors on a single terminal, a maximum of 2.5 mm² or 10 AWG is required.

Note 3: The current draw of this protector is less than 40 mA per phase. We recommend wiring with 16-20 AWG wire gauge. In all cases, consider the coil current of the contactor to be used when selecting the wire gauge.

Product certificates

NOM NOM-003-SCFI-2014 (NMX-J-515-ANCE)

Shipping packaging

Type	Capacity	Dimensions (Length x Width x Height) (cm)	Weight (Kg)
Carton CC48	48 pcs (6 x 8 pack)	58 x 33 x 52	15.1
CC 8 pack	8 pcs in blister	28 x 18.58 x 22	2.52