



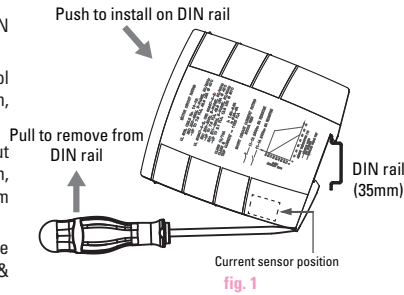
DRMS Series

HYBRID MOTOR STARTERS

DRMS Hybrid Motor Starters are intelligent and convenient solutions for controlling 3-phase asynchronous motors. These compact devices can provide up to 6 different functions: Forward / Reverse, Soft Start / Soft Stop, Motor Overload Protection, and Mains Isolating Relay. Read all installation instructions before using the DRMS Hybrid Motor Starter and refer to the product datasheet for more information. For assistance, please contact Tech Support.

INSTALLATION INSTRUCTIONS

- Install the motor starter on the DIN rail (as shown in **fig.1**).
- Wire the motor starter to the control side. AWG #22 (0.5 mm²) minimum, AWG #14 (2.5 mm²) maximum.
- Wire the motor starter to the output side. AWG #30 (0.05mm²) minimum, AWG #12 (4 mm²) maximum (stranded/solid).
- Maximum terminal screw torque control side 3.46 lb-in (0.39 Nm) & output side 5-7 lb-in (0.564-0.79 Nm).
- Use 60°C / 75°C copper conductors only.
- If multiple units are installed, be sure to follow derating curves.



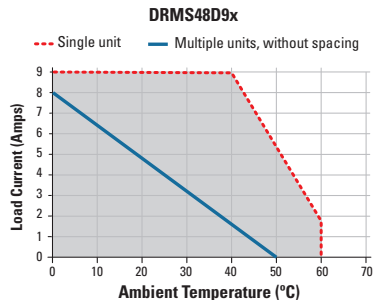
When designing circuits with this motor starter unit, components that generate magnetic fields like contactors, transformers, or high current wires, should not be placed close to the current sensor.

WARNING! Latching system could be damaged if product is removed incorrectly out of the DIN rail.

TABLE 1. DRMS Motor Circuit Ratings

Per UL508, CSA C22.2 No. 14-13		
Network Voltage	Ambient Temperature	FLA / LRA
200-480VAC, 3-phase, 50/60Hz	40°C	7.6 / 45.6
	50°C	4.8 / 28.8
	60°C	2.1 / 12.6
Per UL 60947-4-2, CSA 60947-4-2		
Network Voltage	Ambient Temperature	FLA / LRA
200-300VAC, 3-phase, 50/60Hz	40°C	7.6 / 45.6
	50°C	4.8 / 28.8
	60°C	2.1 / 12.6
301-480VAC, 3-phase, 50/60Hz	60°C	2.1 / 12.6

DERATING CURVES



Important Considerations

Be sure to use input and output voltages within operating ranges.

To achieve maximum ratings, there must be a minimum spacing of 0.9 in (22 mm) between the devices in free air. (See **fig. 3**)

For optimal thermal performance, motor starter should be aligned vertically to maximize natural convection air flow.

Maximum surrounding air temperature is 60 °C (please see derating curve). For maximum ratings the surrounding air temperature should not exceed 40°C.

ORDERING OPTIONS

Series	DRMS
Operating Voltage	48: 200-480 VAC
Control Voltage	D: 10-30 VDC
Load Current per Phase	9: 9 Amps
Function	1: Reversing Starter with Overload Protection 2: Reversing Starter with Soft Start, Soft Stop and Overload Protection 3: Reversing Starter with Soft Start, Soft Stop, Overload Protection and Mains Isolating Relay

INDICATORS AND SETTING FACILITIES

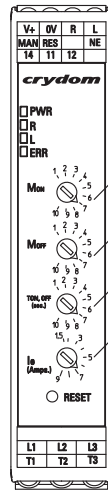


fig. 2

Mon: Starting torque at Soft Start, 30 to 80 %

Mof: Deceleration torque at Soft Stop, 30 to 80 %

Ton, Off: Starting / Deceleration ramp, 1 to 10 s

Ia: Nominal motor current, 1.6 to 9.0 Amps

TABLE 2. Indicators

INDICATOR	LED COLOR	STATUS	DESCRIPTION
PWR	Green	Permanent ON	Auxiliary supply connected.
R	Yellow	Permanent ON	Forward, power semiconductors bridged.
		Flashing	Forward, ramp operation.
L	Yellow	Permanent ON	Reverse, power semiconductors bridged.
		Flashing	Reverse, ramp operation.
ERR	Red	Flashing	Error detected:
		1 pulse	Over temperature on semiconductors.
		2 pulses	Wrong mains frequency.
		3 pulses	Phase reversal detected.
		4 pulses	At least 1 phase is missing.
		5 pulses	Motor overcurrent detected.
		6 pulses	Mains isolating relay not disconnected.
		7 pulses	Incorrect measurement circuit.
8 pulses	Motor protection has responded.		

