RD11 option Resolver card

Instruction Manual

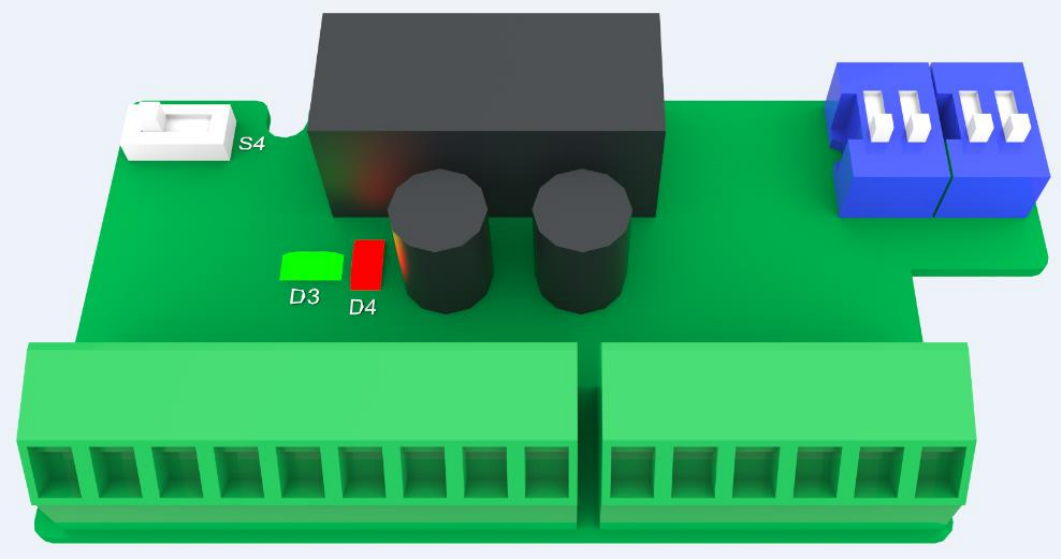
RD11 option Resolver PG feedback card Instruction Manual

Thank you for using RD11 option Resolver resolver PG feedback card by VEDA-in DRIVES, LLC.

RD11 option Resolver PG feedback card，Special PG feedback card developed specifically for resolver, used for RD11 full series inverter, please read this manual carefully before using this product.

1. Hardware Configuration

1.1 Product appearance schematic



RD11 option Resolver card front schematic

1.2 Technical Specifications

Resolution	12-bit
Excitation frequency	10KHz
Excitation output voltage	6.17Vpp (PG card factory default ratio of 0.5 for resolver)，Different excitation amplitudes for different ratios
SIN/COS Voltage	Differential Inputs 3.15Vpp±27%
Ratio	Support 0.219, 0.286, 0.5, 0.58 four different ratios, factory default ratio 0.5
Frequency division factor	1:1
Number of crossover lines	1024
Crossover signals	5V differential
Resolver card input terminal	Bit number M3, 6pin, 3.5mm pitch slant 45° European type terminal block
Crossover output terminals	Bit number M5, 9pin, 3.5mm pitch slant 45° European type terminal block

1.3 Terminal wiring instructions

The pitch on the rotary card is 3.5mm, 9pin and 6pin European terminals, bit number M5, M3 respectively; the terminal signals are defined in the following table

9pin Euro terminal signal definition description		
Pin	**Pin Name**	**Function Description**
1	PA+	Frequency division output A signal positive
2	PA-	Frequency division output A signal negative
3	PB+	Frequency division output B signal positive
4	PB-	Frequency division output B signal negative
5	PZ+	Frequency division output Z signal positive
6	PZ-	Frequency division output Z signal negative
7	DIR+	Crossover output direction signal positive
8	DIR-	Crossover output direction signal negative
9	PE	Cable shield ground terminal

6pin Euro terminal signal definition table description		
Pin	**Pin Name**	**Function Description**
1	SIN+	Sine feedback signal positive
2	SIN-	Sine feedback signal negative
3	COS+	Cosine feedback signal positive
4	COS-	Cosine feedback signal negative
5	EXC+	Excitation output signal positive
6	EXC-	Excitation output signal negative

