

INSTRUCTIONS

OJ Drives PC-Tool



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OJ Drives®

A DRIVES PROGRAMME DEDICATED TO VENTILATION SOLUTIONS


OJ ELECTRONICS

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1. General

These instructions describe the OJ Drives PC-Tool. The OJ Drives PC-Tool is a PC-based tool for controlling, setup and configuration of OJ-DV products. This document is designed to present basic information about the tool.

As the PC-Tool has several access levels, users may not have access to all levels.

Note: These instructions describe User, Service and Engineer access levels.

Note: With AOC firmware versions older than 2.02, OJ Drives PC-Tool version 1.0 is to be used.

1.1 Product programme

PRODUCT TYPE	
OJ Drives PC-Tool ver. 2.0 and newer	OJ Drives PC-Tool Program for configuration of OJ Drives

1.2 Features

The OJ-DV product series can be configured by means of the OJ Drives PC-Tool via connection to Modbus RJ12 connector "B" on the OJ-DV.

OJ Drives PC-Tool enables you to read out and configure motor and drive parameters:

- For factory setup
- For on-site setup
- For reading out log data and saving them in a file
- For on-site diagnostics during service
- For on-site updating of software/firmware
- For configuring motor parameters and entering new settings
- For controlling the motor controller and motor
- For testing the motor controller and motor

2. Installation

2.1 System requirements

To use the OJ Drives PC-Tool, you must have an IBM-compatible personal computer that meets the following minimum system requirements:

- a Pentium PIII 1 GHz or comparable microprocessor
- 512 MB RAM
- an Internet connection for downloading the installation files or a USB port and USB memory stick
- Microsoft .NET Framework 4 Client Profile
- 5 KB available space on the hard drive

The OJ Drives PC-Tool only supports the Windows platform and cannot be used on a smartphone or tablet.

The OJ Drives PC-Tool software is compatible with the following MS Windows versions:

- Windows Vista
- Windows 7 (32 and 64 bit editions)
- Windows 8

2.2 Program installation

- The OJ Drives PC-Tool can be downloaded from <http://www.ojelectronics.com>
- Download the file to your local hard drive
- Execute the msi file
- An installation wizard will guide you through the installation process
- A program icon will appear on your desktop once the installation process has been completed

2.3 USB-to-RS485 connection

OJ-Drives PC-Tool is connected by means of a USB cable to a USB-to-RS485 converter and subsequently to Modbus connector "B" on the OJ-DV (fig. 1).

A converter for USB -> Modbus RS485 communication must be used, e.g. type CNV-USB-RS485I or USB-RS485-WE-1800-BT.

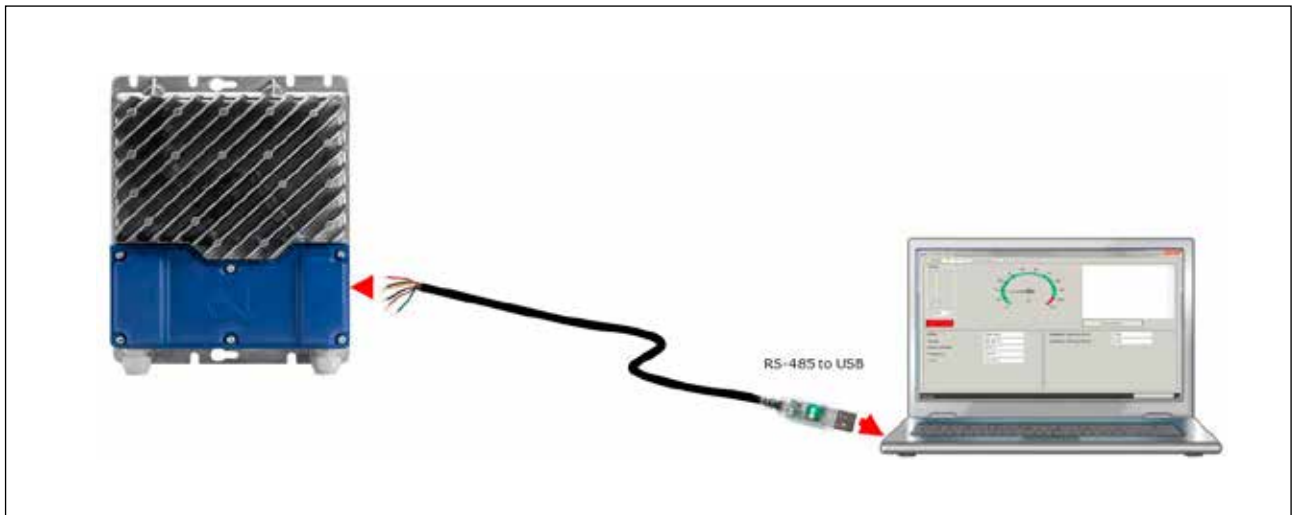
Follow the steps below:

- Consult the OJ-DV instructions for information on opening the front cover to access the Modbus connector.
- Comply with the OJ-DV safety instructions while working on the unit.
- Connect the Modbus cable to either the RJ12 "B" connector or to the spring terminals marked "A", "B" and "GND".
- Connect the Modbus cable to the USB-to-RS485 converter.
- Connect the USB cable to the USB-to-RS485 converter.
- Connect the USB cable to a USB port on the PC.
- Connect the supply power to the OJ-DV.
- Start the OJ Drives PC-Tool.

The connection is a point-to-point connection (PC to drive)

- Provides access to all connected drives in a network by changing the Modbus ID
- Prevents active Modbus communication from other devices (PC-Tool is the only master on the Modbus)

Fig. 1



When using USB-RS485-WE-1800-BT

- Modbus A: Orange wire
- Modbus B: Yellow wire
- Modbus GND: Black wire



Note

When connecting the OJ Drive to the PC via a USB cable, the PC USB port may become damaged.

- Do NOT use a PC power cable with ground plug when the PC is connected to the drive.

3. Functions

3.1 Access level overview

Access level 0: User

- Setup: Set Modbus parameters for the connected OJ-DV
- Operate: Set operation parameters for the connected OJ-DV
- Log: View log data for the connected OJ-DV
- Info: View drive software version no., type of connected OJ-DV and alarm log
- About: View OJ Drives PC-Tool version no. and contact information
- Configure: Setup and change basic settings

Access level 1: Service

- Firmware & Config: Update firmware and config files

Access level 2: Engineer

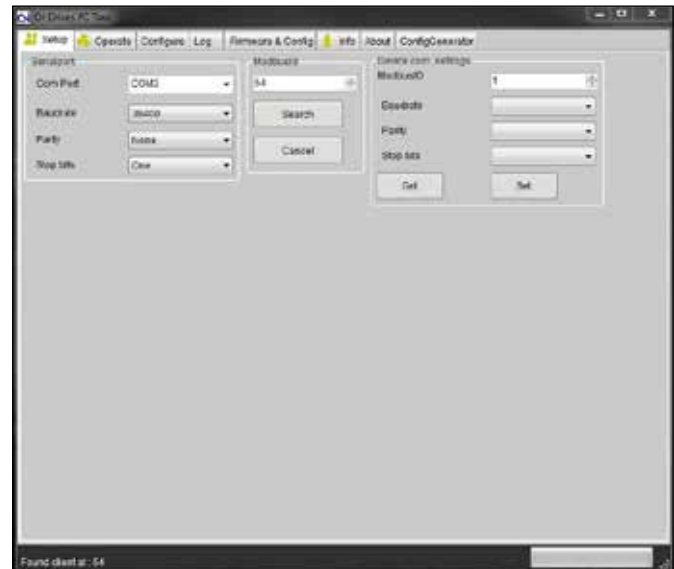
- Config Generator: Generate of new motor and/or fan config file based on name plate data

3.2 Setup (access level 0)

Set communication parameters between PC and drive

- Select COM port
- Set Modbus ID (1-248) or search for Modbus ID
- Select baud rate (9600, 19200, 38400, 115200)
- Select parity bit (None, Odd, Even)
- Select stop bits (1, 2)

Fig. 2



3.3 Operate (access level 0)

- Start and stop the OJ-DV
- Adjust the speed setpoint
- View software version numbers
- View actual operating parameters of the connected OJ-DV
 - Actual speed
 - Internal drive temperature
 - Supply voltage
 - Motor current
 - Input power
 - DC-Link voltage
 - Motor voltage
- View actual alarm status of connected OJ-DV
- Reset alarm

