

INSTRUCTIONS

OJ-DV Hterm



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A DRIVES PROGRAMME DEDICATED TO VENTILATION SOLUTIONS


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INTRODUCTION

OJ-DV Hterm is a hand terminal for setting up and operating an OJ-DV. The hand terminal can be used to adapt OJ-DV operating parameters to the application concerned. It can also be used to read out current alarms.

PRODUCT PROGRAMME

PRODUCT TYPE	
OJ-DV Hterm	Service and operating unit for OJ-DV

INSTALLATION

The OJ-DV hand terminal (OJ-DV Hterm) can be mounted in the accompanying wall bracket (fig. 2), which must be fitted to a flat surface.
The hand terminal is removed from the wall bracket by pushing the terminal upwards and then pulling it out.

CONNECTION

OJ-DV Hterm must be connected to OJ-DV Modbus port “A” (fig. 3) using a bus cable (cable type: 6-core, unshielded, 30 AWG/0.066 mm² telecommunications cable or similar ribbon cable) with RJ12/6 connectors on both ends (fig. 4).

Fig. 1

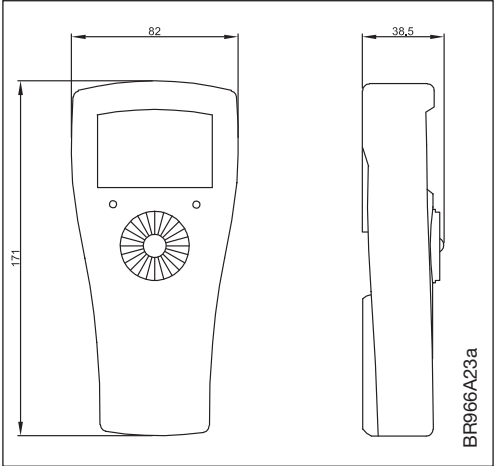


Fig. 2

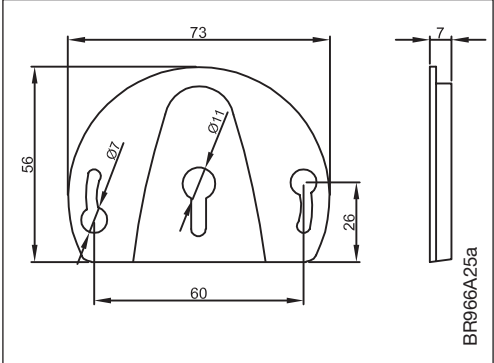


Fig. 3

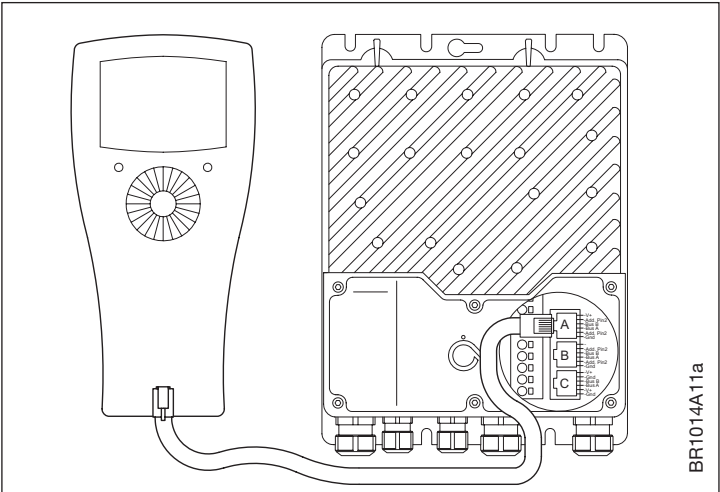
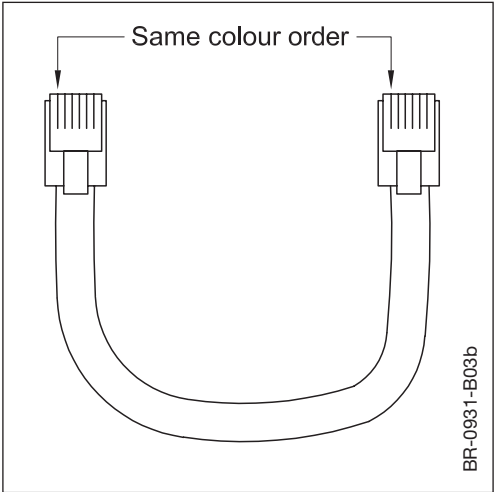


Fig. 4



Communication

The OJ DV has been designed with two Modbus settings, a Default and an Alternative.