1.4 Description of Inverter Platform Selector Switch S4

S4 dial position	Function Description
Right side	Resolver card adapted to RD11 platform

1.5 Rotary Variable Ratio Dipswitch Description

Rotation ratio and dialing position status table					
Dipswitch number	**S1**		**S2**		**Ratio of resolver**
Switch position	**1st**	**2st**	**1st**	**2st**	
Status 1	OFF	OFF	OFF	OFF	0.219
Status 2	ON	OFF	ON	OFF	0.286
Status 3	OFF	ON	OFF	ON	0.5
Status 4	ON	ON	ON	ON	0.58

1.6 Fault indicator status

D3(Green): LOT	D4(Red)：DOS	Rotation card working status
Not bright	Not bright	Rotation card works fine
Bright/Blinking	Not bright	Generally, the phase reduction loop is out of lock. Generally due to excessive phase lag of the selected rotational variable
Not bright	Bright/Blinking	The feedback signal SIN/COS amplitude exceeds the upper limit. Usually caused by interference, the motor will be well grounded and the ground terminal on the rotary card to the PE terminal of the inverter can be effectively solved
Bright/Blinking	Bright/Blinking	Feedback signal SIN/COS amplitude is too small, such cases are generally not wired, connected to the wrong line, or broken line. If the above situation is confirmed, check the information of the resolver to see if the selection is correct

1.7 Encoder cable length and cable relationship

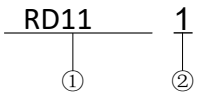
The longer the encoder cable and the higher the cable resistance, the higher the voltage drop across the cable for the rotary excitation signal and the SIN/COS feedback signal. For long distance applications, if the wire specifications are not selected properly, the encoder and PGcaine cable resistance is too large resulting in signal attenuation and thus not working properly. Please choose the appropriate wire size with the site working conditions, please refer to the following table

Cable length (unit: m)	Wire Specification (AWG)
10	**≤26**
20	
30	**≤24**
40	
50	**≤22**
60	

70	≤21
80	
90	≤20
100	

2. Order Model

Product order model introduction



Instruction：

① Product Series

RD11 series resolver PG feedback card 11A00PAC007

② Wiring port method

1：European type terminal block 2：DB9 interface

3. RD11 option Resolver PG feedback card related function code

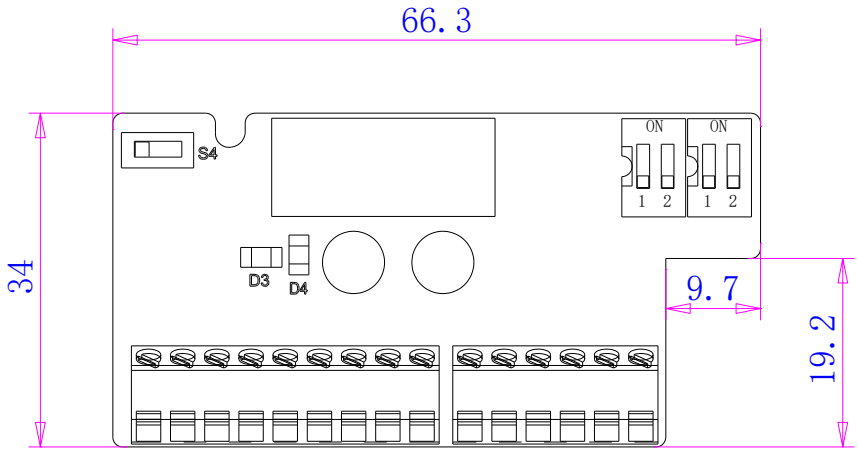
Inverter-related function codes must be set using the RD11 option Resolver PG feedback card。

Note: After setting the closed-loop parameters, it must be self-learning. After self-learning, please manually rotate the motor shaft or run the inverter to monitor whether C00.29 (PG frequency) has a value, if there is no value, it means the line is not connected correctly or the parameters are set wrongly.

