VELRON VCD100 Series

Quick Start Guide

Frequency Inverter with Vector Control



Version 1.0 - Quick Start Guide

As of October 2026

www.velron.de

QUICK START GUIDE

VELRON VCD100

AC drive – getting started in 6 steps

This quick start guide summarises the most important steps for connection and commissioning. It does not replace the operating manual. Detailed information, all parameters and all safety instructions are contained in the Velron VCD100 operating manual.



Safety instructions

- Work on the AC drive may only be carried out by **qualified electricians**.
- Before working on the unit, switch off the mains voltage and **wait at least 10 minutes** until the DC bus capacitors are discharged.
- Dangerous voltage may be present at the mains and motor terminals even when the motor is at standstill.
- Always **ground** the AC drive properly.
- Damaged units must not be installed or operated.
- The STO function switches off the motor torque but does **not** disconnect the motor from the voltage.

1. Installation

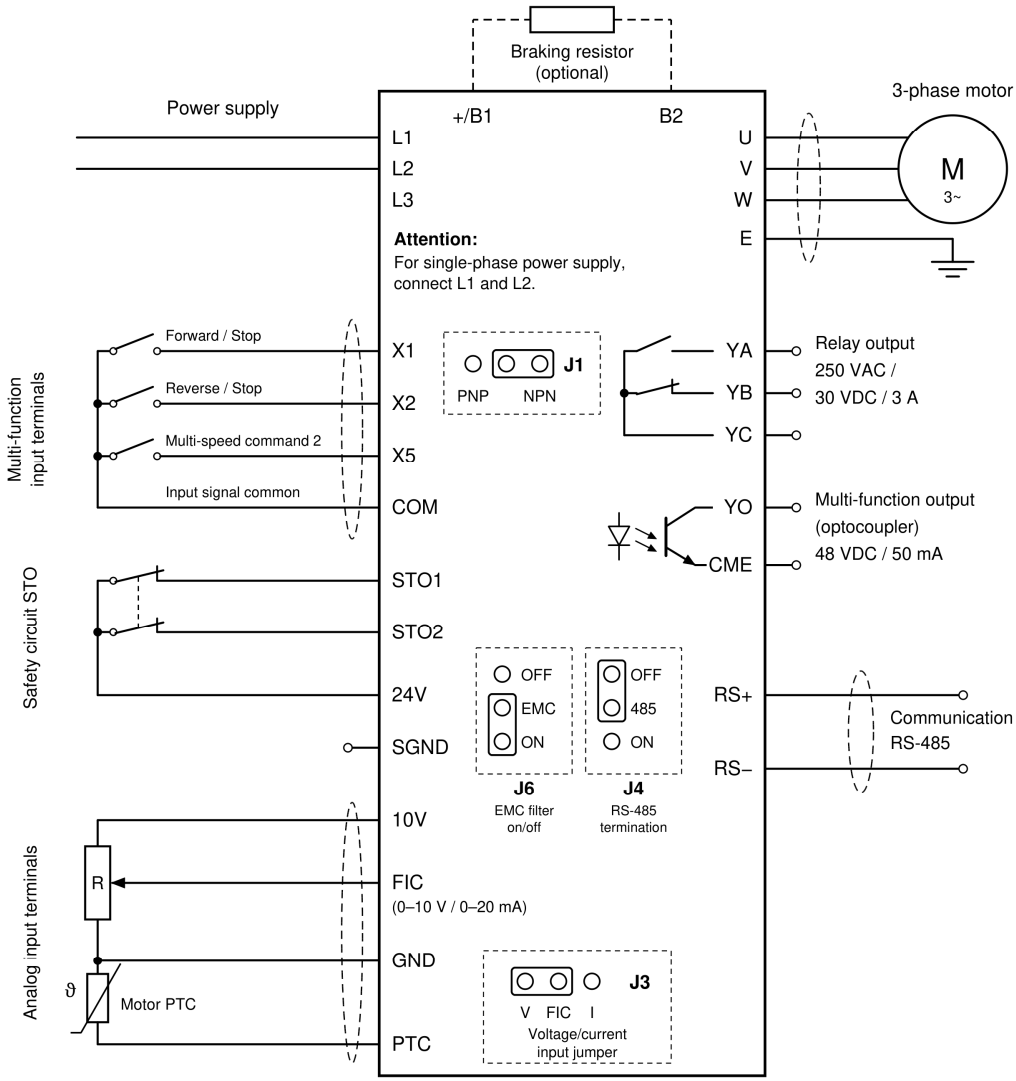
- Mount vertically on a solid, non-flammable and vibration-free surface.
- Ambient temperature −10 °C to +40 °C, relative humidity 0–95 %, non-condensing.
- Leave sufficient clearance for air circulation; do not mount near heat sources (e.g. braking resistor).
- Free from dust, metal particles, corrosive gases and direct sunlight.

Dimensions and mounting sizes: operating manual chapter 4.2.