The factory setting of the default Modbus is:

- Address (ID) of 54, when using two pins in the external communication interface.
- The Default baud rate is 38.4kbps.
- Parity = None
- Stop bits = 1

From factory the Alternative Modbus setting is:

- Address (ID) of 0
- The Alternative baud rate is 115.2kbps
- Parity = Even
- Stop bits = 1

It is possible to change the alternative Modbus setting using Modbus register.

The OJ DV is equipped with a feature that automatically detecting if there is a communication on the default or alternative Modbus setting. After 10 seconds of no communication on the default setting, the DV will search for the alternate settings and vice versa.

The DV-Hterm only uses the default setting with Modbus address 55.

FUNCTIONS

OJ-DV Hterm features an eight-line display, a navigation selector button and two LEDs.

Scroll upwards or downwards through the menus by turning the selector button and select an option by pressing the button.

Turn the button to change existing values. Save the new value by pressing the button. Select "Exit" to leave the menu.

The hand terminal communicates with OJ-DV via Modbus commands. Factory and user settings are stored in OJ-DV and the settings are remembered even if the voltage supply or connection to the hand terminal is lost.

OJ-DV Hterm contains the following six menus:

- Status: Control and operating parameters for connected OJ-DV
- Setup: Application parameter settings
- Alarm: Read-out of active alarm(s) for connected OJ-DV
- Modbus: Modbus settings for connected OJ-DV
- About: Read-out of software version and type for connected OJ-DV
- Config: Drive configuration

Details of the various settings and read-outs are shown in table 1.

Note that a PIN code is required to open the "Config" menu and thus alter the configuration of the drive. Contact OJ Electronics to obtain this PIN code.

MAIN MENU	SETTING	DESCRIPTION	VALUE
Status	Operation	Start/stop of motor	Stop/start
	Set Setpoint	With OJ-DV Hterm set to "Hterm" in the "Start/Stop" / "Control" menu, the required setpoint for EC can be set in %. With OJ-DV Hterm set to "0-10 V DC" in the "Start/Stop" / "Control" menu, the actual setpoint is displayed in %.	
	% Out	Displays actual revolutions in per cent of range (fig. 7)	0 - 100%
	Rpm Out	Displays actual revolutions	PM: 0 - ?* rpm AC: 0 - ?* Hz
	Power	Displays actual input power	0 - ?* kW
	Analogue_In 1	Displays actual voltage on external setting input	0 - 10.0 V
	Digital_In 1	Displays actual status	"1" = Active "0" = Inactive
	Digital_In 2	Displays actual status of fire mode	"1" = Active "0" = Inactive
	Op. time	Displays actual number of days of operation	0 - ? days
	Op. time	Displays actual number of minutes of operation	0 - ? minutes
	I out	Displays actual output current	0 - ?* A
	V in RMS	Displays actual input voltage	0 - ?* V
	Temp	Displays actual temperature inside OJ-DV	? - ? °C
	FIRE	Activate fire mode. "Fire" from the hand terminal or external input has higher priority than "Normal".	"1" = Fire "0" = Normal
	Exit	Return to main menu	
Setup	Control	Choice of control signal Control = Modbus OJ-DV controlled via OJ-DV Hterm. External signals are ignored, incl.: Start/stop signal (ON/OFF), and external control signal on terminals (0-10 V in). Control = 0-10 V DC OJ-DV controlled according to external control signals, incl.: Start/stop signal (ON/OFF), fire mode signal and external control signal (0-10 V in). External stop and stop from hand terminal have higher priority than start from hand terminal.	Modbus / 0-10 V DC
	Rotation	Setting rotation direction	"1" = CW "0" = CCW
	Min. rpm	Setting minimum revolutions (fig. 7)	PM: 0 - ?* rpm AC: 0 - ?* Hz
	Max. rpm	Setting maximum revolutions (fig. 7)	PM: 0 - ?* rpm AC: 0 - ?* Hz
	Up Ramp	Setting ramp-up time (fig. 6)	0 - ?* s
	Down Ramp	Setting ramp-down time (fig. 6)	0 - ?* s
	Switch Hz	Setting output switching frequency	Auto, Low, High
	Exit	Return to main menu	

