Instructions for the hand-held micro terminal of the fan motor control system, TBLZ-1-75 SILVER C

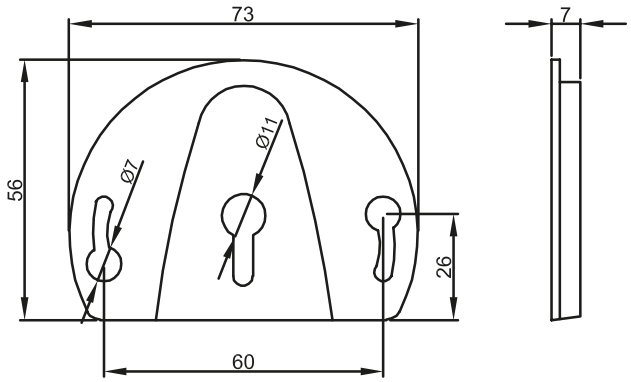
1. General

The hand-held micro terminal is used for setting the motor parameters of the SILVER C.

2. Installation

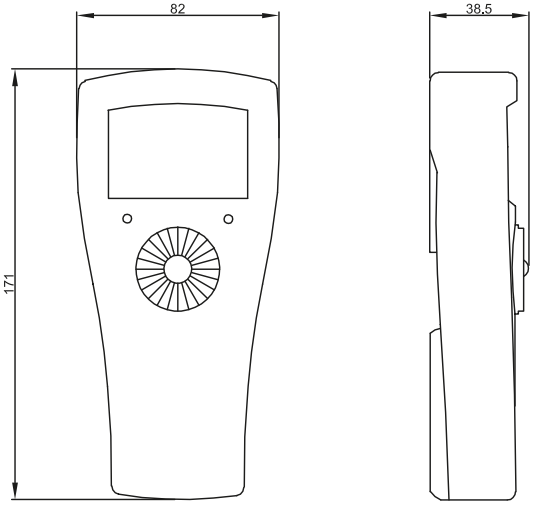
The hand-held micro terminal can be hung in the wall mounting supplied, See illustration below. Mount the wall mounting on a flat surface.

To lift the hand-held micro terminal out of the wall mounting, slide it upward and then draw it out.



3. Technical data

Supply voltage	From junction box
Modbus RTU	2 x RJ12/6/6-pole RS485
Enclosure class:	IP21
Humidity	10 – 95 % - non-condensing
Ambient temperature	-30.. +50 °C (Storage)
	0.. +40 °C (in operation)
Dimensions	171 x 82 x 38.5 mm
Weight	150 g



4. Function

The hand-held micro terminal communicates with the motor control system via Modbus commands.

Factory and user settings are stored in the control system. The settings are preserved in the memory even if the line voltage is switched off or if the hand-held micro terminal is removed.

If the hand-held micro terminal is not used for more than 10 minutes, the system automatically switches back to the main menu. This reduces the risk of unintentional entry of settings.

The possible settings and displays are shown in the table on the next page. Scrolling up and down in the menu is done by turning the adjusting knob on the hand-held micro terminal, and selections are entered by pressing on the adjusting knob. Modification of the selected values is done by turning the adjustment knob. Select "Exit" to leave the menu.

Standard Modbus address is Address = 54.
Standard baudrate is set to 38.4 Kbit/s.

The Modbus address and other motor parameters can be changed in the hand-held micro terminal.

The standard Modbus address and baudrate can be changed with the hand-held micro terminal in the following way:
With the function selector switch (See illustration) set to "0", set the parameters to the required values with the hand-held micro terminal. When the new values have been set, set the function selector switch to position "1". This activates the user-preset parameters.

The hand-held micro terminal will not work if the baudrate is changed from the standard setting of 38.4 kBit/s and if the hand-held micro terminal is disconnected from contact "C".

If the standard baudrate is changed from 38.4 Kbit/s and the hand-held micro terminal is disconnected from its connection, it will only be possible to restart communication with the hand-held micro terminal if the function selector switch is set to position "0". The baudrate will then be set to 38.4 Kbit/s. If the function selector switch is subsequently set to position "1", the user-preset parameters will be activated again.