Unit data and recommended protection

Model	VCD100 - 107	VCD100 - 115	VCD100 - 122
Mains voltage	1PH 230 VAC, 50/60 Hz	1PH 230 VAC, 50/60 Hz	1PH 230 VAC, 50/60 Hz
Input current	7.2 A	10.0 A	16.0 A
Output voltage	3PH 230 VAC	3PH 230 VAC	3PH 230 VAC
Output frequency	0.1–599 Hz	0.1–599 Hz	0.1–599 Hz
Motor power / output current	0.75 kW / 3.8 A	1.5 kW / 7.2 A	2.2 kW / 9.0 A
Circuit breaker	16 A	25 A	32 A
Cable cross-section mains/motor	0.75 mm²	1.5 mm²	2.5 mm²
Braking resistor (optional)	150 Ω / ≥ 80 W	100 Ω / ≥ 100 W	70 Ω / ≥ 100 W

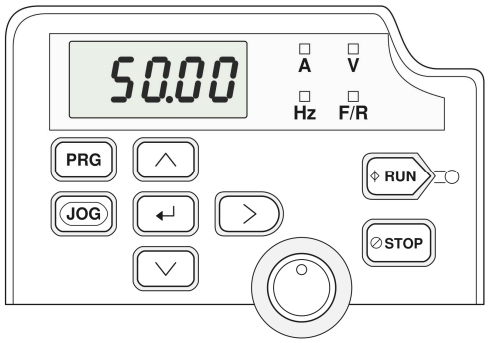
2. Wiring



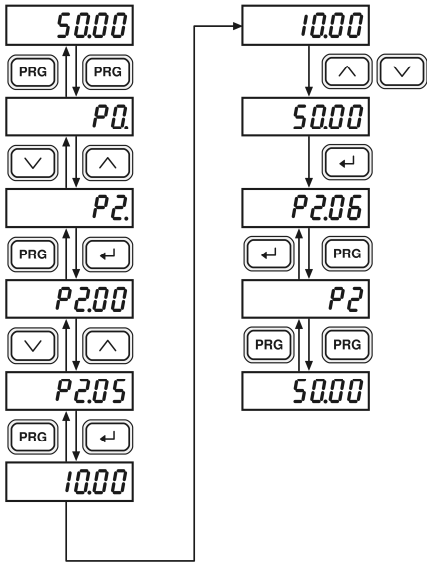
Basic wiring diagram

- **Mains:** L1 and L2 (single-phase 230 VAC). **Motor:** U, V, W and protective earth to E, shielded motor cable.
- **STO:** Without a 24 V signal at **STO1 and STO2**, the motor produces no torque. Connect the inputs to 24V via the safety circuit of the machine (operating manual chapter 7).
- **Digital inputs** X1, X2, X5 switch to COM (factory setting NPN, jumper J1).
- **Analog input FIC:** 0–10 V or 0–20 mA, selected with jumper J3; setpoint potentiometer at 10V / FIC / GND.
- **Braking resistor** (optional) at +/B1 and B2. Then set P9.03 and P2.08 to 0.
- Route control cables shielded and separately from the power cables.

3. Keypad



PRG	PRG: open menu / back	>	Shift: select digit, switch display
↵	ENTER: open menu level, save value	JOG	JOG: function according to P7.01
^	UP: increase value / parameter number	RUN	RUN: start (with P0.02 = 0)
v	DOWN: decrease value / parameter number	STOP	STOP/RESET: stop, reset fault



Example: changing P2.05 from 10.00 Hz to 50.00 Hz

Parameters are set in three menu levels: **PRG** opens the parameter groups (e.g. P0), **ENTER** opens the parameters of the group (e.g. P0.02) and then the value. Set the value with **UP/DOWN** and **Shift** and save it with **ENTER**. **PRG** leaves the level without saving. If the value does not flash, the parameter cannot be changed (or not during operation).

PRG opens the menu, select group and parameter with **UP/DOWN** and open with **ENTER**. Set the value and save it with **ENTER**; the display then shows the next parameter (P2.06). Press **PRG** (twice) to return to the monitoring display.

LEDs: **Hz / A / V** = unit of the display, **F/R** off = forward, on = reverse.

4. Commissioning

1. Check the wiring and switch on the mains voltage. After the self-test (all LEDs light up briefly), the AC drive is ready (standby).
2. Optionally restore factory settings: **PP.01 = 1** (motor parameters are retained; procedure see box “Restoring factory settings”).
3. Enter the motor nameplate data: **P1.01** power, **P1.02** voltage, **P1.03** current, **P1.04** frequency, **P1.05** speed.
4. Perform **auto-tuning** (recommended, required for sensorless vector control SVC), procedure see box “Auto-tuning”.
5. Select the control mode **P0.01**: 0 = sensorless vector control (SVC), 2 = V/F control (factory setting).
6. Set the command source **P0.02** (0 = keypad, 1 = terminals, 2 = communication) and the frequency source **P0.03** (0 = digital via P0.08 and UP/DOWN, 3 = analog input FIC, 4 = keypad potentiometer, 9 = communication).
7. Frequencies and ramps: **P0.10** maximum frequency, **P0.12** upper / **P0.14** lower limit frequency, **P0.17** acceleration time, **P0.18** deceleration time.
8. Test run at low frequency. Check the direction of rotation; if it is wrong, set **P0.09 = 1** (or swap two motor phases with the voltage switched off).

