Quick Setup

Compact Drives Series ME1...T with IE2 basic motor and Compact Drives Series M21...T

The present Quick Setup enables the user to install the Compact Drive step by step and to drive the motor in the factory settings. This Quick Setup is handled with every drive.

Complete statements and advices to our product conception and the choice of drive as well as complete technical data papers and listing of parameters with detailed descriptions of parameter setup and a presentation of possible serial communication is contained in the Design Guide which is handled with every Local Control Panel (LCP2).

NB! Please read carefully the safety regulations and the installation instructions in the Operating Manual or the Design Guide before putting into operation the Compact Drive. Look at www.vem-group.com / products / drive solutions.

1. Electrical Installation

1.1 Mains terminals

Remove the inverter box cover, which is held by four screws, to obtain access to the terminals. Remove the detachable terminal plugs from the terminal blocks X100 (4-pole) and X101 (9-pole) to obtain access to the mains terminals (see fig. 1).

To contact the mains terminals L1, L2 and L3 lift only the corners of the black plastic cover!

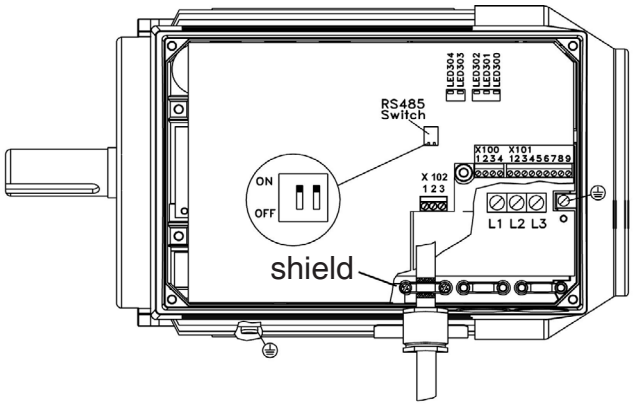

Fig. 1

NB! Before connecting the mains terminals L1, L2, L3 be aware that the mains supply is identical with the voltage on the name plate of the Compact Drive.

You may use unshielded cable for connecting the mains terminals. The phases of the mains supply and the earth have to connect to the referring terminals. Cable inlet have to put through one of the 3 cable glands.

Sizes of cable glands
P = 0.55 up to 3 kW: 3 x M20 x 1.5
P = 4 up to 7.5 kW: 2 x M20 x 1.5; 1 x M25 x 1.5

Tightening torques
L1, L2, L3 0.55 up to 4 kW: 0.5 ... 0.6 Nm
5 up to 7.5 kW: 1.2...1.5 Nm
Earth Screw (at any powers): 3,4 Nm
Cover screws (at any powers): 2,2 ... 2,4 Nm

Prefuses max.
P = 0.55 up to 3 kW: 16 A
P = 4 up to 7.5 kW:25 A

Protecting equipment
Use ELCB relays of type B with leakage currents of 100mA (ELCB relays of type A are not allowed for direct current content (DC) in the fault current and power-up with short charging current to earth)

1.2 Terminals for data communication and control signals

Communication to the Compact Drive is realized via terminal block X100. Drive control is possible via terminal block X101. For information on terminal blocks X100 and X101, please see table A and B.

X100: Terminal block for data communication

Terminal No.	Function	
1	P RS 485	For connection to Bus or PC
2	N RS 485	
3	5 V DC	Supply for RS 485 bus
4	0 V DC	

Table A

X101: Terminal block for analog/digital control signals

Terminal No.	Function	Example/factory setup
1	Analog input(0 ... 20 mA)	No function
2	Analog (0 ... 10 V)-/digital input 2	Speed reference
3	Digital input (or pulse) 3	Reset
4	Digital input (or precise stop) 4	Start
5	Digital input (other) 5	Start + Reversing
6	24 V DC supply for digital inputs (max. 150 mA)	
7	10 V DC supply for potentiometer (max. 15 mA)	
8	0 V for terminals 1 ... 7 and 9	
9	Analog output (0 ... 20 mA)/ Digital output (24V/ 25 mA)	No function

Table B

X102: Terminal block for relay output

Terminal No.	Function
1-2	Make (normally open)
1-3	Break (normally closed)

Table C

RS 485 switch
For terminating an RS 485 interface serial communication, the bus must be terminated by a resistor network at both ends. This is provided by setting both switches to ON.

Light-emitting diode (LEDs)
The Compact Drive has five LEDs which indicate the status of the Compact Drive:

LED 300	red	Fault trip
LED 301	yellow	Warning
LED 302	green	Power on
LED 303-304	green	Communication

EMC-correct installation
The control cables must be screened cables to ensure EMC-correct electrical installation.
Connect the screen to earth at both ends.
Avoid installation with twisted screen ends (pigtails), since this ruins the screening effect at high frequencies. Use cable clamps instead.