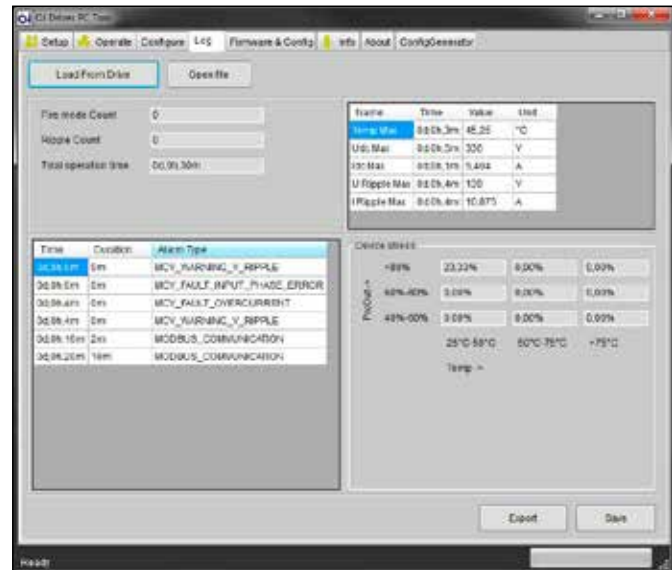
Fig. 3



3.4 Alarm log (access level 0)

- Load log file from connected OJ-DV
- Open log file from file system
- Save binary log file to file system
- Export log file in csv or txt format to file system
- View drive load profile

Fig. 4

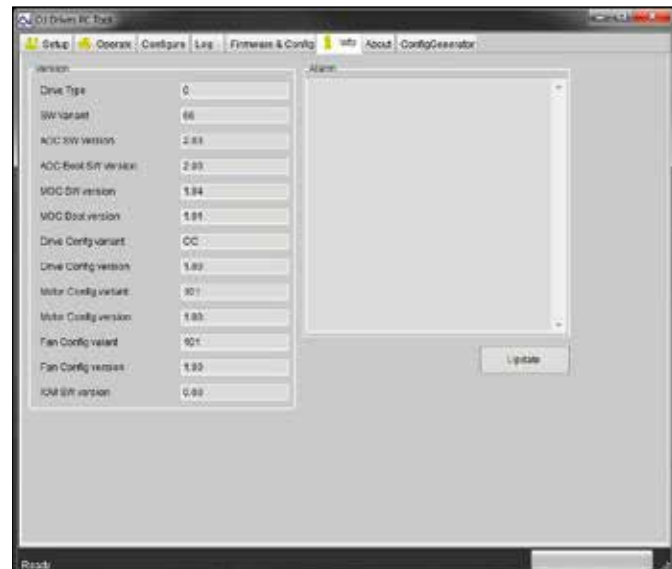


3.5 Info (access level 0)

Information on drive status

- View SW versions for AOC and MOC (both bootloader and application)
- View controller config. variant and version
- View motor and fan config variant and version
- View active alarm overview

Fig. 5



3.6 About (access level 0)

- Contact information
- PC-Tool version

Fig. 6



3.7 Configuration (access level 1)

- Set drive type
 - 0: PM motor
 - 1-100: IM/AC motor
- PM motor
 - Set min. and max. rpm values
 - Set ramp-up and ramp-down values
 - Set motor variant ID
 - Set fan variant ID
- For IM/AC motor
 - Set min. and max. Hz values
 - Set ramp-up and ramp-down values
 - Set max. motor current
 - Set voltage at min. Hz
 - Set frequency at max. voltage
 - Set the Expset value to define the curve
- General
 - Set switching frequency (Auto, Low, High)
 - Set rotation direction of fan wheel (CCW, CW)
 - Set speed control (Modbus, 0-10V)

Press "Update" to refresh data from drive

Fig. 7

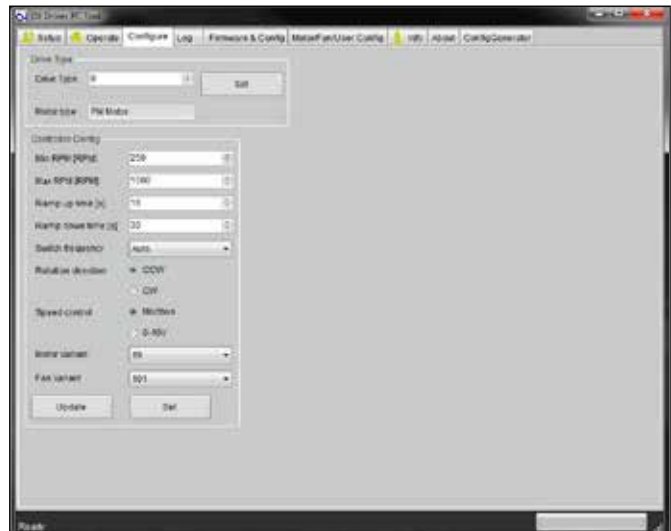
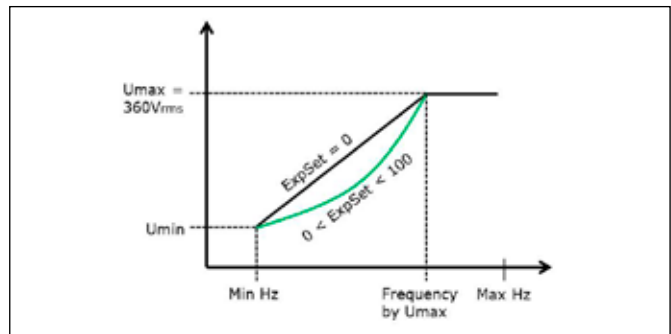