MAIN MENU	SETTING	DESCRIPTION	VALUE
Alarm	Reset Alarm	Activated to reset alarm when maximum number of re-starts has been exceeded.	
	Alarm stop	Displayed in case of motor stop due to alarm.	
	Voltage low	Displayed in case of alarm due to insufficient mains voltage.	
	Voltage high	Displayed in case of alarm due to excessive mains voltage.	
	Phase error	Displayed in case of alarm due to one or more lacking phases in power supply.	
	Current high	Displayed in case of alarm due to excessive output current.	
	Current limiting	Displayed in case of active current limitation alarm (e.g. in the event of insufficient ramp time or overloaded motor).	
	V ripple	Displayed in case of alarm due to unstable mains voltage.	
	Temperature high	Displayed in case of alarm due to excessive temperature in frequency converter.	
	Rotor blocked	Displayed in case of rotor blockage.	
	Rotation direction	Displayed in case of wrong rotation direction.	
	Internal communication error	Displayed in case of internal communication error.	
	Internal HW fault	Displayed in case of an internal hardware error.	
	EEPROM error	Displayed in case of an error in the internal memory (EEPROM).	
	Motor phase error	Displayed in case of a phase error on the motor side (U, V, W).	
	Brake chopper fault	Displayed in case of a brake chopper error.	
	Ext. 24V overload	Displayed in case of overload on the external 24V supply.	
	Exit	Return to main menu	
Modbus	Address	Setting and displaying Modbus address	
	Baud rate	Setting and displaying baud rate	9600, 19200, 38400, 115200 bps
	Parity	Setting and displaying parity	None Odd Even
	Stop bits	Setting and displaying stop bits	1 2
	Timeout	Communication timeout	0 - 200 s
	Exit	Return to main menu	

MAIN MENU	SETTING	DESCRIPTION	VALUE
About	Modbus addr	Displays OJ-DV Modbus address	
	Drives type	Displays OJ-DV type	1000- ?*
	MOC SW ver	Displays OJ-DV MOC software version	
	MOC Boot ver	Displays OJ-DV MOC bootloader version	
	AOC SW ver	Displays OJ-DV AOC software version	
	AOC Boot ver	Displays OJ-DV AOC bootloader version	
	IO SW ver	Displays I/O module software version	
	HW Cfg var	Display Hardware configuration variant	
	HW Cfg ver	Display version of the Hardware configuration version	
	Motor Cfg var	Displays motor configuration variant	
	Motor Cfg ver	Displays version of the motor configuration version	
	Fan Cfg var	Displays fan configuration variant	
	Fan Cfg ver	Displays version of the fan configuration version	
	User Cfg var	Displays user data variant	
	User Cfg ver	Displays version of the user data version	
	Hterm SW ver.	Displays OJ-DV Hterm software version	
	Exit	Return to main menu	
Config	Drive configuration	Enter PIN code for access Please contact OJ Electronics	

Table 1

*= Depends on the size of the OJ-DV concerned

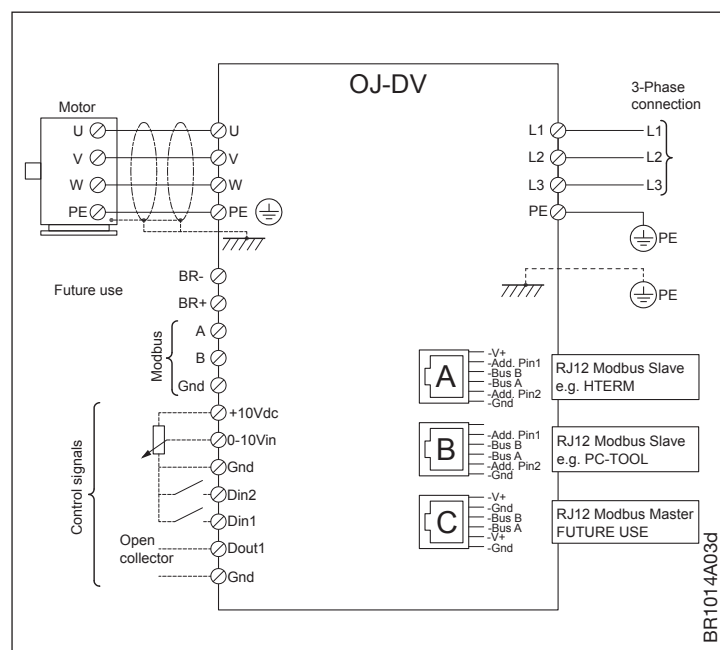
For further information on the OJ-DV, please refer to the OJ-DV instructions.

USING THE HTERM TO SET AN ALTERNATIVE MODBUS ADDRESS

Only one master can be connected at a time.

Remove the AHU Master's Modbus connection to the DV (terminals A,B and Gnd or RJ12 connection B), wait 10 seconds before connecting the Hterm to the RJ12 connection A.

Fig. 6



DV HTERM

After connection of the DV Hterm to the DV Modbus RJ12 port A, there will come light in the display and the following menu will be shown.