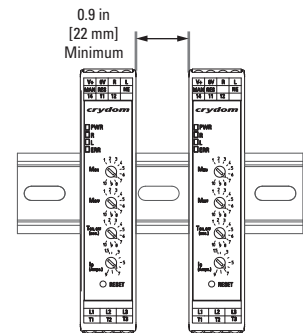


fig. 3 Clearance on multiple units mounting for achieving maximum rating

TABLE 3. Connection Terminals	
Terminal Designator	Description
V+	Auxiliary voltage +
0V	Auxiliary voltage -
R	Control input Forward
L	Control input Reverse
NE	Earth connection control input
MAN	Input for remote Reset
RES	Output for remote Reset
11, 12, 14	Indicator relay for operation
L1	Phase voltage L1
L2	Phase voltage L2
L3	Phase voltage L3
T1	Motor connection T1
T2	Motor connection T2
T3	Motor connection T3

ADDITIONAL NOTES

- This device is intended for use on supply systems with a maximum voltage from phase to ground of 300 V (e.g. for a three phase-four wire system 277/480 V or on a three phase-three wire systems of 240 V), rated impulse withstand voltage of max. 4 kV.
- Suitable for use on a circuit capable of delivering not more than 5000 rms symmetrical Amperes, 480 Volts maximum when protected by class CC, J or RK5 fuse rated maximum 20 A.
- For use in pollution degree 2 Environment or equivalent.
- The control circuits of this device shall be supplied by an isolated 24 VDC power supply which output is protected with a fuse rated max. 4 Adc.
- For installations according to Canadian National Standard C22.2 No. 14-13 (cUL Mark only) and supply voltages above 400V:
 - For 415 V max. supply voltage, transient surge suppression devices shall be installed on the line side of this equipment and shall be rated 240 V (phase to ground), 415 V (phase to phase), suitable for overvoltage category III, and shall provide protection for a rated impulse withstand voltage peak of 4 kV.
 - For 480 V max. supply voltage, transient surge suppression devices shall be installed on the line side of this equipment and shall be rated 277 V (phase to ground), 480 V (phase to phase), suitable for overvoltage category III, and shall provide protection for a rated impulse withstand voltage peak of 4 kV.
- For reliable operation the 24 VDC auxiliary power supply needs to be fully stable during the entire operation of the device. Removing this voltage while the output is under load could cause permanent damage to the device.

WARNINGS

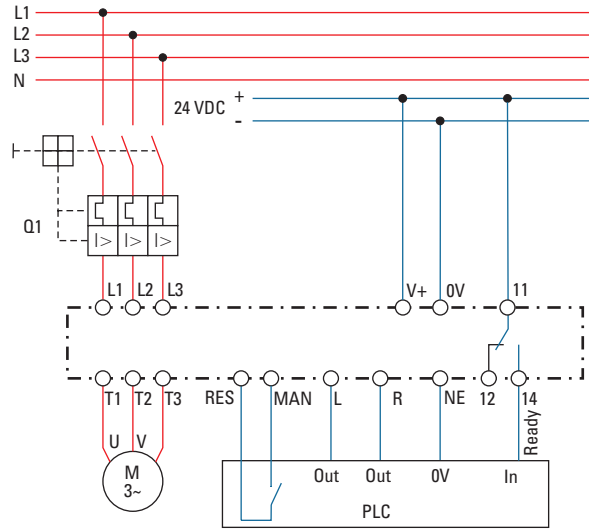


RISK OF MATERIAL DAMAGE AND HOT ENCLOSURE

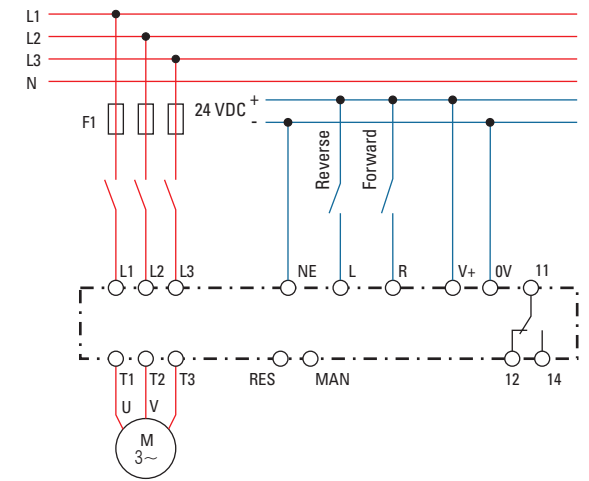
- The product's side panels may be hot, allow the product to cool before touching
- Follow proper mounting instructions including torque values
- Do not allow liquids or foreign objects to enter this product

Failure to follow these instructions can result in serious injury, or equipment damage.

Motor control by PLC



Motor control by switches



Hazard of electric shock, explosion or arc flash

- Disconnect all power before installing or working with this equipment
- Verify all connections and replace all covers before turning on power

Failure to follow these instructions will result in death or serious injury.