

RPARTS 010-1153 DC Refrigeration Compressor Controller

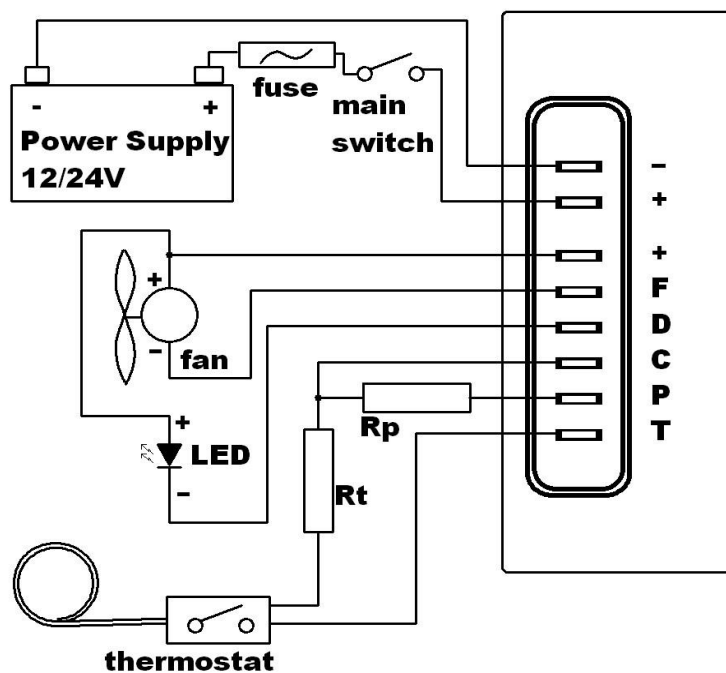
Direct Current PMS/BL three phase motor controller for compressor application

Features

- For movable cooling system
- Compatible with BD50F and BD35F compressors
- Replaces 101N0210, 101N0212, 101N0230
- PMSM driver
- Selectable BLDC fixed frequency motor driver
- Thermostat inlet
- Regulated cooling fan controller 12V output
- Reverse voltage protection
- Direct Current Supply 12V/24V
- Up to 31V supply voltage



Connections:



* With necessary cable types

Fuse	Standard automobile fuse DIN 7258
12V supply	20A*
24V supply	10A

Recommended Wire Dimensions	Between power supply to control unit
12V supply up to 3100 rpm	4mm ² (AWG11) 4m max
12V supply over 3100 rpm	6mm ² (AWG10) 4m max
24V supply up to 3100 rpm	4mm ² (AWG11) 8m max
24V supply over 3100 rpm	6mm ² (AWG10) 8m max

* Over 3100 rpm motor speeds are not recommend for standard application. It may be need more air circulating and special cable dimensions. * Main Switch must be over 30A contact rating

Rt values (Compressor speed selector)

Rt value ⁽ⁱⁱⁱ⁾ (ohm)	Max Motor Speed ⁽ⁱ⁾ (rpm)	RPARTS 010-1153 controller
0	Minimum Free Speed ⁽ⁱⁱ⁾	
200	2500	
450	3100	
870	3800	
1700(max)	4400	

- (i) Maximum motor speeds are variable with compressor load. These values are maximum motor speeds at free air conditions.
- (ii) Minimum free speed changeable adaptive controller values, load, power supply ratings etc. Controller can be find optimum low current speed at that operation selected.
- (iii) Rt values can be between 200-1700 ohm values. Table values are sample. Value fixed at thermostat contact time.

Rp values (Motor type selector / Optional Battery Protection selector)

Rt value (ohm)	Motor type/ Battery Protection value	RPARTS 010-1153 controller
0	24V BLDC Motor (50-65Hz)	
open	PMSM Motor variable speed	
>200	PMSM Motor variable speed & Optional (Battery Protection level)	RPARTS 010-1153 controller (for special orders – contact for details)

Minimum – Maximum Current Ratings:

12V Power Supply and PMSM (24V application current values may be half values)

Selected Motor Speed	Minimum Current	Maximum Current
2500	2.3A	-
3100	4.3A	-
3800	5.4A	-
4400	6.1A	19.7A

Standard battery protection settings(open Rp)

12V cut-out limit	12V cut-in	24V cut-out limit	24V cut in
10.4V*	11.8V*	21.8V*	24.2V*

* Cut-in and cut-out values are changeable with temperature conditions.
Maximum tolerance value: $\pm 0.2V(12V)$, $\pm 0.4V(24V)$.

Operating Temperatures

Minimum Temperature Condition	Maximum Temperature Condition
-40°C	+85°C

Fan Type

Voltage	12V DC
Maximum Current	560mA

Operational errors shown by diagnostic LED (optional accessories)

Number of flash at one interval	Error* type
1	Power supply voltage under the battery protection cut-out value
2	Fan circuit over current
3	Over current at motor startup. Refrigeration system heavily loaded. Or defective motor or short circuit.
4	Motor cannot synchronized at startup. Refrigeration system heavily loaded. Or defective motor or controller.
5	Controller environmental temperature is over 80°C. Fan air direction wrong, not enough air circulating or refrigeration system heavily load.
6	Over current when motor running. Refrigeration system heavily load. Or defected motor.
7	The controller cannot maintain minimum startup speed. Controller cannot reach 2400 rpm at startup. (with PMSM)
8	Motor internal main power supply voltage above 41.5V, supply current is not enough for selected motor speed. Or refrigeration system heavily load for selected motor speed. (with PMSM)

* If any errors occur, controller waits 1.5 min with drive fan and automatic restart procedure motor spin-up, without fan circuit over current and environmental temperature over 80°C errors.

Attention! THESE PRODUCTS ARE NOT INTENDED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS.