REGAL

MOTOR CONTROL

MD100H Series, Low Voltage Variable Frequency Drive

Quick Start

marathon™
Drives

A Regal Brand

REGAL

MD100H Start Up Instructions

marathon™ Drives

Wiring

This is for use by persons familiar with vfds and is intended to highlight details specfic to this model for the purpose of commissioning.
It is assumed personnel using this document are familiar with local code requirements for wire size & circuit protection,
the dangers associated with high voltage, and are capable of safely mechanically mounting the VFD.

1 Motor FLA can never exceed VFD output rating. Check VFD nameplate to ensure compatibility. Confirm voltage is within the VFD input range.

2 Mounting clearances: 4" above and 2" from the sides of the enclosure. VFD must be mounted vertically to ensure adequate cooling.

For side by side installation remove top cover with a screwdriver. On models < 50HP allow 2mm" gap between each MD100H , and allow a 50mm gap for 50HP and above.

3 Remove **front cover** (one bolt), and for easiest access remove cable guide (pressure points on each side and pull out).

4 Identify motor connections U,V,W (bottom right) and CONNECT motor leads, including the ground wire to the supplied ground lug.

5 I/O Terminal block functions -control wiring is shown below for the most common dry contact start / analog speed reference configurations.

Digital Inputs

P1 = fwd start/run (CCW)
P2 = rev start/run
P3 = Emergency Stop
P4 = Alarm Reset
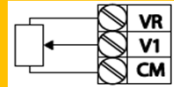
Serial Input

S- ○   RS-485
S+○
SG ○

BACnet / Metasys N2

Dip Switches (located just above I/O terminal)
SW1 = terminating resistor, on or off
SW2 = NPN/PNP
SW3 = terminal input V1 or T1 (PTC- temp. sensor)
SW4 = terminal input , I2 or V2
SW5 = output terminal selection, VO or IO

Analog Speed Reference
Externally Sourced
0-10VDC or 4-20mA

V1 I2
CM

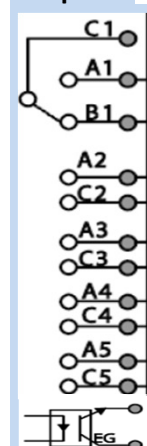*Using internal potentiometer*

VR
V1
CM

Specs: 12V/12mA/1-10kΩ

Frequency setting (Pulse train)
0-32 kHz : 0–0.8 V or 3.5–12 V

Outputs   **Relay functions available: 39**   **Default**

C1
A1   **Fault signal Output**
B1

A2
C2   Relay 1: **Run**
A3
C3   Relay output 3
A4
C4   Relay output 4
A5
C5   Relay output 5
EG   Multi function common > Open Collector Output

AO1 Analog **Frequency** voltage/current output1
AO2 Analog **Frequency** voltage output2

Q1 Pulse output
0-32 kHz & 0-10VDC

○ External 24V power source
100mA maximum, use only for creating PNP circuit

6 Ensure supplied mains wiring is locked out / tagged out or otherwise disconnected. Use a meter to verify.

7 With control wiring complete, connect de-engerized line side power cabling to R(L1), S(L2), T(L3).

! Double check at this time to ensure the ground wire from the building supply is firmly connected to both the inverter and earth ground.

! Anytime after mains power is disconnected from VFD input terminals wait 10 minutes before removing any covers.

marathon™
Drives

1. POWER UP

MON ↻ K/K [N] STP

FWD, REV

Start Command:
K: Keypad
T: Terminal Block
See manual for full list

Speed Reference:
K: Keypad
V: V1 Input
See manual for full list

Operating Status:
STP: Stop
FWD: Forward
See manual for full list

Multi-Key Function:
N: None
U: User Group

MODE

MON Monitor
PAR Parameter
U&M User & Macro
TRP Alarm History
CNF Configure

The mode button sequences through the above modes, 'PAR' and 'CNF' are used in this guide.

Navigating Parameters:
With **PAR ↻ DRV** displayed, press right arrow to sequence through parameter groups. (DRV, BAS, ADV, etc.) Use down arrow to acces any code within each group.

PAR ↻ DRV
PAR ↻ BAS
PAR ↻ ADV
.
.
.

2. INITIATE "EASY START" FUNCTION

The Easy Start option should appear on **initial** power up. Select YES to enter the Easy Start menu and proceed to step 3. **If it does not appear on the first startup, then follow steps 2a, 2b, 2c.**

2a)
MON ↻ K/K [N] STP 0.0Hz
Frequency
Initial display at power up
0.0Hz
0.0A
0V

press MODE 4 times

CNF ↻ N STP 0.0Hz
00 Jump Code.
42 CODE
01 Language Sel
English
02 LCD Contrast

2b)
Press [down] 8 times scrolling to '61'

CNF ↻ [N] STP 0.0Hz
61 Easy Start On
- - - - Yes - - -
62 WH Count Reset
- - - - No - - - -
70 On-time
00/01/00

Press PROG/ENT

Press [down] 14 times scrolling to '40'

2c)
CNF ↻ [N] STP 0.0Hz
40 Parameter Init
- - - - No - - -
41 Changed Para
View All
42 Multi-Key Sel

press PROG/ENT & select

CNF ↻ [N] STP 0.0Hz
40 Parameter Init
0 ----------No----------DC
1   All Grp
2   DRV Grp

cycle power, easy start function will begin

3. EXECUTE "EASY START" FUNCTION

This function will set up motor data, permit selection of a macro, and configure automatic restart criteria. If you are using an analog speed reference, and are using P1 on the terminal block, this will permit operation in auto mode in only a few minutes.

The parameters below will be sequenced as shown in the order below after user input for each. The parameters in red listed below have additional details shown at the bottom of the page. Please refer to the User Manual for more details.

Be ready to enter the value for the parameter code shown:

1) Macro selection
2) 60/50Hz (BAS10)
3) Motor Capacity in HP (DRV14)
4) Rated Motor Current (BAS13)
5) Motor Poles (BAS11)
6) Line Voltage (BAS19)
7) Fault Restart (PRT08)
8) Motor Voltage (BAS15)
9) Retry Number (PRT09)
10) Power On Resume (COM96)
11) Speed Search (CON71)
12) CMD Source (use default)
13) Freq. Ref Src. (use default)

Macro Select
If you see an application in the macro list that fits your needs select it, if not then select Basic. Be aware the PID controller is enabled for all selections except Constant Torque.

CNF ↻ [N] STP 0.0Hz
43 Macro Select
0   Basic D
1   Compressor
2   Supply Fan

Fault Restart (Auto Restart on Power Loss) (PRT08)

Use [arrows]

PAR ↻ PRT [N] STP
08 RST Restart

Bit 1: fault trip exclusively for Low Voltage - move bit to high position
Bit 0: fault trips excluding Low Voltage - move to high position

Bit: on off

Speed Search (CON71)

Bit #
1 During general acceleration
2 Initialization after a fault
3 Restart after instantaneous power interruption.
4 Starting with power on

Bit #
4 3 2 1

When you see this screen, you have completed quick start and are ready to run in **auto mode**. If the start command is landed on P1, **cycle power,** and basic set up is complete. Please refer to the manual for PID set

MON ↻ K/K [N] STP 0.0Hz
Frequency
0.0Hz
0.0A
0V

To Operate the VFD in Hand Mode:

HAND

Multi-directional key is used to select the speed in Hz.

The motor will start accelerating

If you want to run Easy Start again, simply repeat step 2 & 3.

HEAD OFFICE

19 Corporate Ave / PO Box 2340
Rowville VIC 3178 AUSTRALIA

Tel: +61 (0)3 9237 4000
Fax:+61 (0)3 9237 4010

AUSTRALIA

National Sales
1300 888 853
Drives Technical Support
1800 724 149
www.regalaustralia.com.au
www.regalbeloit.com

REGAL BELOIT AUSTRALIA Pty Ltd
ABN 61 122 303 084

VICTORIA
MELBOURNE
19 Corporate Avenue
Rowville VIC 3178
Tel: +61 (0)3 9237 4040
Fax:+61 (0)3 9237 4050

NEW SOUTH WALES
SYDNEY
6-7 Bushells Place
Wetherill Park NSW 2164
Tel: +61 (0)2 8781 3100
Fax:+61 (0)2 8781 3131

TASMANIA
DEVONPORT
115 Don Road
Devonport TAS 7310
Tel: +61 (0)3 6424 8574
Fax:+61 (0)3 6424 9393

NEW ZEALAND

CMG Electric Motors (NZ) Ltd
18 Jomac Place
Avondale Auckland
NEW ZEALAND
Tel: +64 9820 3550
Fax: +64 9820 8504

SINGAPORE

CMG Electric Motors
(Asia Pacific) Pte Ltd
12 Tuas Loop 637346
SINGAPORE
Tel: +65 6863 3473
Fax: +65 6863 3476

QUEENSLAND
BRISBANE
7 Mahogany Court
Willawong QLD 4110
Tel: +61 (0)7 3246 3246
Fax:+61 (0)7 3246 3210

CAIRNS ("Service - Repairs - Sales")
2/159-161 Newell Street
Bungalow QLD 4870
Tel: +61 (0)7 4033 1109
Fax:+61 (0)7 4033 5553

MACKAY
Paget Mackay QLD 4740
Tel: +61 (0)7 4952 6244
Fax:+61 (0)7 4952 6277

THAILAND

FASCO Motors (Thailand) Limited
29/7-8 Bangkruay-Sainoi Road
Bangkrang, Muang Nonthaburi
District Nonthaburi 11000 THAILAND
Tel: +66 2447 3300
Fax: +66 2447 3500

MALAYSIA

Torin Industries SND BHD
(MALAYSIA)
No. 6536A Jalan Bukit Kemuning
Batu 6 Seksyen 34
40470 Shah Alam Selangor
Tel: +60 3 51246157
Fax: +60 3 51211467

SOUTH AUSTRALIA
ADELAIDE
47 Research Road
Pooraka SA 5095
Tel: +61 (0)8 8359 1321
Fax: +61 (0)8 8359 5675

WESTERN AUSTRALIA
PERTH
21 Colin Jamieson Drive
Welshpool WA 6106
Tel: +61 (0)8 6253 3700
Fax:+61 (0)8 6253 3710

REGAL

www.regalaustralia.com.au