Auto-tuning

Recommended, required for vector control (SVC, P0.01 = 0). With P1.37 = 2 the motor must be decoupled from the load.

1. Set the command source to keypad: **P0.02 = 0**.
2. Enter the motor nameplate data: **P1.01** to **P1.05**.
3. Set **P1.37** (**2** = rotational, motor rotates; **1** = static, motor at standstill) and confirm with **ENTER**. The display shows **Study**.
4. Press **RUN**. The measurement begins.
5. After successful completion, the display returns to the monitoring display (current frequency). The motor data are saved.

*Fault **TE**: check the motor data and the motor cable. Details: operating manual chapter 5.2.3 and P1.37.*

Restoring factory settings

Resets all parameters to the factory settings. The motor parameters, the fault records and the operating counters are retained.

1. Stop the AC drive (PP.01 can only be changed at standstill).
2. Press **PRG** (if a password is set, enter the password first), select group **PP** with **UP/DOWN** and confirm with **ENTER**.
3. Select parameter **PP.01** with **UP/DOWN** and open it with **ENTER**.
4. Set the value **1** and confirm with **ENTER**. The factory settings are loaded.
5. Press **PRG** to exit the menu and set the parameters for the application again.

Afterwards, the direction of rotation (P0.09), the command source and the terminal functions are also reset to factory settings – check before starting. Details: operating manual chapter 5.2.4.

5. Important parameters

Parameter	Name	Setting / factory setting
P0.01	Control mode	0 = SVC, 2 = V/F (factory: 2)
P0.02	Command source	0 = keypad, 1 = terminals, 2 = communication (factory: 0)
P0.03	Main frequency source X	0 = digital (P0.08), 3 = FIC, 4 = potentiometer, 9 = communication (factory: 0)
P0.08	Frequency setpoint (digital)	Factory: 50.00 Hz
P0.09	Direction of rotation	0 = forward, 1 = reversed (factory: 0)
P0.10	Maximum frequency	50.00–599.00 Hz (factory: 50.00 Hz)
P0.12	Upper limit frequency	Factory: 50.00 Hz
P0.14	Lower limit frequency	Factory: 0.00 Hz
P0.17	Acceleration time	Factory: model-dependent
P0.18	Deceleration time	Factory: model-dependent
P1.01	Motor rated power	Nameplate (factory: model-dependent)
P1.02	Motor rated voltage	Nameplate (factory: model-dependent)
P1.03	Motor rated current	Nameplate (factory: model-dependent)
P1.04	Motor rated frequency	Nameplate (factory: model-dependent)
P1.05	Motor rated speed	Nameplate (factory: model-dependent)
P1.37	Auto-tuning	1 = static, 2 = rotational (factory: 0)
P4.00	Function terminal X1	Factory: 1 = forward run (FWD)
P4.01	Function terminal X2	Factory: 2 = reverse run (REV)
P4.04	Function terminal X5	Factory: 13 = multi-speed 2
P6.10	Stop mode	0 = decelerate to stop, 1 = coast to stop (factory: 0)
PP.01	Parameter initialisation	1 = factory settings (except motor parameters)

6. Troubleshooting

In the event of a fault, the display shows a fault code. Eliminate the cause and reset with **STOP/RESET**. Common messages:

Display	Meaning	Remedy (selection)
OC1 / OC2 / OC3	Overcurrent during acceleration / deceleration / constant speed	Check motor cable for short circuit/earth fault, perform auto-tuning, extend ramp times
OU1 / OU2 / OU3	Overvoltage	Check mains voltage, extend deceleration time, use braking resistor
LU	Undervoltage	Check mains voltage and connection
OL1 / OL2	Motor / AC drive overload	Check load and motor data, use larger unit if necessary
OH	Module overheat	Check ambient temperature, heat sink and fan
OH2	Motor overheat (motor temperature sensor)	Let the motor cool down, check the load; check sensor (PTC, PT100 …) and wiring, sensor type P9.56 (0 = no sensor)
TE	Auto-tuning fault	Check motor data P1.01–P1.05 and motor cable
EF	External fault (digital input)	Eliminate the external fault
CE	Communication fault	Check cable, baud rate (PD.00), address (PD.02), timeout (PD.04)

All fault codes and remedies: operating manual chapter 8.

Subject to technical changes. For further information, refer to the Velron VCD100 operating manual.
Mecheltron GmbH & Co. KG