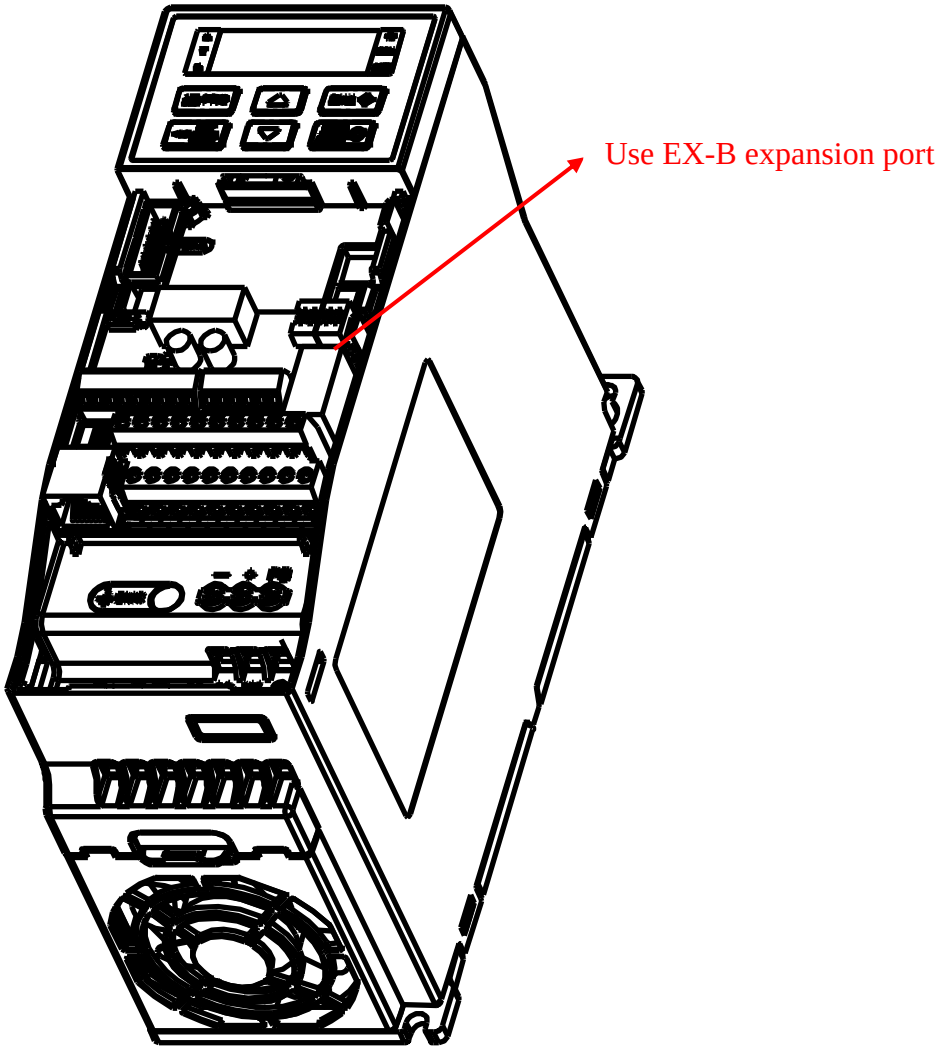
3.1 RD11 related function code setting

Function Code	Description
F01.00 Motor control method	F01.00=2（Asynchronous closed-loop vector）; F01.00=12（Synchronous closed-loop vector）。
F01.10 Maximum frequency	The maximum frequency must be greater than or equal to the rated frequency of the motor。
F02.01~F02.06	F02.01~F02.06 motor parameters refer to the motor nameplate setting。
F02.30=1 Encoder type	Encoder type set to resolver (rotary card); use EX_B expansion port。
F02.34 Number of resolver poles	Set the number of poles according to the actual selected resolver
F02.07=1（Dynamic self-learning）	**Asynchronous machines:** learning the encoder orientation. **Synchronous machine:** learning encoder direction and synchronous machine mounting angle.
F02.07=2（Static self-learning）	Synchronizer: Learn the encoder orientation and synchronizer mounting angle.
F02.37 Encoder speed filtering time	Encoder speed filtering time

4. Structure size and installation schematic



RD11 option Resolver PG feedback card plane size



RD11 option Resolver PG feedback card installation schematic