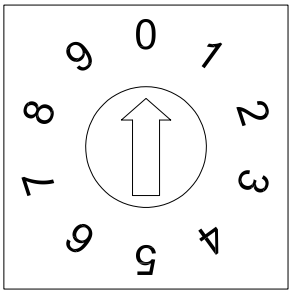


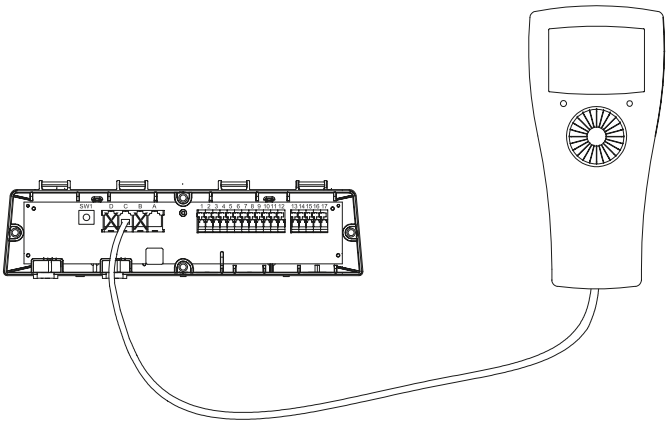
Table:

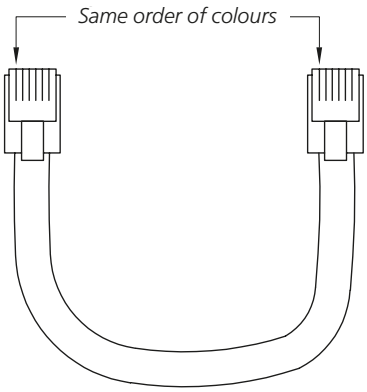
MAIN MENU	SETTINGS	DESCRIPTION	VALUE
Status	Set Setpoint	With the Hand-held micro terminal set to the "HTERM" mode in the "Start/Stop"/"Control" menu, set the required set point in the EC in %. With the Hand-held micro terminal in the "0-10VDC" mode in the "Start/Stop"/"Control" menu, read the current set point in %.	0 – 100 %
	% Out	Shows the current speed of rotation as a percentage of the range (See Section 11).	0 – 100 %
	Rpm Out	Shows the current speed of rotation	0 - ?* min-1
	Power	Shows current input power	0 - ?* kW
	External Set	Shows the current voltage on the External setting input	0 - 10.0 V
	External STOP	Shows the current status on the ON/OFF input, Terminals 7 and 8.	"1" = Stop / "0" = Start
	External FIREMODE	Shows the current status on the fire input, Terminals 9 and 10.	"1" = Normal / "0" = Brand
	Op. time	Shows the current operating time as number of days.	0 - ? days
	Op. time	Shows the current operating time in minutes.	0 - ? minutes
	I out	Shows present output current	0 -?* A
	V in RMS	Shows current input voltage	0 - ?* V
	Temp.	Shows the current temperature inside the control system.	? - ? °C
	Exit	Return to the Main menu.	
Start/Stop	Operation	Start/Stop the motor	Stop/Start
	Control	Selection of control signal **Control = HTERM** EC is controlled from the hand-held micro terminal. External signals are ignored, including: Start/Stop on Terminals 7 and 8 (ON/OFF). The fire signal on Terminals 9 and 10 (Firemode) as well as the external control signal on Terminals 13 and 14 (0 – 10 V in). **Control = 0-10 V DC** EC is controlled from external control signals, including: Start/Stop on Terminals 7 and 8 (ON/OFF). The fire mode signal on Terminals 9 and 10 (Firemode) as well as the external control signal on Terminals 13 and 14 (0 – 10 V in). External stop and stop from the hand-held micro terminal have higher priority than start from the hand-held micro terminal.	HTERM / 0-10 V DC
	FIRE	Activate the Fire mode. "Fire" from the hand-held micro terminal or external input have higher priority than "Normal". Important! For high internal temperature inside the EC control system, the display window backlight is turned off when "Fire" is active.	"1" = Fire / "0" = Normal
	Exit	Return to the Main menu.	
Alarms	Reset Alarm	Is activated in order to reset alarms when the maximum number of restarts has been exceeded.	
	Alarm stop	Shown when the motor has stopped due to an alarm.	
	Voltage low	Shown when an alarm has been initiated due to excessively low line voltage.	
	Voltage high	Shown when an alarm has been initiated due to excessively high line voltage.	
	Phase error	Shown when an alarm has been initiated because one line voltage supply phase is missing.	
	Current high	Shown when an alarm has been initiated due to excessively high output current.	
	Current limiting	Shown when an alarm has been initiated because the current limiting function is active (e.g. if the ramp time is excessively short or if the motor is overloaded).	
	I ripple	Shown when an alarm has been initiated due to unstable line voltage.	
	Temperature high	Shown when an alarm has been initiated due to excessively high temperature in the frequency inverter.	
	Rotor Blocked	Shown when the rotor is blocked.	
	Internal error	Shown when an alarm has been initiated due to an internal fault inside the frequency inverter.	
	EC com. error	Internal communication error between the junction box and the EC- control system.	
	Exit	Return to the Main menu.	
Edit setup	Min. rpm	Setting of the lowest speed of rotation (See also Section 11).	0 - ?* min-1
	Max. rpm	Setting of the highest speed of rotation (See also Section 11).	0 - ?* min-1
	Up Ramp	Setting of the ramp up time (See also Section 10).	0 - ?* s
	Down Ramp	Setting of the ramp down time (See also Section 10).	0 - ?* s
	Switch Hz	Setting of the switching frequency on the output.	Auto, Low, High
	Exit	Return to the Main menu.	
Modbus	Address	Setting of the Modbus address display.	
	Baudrate	Setting of the baudrate display.	4 800, 9 600,19 200, 38 400, 57 600, 115 200 Bps.
	Parity	Setting of the parity display.	None/Odd/Even
	Stop bits	Setting and display of stopbits.	None/1/2
	Exit	Return to the Main menu.	
About EC	SLAVE ADDRESS	Status of the EC control system's internal address.	
	EC type	Status of the type of EC control system.	1000- ?*
	FC SW ver.	Status of the EC control system's program version.	
	I/O SW ver.	Status of the I/O module's program version.	
	Boot SW ver.	Status of the EC control system's boot program version.	
	Term SW ver.	Status of the hand-held micro terminal's program version.	
	Exit	Return to the Main menu.	