2. Start the Compact Drive

Figure 2 shows the factory settings of terminal block X101 for starting the VEM Compact Drives without any additionally accessories for local or remote control.
The steps of starting have to be kept!

Terminals

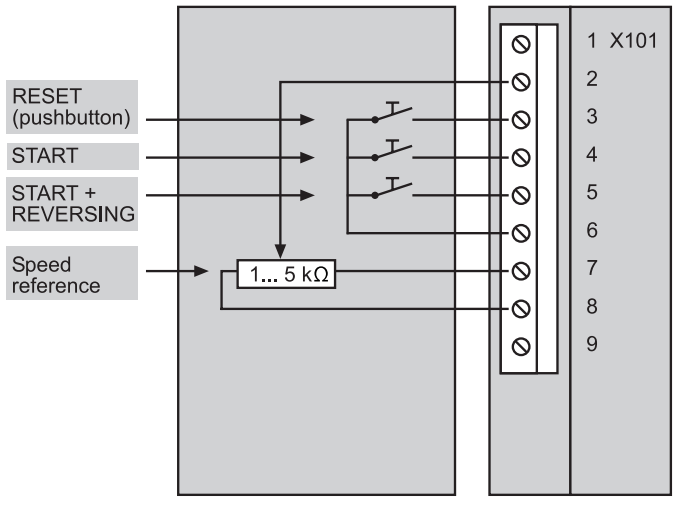

Fig. 2

1 Analog input	2 Analog input *
3 Digital input	4 Digital input
5 Digital input	6 24 V DC-supply
7 10 V DC-supply	8 0 V
9 Analog output **	

* also usable as digital input (see Table B)
** also usable as digital output (see Table B)

- **Open the lid of the FC by releasing the screws**
- **Install [RESET]** pushbutton between terminals 3 and 6 to clear any trip
- Connect switch **[START]** between terminals 4 and 6 to start the drive clockwise **or** switch **[START + REVERSING]** between terminals 5 and 6 to start the drive counterclockwise (in factory setting terminals 4 and 6 are bridged by a cable to start the drive clockwise at power-up with a speed refering to the reference at terminal 2)
- **Connect terminal 2, 7 and 8 to the potentiometer** (see fig. 2).
- **Connect mains terminals L1, L2, L3 and earth terminal. Switch on mains supply.**

NB ! The voltage on the Compact Drive is dangerous when the motor is connected to mains. Incorrect installation of the Compact Drive may lead to material damage or serious injury or it may be fatal.

- **Press [START]** if there is a switch installed instead of the factory set bridge **to start the drive in clockwise rotation or press [START + REVERSING] to start the drive in counterclockwise rotation.**
- **Set reference to analog input:**
  - Use internal reference 10 V DC and a potentiometer (see fig. 2);

  or
  - Connect external reference 0 ... 10 V to terminal 2. Use common (0 V) of terminal 8;

  or
  - Set current 0 ... or 4 ... 20 mA of an external current source to terminal 1 against common (terminal 8)
  - Enable terminal 1 by set-up parameter 331 and scaling via parameters 336 and 337 by means of LCP2 or PC programming software

What if the motor does not start?
- Make sure no parameters have been changed from initial delivery status (factory setting). Use the Local Control Panel or serial port to reset to factory setting.
- Make sure no [STOP]-command have been issued by the optional control panel keyboard (local stop). Control Panel [STOP] can only be restarted by the Control Panel [START]-button!
- Remove lid to check the Light Emitting Diodes visible through a hole in the inside isolation cover, follow Table below.

Green LED 302	Yellow LED 301	Red LED 300	Action
OFF	OFF	OFF	Apply power
ON	OFF	OFF	Apply start and reference signals
ON	OFF	ON	Apply reset signal according to Fig. 2
ON	ON	ON	Switch off power until all LED‘s have turned off. After power on reset signal is required.

- Press [RESET] pushbutton after power on (if necessary) → Drive starts in run mode!
- Close lid and fasten screws

The manual “Installation, operating and maintenance instructions Three phase asynchronous motors with squirrel cage rotor and slip ring rotor, standard design”, ID-No. VEM 68 238 01, is generally valid for Compact Drives, too. Please note that the indicated number of service hours is only valid for operation at the rated speed. If during operation of the motor the nominal speed is exeeded then the regreasing period reduces approximately in the opposite ratio to the increase in the motor speed.
No. of switches of the mains: max. 1 every 2 minutes
Environmental temperature: -10°C (at reduced load) ... +40°C
Environmental conditions: no direct exposure to sunlight because of overheating

VEM motors Thurm GmbH

Äußere Dresdner Straße 35
08066 Zwickau
Germany
Phone: +49 375 427-0
Fax: +49 375 427-383

E-mail: motorsthurm@vem-group.com

www.vem-group.com

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