

# 010-1153 Aftermarket DC Refrigeration Compressor Controller

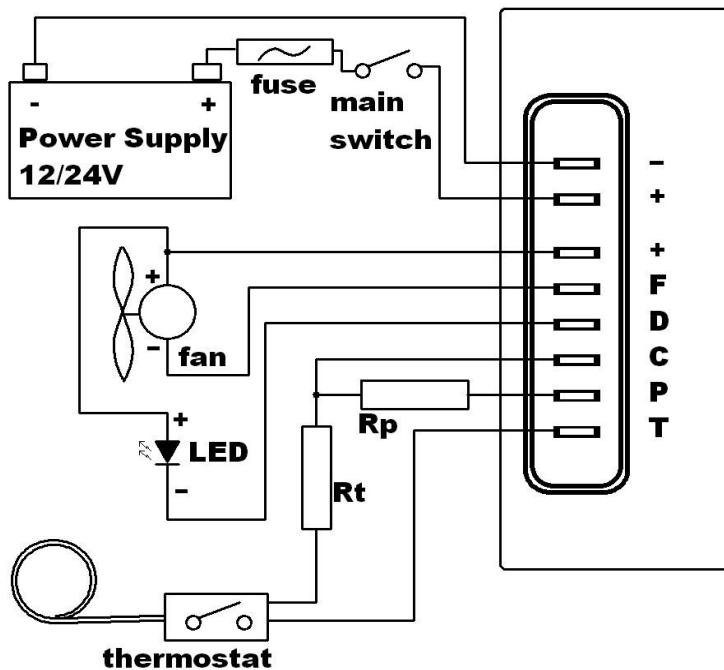
Direct Current PMS/BL three phase motor controller for compressor application

## Features

- For movable cooling system
- Compatible 101N02X0
- 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:



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 <sup>2</sup> (AWG11) 4m max
12V supply over 3100 rpm	6mm <sup>2</sup> (AWG10) 4m max
24V supply up to 3100 rpm	4mm <sup>2</sup> (AWG11) 8m max
24V supply over 3100 rpm	6mm <sup>2</sup> (AWG10) 8m max

\* With necessary cable types

\* 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 <sup>(ii)</sup> (ohm)	Max Motor Speed <sup>(i)</sup> (rpm)	RPARTS 010-1153 controller
0	Minimum Free Speed <sup>(ii)</sup>	
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: +-0.2V(12V), +-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 error occur, controller wait 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.**