- Scroll down the menu list to MODBUS by use of the “Wheel”
- Press the center of the circular wheel,
- Here you can enter the Alternative Modbus setting for the DV
 - ADDRESS
 - BAUDRATE
 - PARITY
 - STOPBITS
 - TIMEOUT



CHANGE OF MODBUS ID / ADDRESS:

1. Move the black field on to the **ADDRESS**
2. Press the center of the Wheel
3. You can now by turning the wheel change the Modbus **ADDRESS** to the required ID.
4. Press the center of the wheel to accept the selected new ID and leave edit mode
5. Turn the Wheel so the “black filed” is on BAUDRATE and the above described process is to be repeated..

Repeat the process to change **BAUDRATE, PARITY, STOPBITS** and **TIMEOUT**

Move the black field to **EXIT** and press the dial to leave this menu.

Allow the system 10 seconds to store the settings before removing the Hterm.

The DV will search for the default Modbus address for 10 seconds before changing and searching for the alternate Modbus address.

If the HTerm is then reconnected to the DV and the menu **ABOUT** is selected, the **MODBUS ADDR** will show “55”. This is the Hterm’s default Modbus address/ID.

This does not mean that the Alternative Address has been rejected or not installed.
The Alternative Modbus Address can still be found by the AHU master.

TECHNICAL DATA

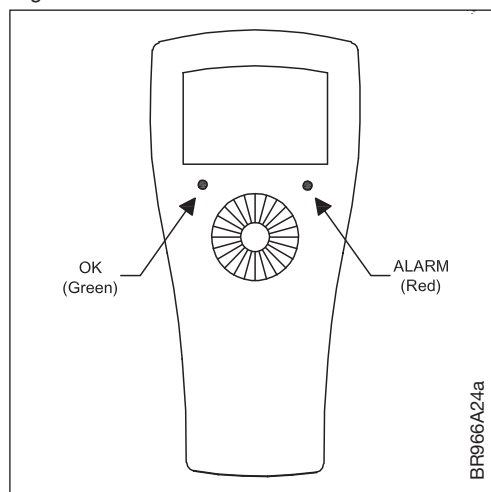
Supply voltage 24 VDC from OJ-DV
 Modbus RTU 2 x RJ12/6/6-pole RS485
 Enclosure rating IP21
 Air humidity 10-95% non-condensing
 Storage temperature -30.. +50°C
 Operating temperature 0.. +40°C
 Dimensions 171 x 82 x 38.5 mm
 Weight 150 g

LED INDICATION

The hand terminal has two built-in LEDs (fig. 5), which indicate the following:

	On	Flashing
Red LED		Alarm active
Green LED:	OK	Override with hand terminal

Fig. 6



ALARMS

Current alarms are displayed as shown in Table 1.

Alarms are automatically reset if the alarm situation passes, and OJ-DV is restarted. However, once the maximum number of restarts has been exceeded, the alarm must be reset by selecting "Reset Alarm" in the alarm menu. Alternatively, the "Alarm reset" input on OJ-DV can be short-circuited to earth (only if Control = 0-10V) or the voltage supply to OJ-DV can be disconnected.

SERVICE AND MAINTENANCE

No special maintenance is required.

Please contact your supplier if you experience problems with the product.

DISPOSAL AND ENVIRONMENTAL PROTECTION

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

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.

Troubleshooting		
Symptoms	Cause	Action
No values/light in OJ-DV Hterm	OJ-DV is switched off	Switch OJ-DV on
	Defective Modbus cable	Replace Modbus cable
	RJ12 connector incorrectly fitted	Check connection at both ends
		Insert RJ12 connector into port "A" on OJ-DV

Fig. 7

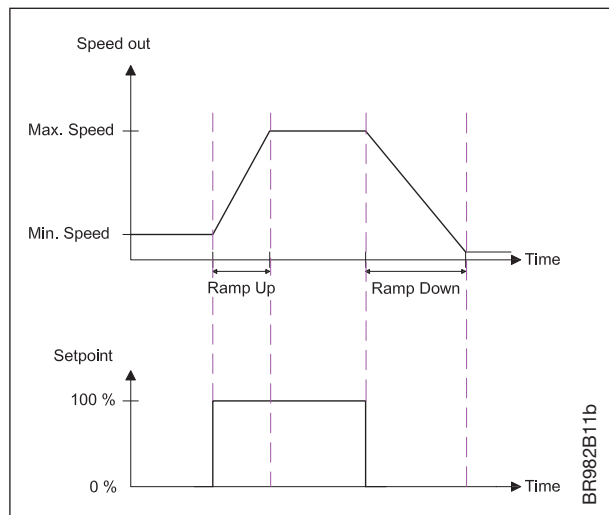


Fig. 8