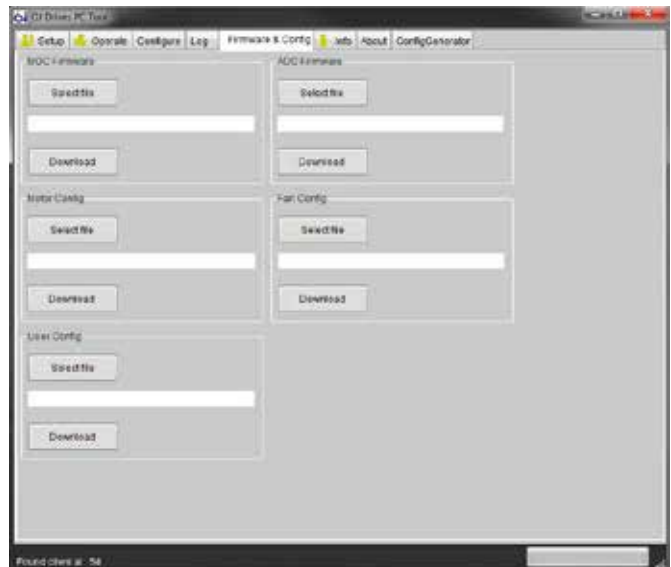
Fig. 8



3.8 Firmware & Config (access level 1)

- AOC (Application Oriented Processor) Firmware
 - Select S-record file to download from file system
 - Download AOC S-record firmware to OJ-DV
- MOC (Motor Oriented Processor) Firmware
 - Select S-record file to download from file system
 - Download MOC S-record firmware to OJ-DV
- Motor Config
 - Select binary file to download from file system
 - Download binary file to OJ-DV
- Fan Config
 - Select binary file to download from file system
 - Download binary file to OJ-DV