**= Depends on size of the connected control system*

5. Electrical connections

Connect the hand-held micro terminal to contact "C" in the junction box (installed on the side of the fan mounting frame) via a bus cable (cable type MPFK6S or the like) with an RJ12/6-connector at both ends, see figures below.



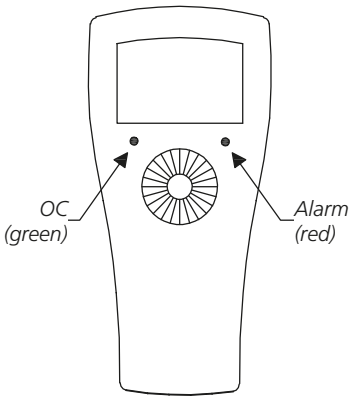


ronics A/S

6. Indications, LEDs

The hand-held micro terminal has two integrated LEDs (See figure) with the following function:

	Steady glow	Flashing
Red LED	-	Alarm active
Green LED	OC	Oversteering with hand-held micro terminal.



7. Alarm

For particulars of current alarms, see table in Section 4.

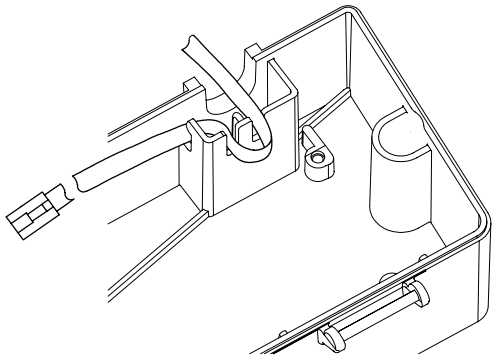
Alarms are reset automatically if the fault ceases to exist and the EC control system starts up again.

If the maximum number of restarts has been exceeded the resetting of alarms can take place by selecting "Reset Alarm" in the alarm menu. As an alternative, the "Alarm Reset" input can be short-circuited (Terminal 11 (Alarm reset) and 12 (⏚) in the junction box) or the line voltage to the EC control system can be replaced.

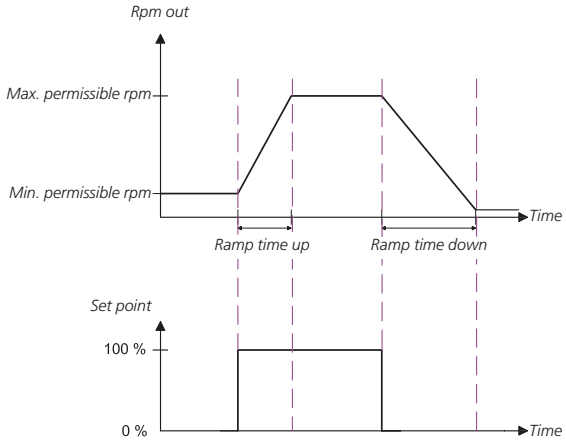
8. Trouble shooting

Symptoms	Cause	Action
No values in the hand-held micro terminal – Display window off	The EC control system is switched off	Start the EC control system
	Modbus cable is defective	Repair or replace the Modbus cable
	Incorrectly set baudrate, communication speed	Set the function selector switch in the junction box to position "0" (See Section 4)
	The RJ12 connector is not correctly connected	Check the contact connections in both the hand-held micro terminal and in the junction box. In the junction box the contact "C" should be used for connection of the hand-held micro terminal. Both the RJ12 connectors are active and can be used in the hand-held micro terminal.

9. To de-tension the Modbus cable leading to the hand-held micro terminal



10. The ratio between the rpm and the ramp up time and ramp down time



11. The ratio between the rpm and the min. and max. settings