Fig. 9



Note

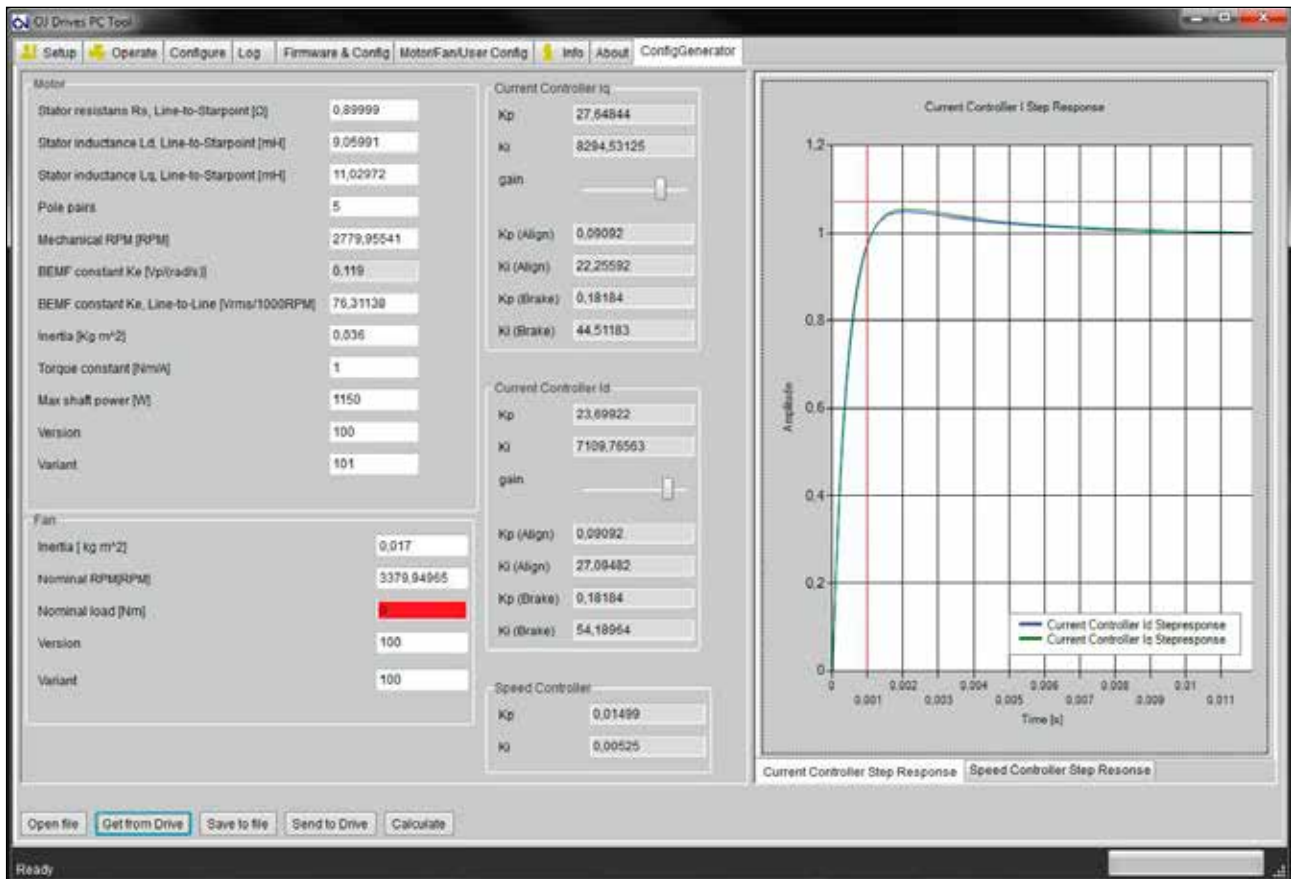
Always start updating the MOC firmware before the AOC firmware.

3.9 Config generator

Motor and Fan config file generator is used to edit an existing config file or generate a new one based on motor and fan name plate data.

- Select “Get from Drive” if you want to edit a file located on the drive
- Select “Open file” for both .mcf and .fcf if you want to:
 - View or edit a file stored on you PC.
 - If you want to create a new one based on a default file.
(default files are located in the program folder).
- Apply all motor parameters in the motor section and pay special attention to the following:
 - If only one stator “inductance” value is available, fill in the same value for Ld and Lq.
 - The top Ke value is information and will be calculated when bottom Ke value is entered. The top Ke value is used in the software and can also be viewed in the .mcf file.
- Apply all fan parameters in the fan section and pay special attention to the following:
 - Nominal load data is only used in the calculation and will not be saved.
 - Re-opening the “ConfigGenerator” will have “Nominal load” =0. Re-enter the value if a new calculation is required.
- Select calculate

Fig. 10



4. Service and maintenance

No special maintenance is required.
Please contact your supplier if the product becomes faulty.

5. Environment protection

Help protect the environment by disposing of the packaging and redundant products in a responsible manner.

6. Product disposal



Products marked with this symbol must not be disposed of along with household refuse but must be delivered to a waste collection centre in accordance with current local regulations.

7. Troubleshooting

Troubleshooting			
Symptom	Cause	Action	
No communication with OJ-DV	Lacking supply power	Check for voltage on OJ-DV terminals “L” and “N” for the 230V version or “L1”, “L2” and “L3” for the 3x400V version.	
	Defective OJ-DV	Replace the OJ-DV.	
	No connection/communication between PC and USB-to-RS485 converter		Check the USB cable.
			Check that the correct COM port has been selected in PC-Tool.
	No connection/communication between the USB-to-RS485 converter and the OJ-DV		Check that the RS485 Modbus cable is connected according to figure 1.
			Check that the RJ12 male connector is correctly attached to RJ12 female connector “B” of the OJ-DV.
	USB-to-RS485 converter configured incorrectly		Correct the configuration according to the manual you received together with the USB-to-RS485 converter.
Defective USB-to-RS485 converter		Replace the USB-to-RS485 converter	
Drive cannot be found on the Modbus network		Use the “Search” function under “Modbus ID” on the Setup page in PC-Tool.	
		In auto-detection mode, the drive constantly listens at 38.4 kbaud, no parity, 1 stop bit and Modbus ID 54.	