

# INSTRUCTIONS

## Type FC-HTERM

57023B 07/09 (DJU)



### Dansk

- Dansk
- Engelsk

FC-håndterminalen anvendes til indstilling af FC frekvensomformere. Med håndterminalen kan frekvensomformerens parametre tilpasses den aktuelle ventilator. De ændrede indstillinger kan gemmes i to forskellige brugeropsætninger, og der er mulighed for at genkalde den oprindelige fabriksopsætning, som ikke kan ændres. Frekvensomformerens kan tvangsstyres samtidigt med at aktuelle driftsværdier som f.eks. frekvens, strøm og effekt udlæses på håndterminalen.

### PRODUKTPROGRAM

#### Type

FC-HTERM Håndterminal til  
FC frekvensomformere

### FUNKTION

Håndterminalen kommunikerer direkte med FC frekvensomformereren vha. Modbus kommandoer. Fabriks- og brugeropsætninger er lagrede i frekvensomformereren, og indstillingerne huskes selvom netspænding eller håndterminal afbrydes. Hvis håndterminalen er ubenyttet i mere end 10 minutter, skiftes automatisk tilbage til hovedmenu, så risikoen for fejlbetjening reduceres. Indstillingsmuligheder og visninger fremgår af tabel 1.

Der bladres op/ned i menuen ved at dreje på håndterminalens knap, og valg foretages ved at trykke på knappen. Valgte værdier redigeres ved at dreje. Forlad menuen ved tryk på knappen.

### CE-MÆRKNING

OJ Electronics A/S erklærer under ansvar, at dette produkt opfylder Rådets Direktiv 92/31 og efterfølgende ændringer om elektromagnetisk kompatibilitet samt Rådets Direktiv 73/23 om elektrisk materiel bestemt til anvendelse inden for visse spændingsgrænser.

### Anvendte standarder

EN-61800-2 "Elektriske motordrev med variabel hastighed, generelle krav"  
EN-61000-6-3 og EN-61000-6-2  
"Elektromagnetisk kompatibilitet (EMC)"

Produktet må kun tages i anvendelse når hele installationen opfylder gældende direktivkrav.

### TEKNISKE DATA

Forsyningsspænding . . .Fra FC frekvensomformer  
Modbus RTU . . . . . 2 x RJ12/6-polet RS485  
Tæthedsklasse . . . . . IP21  
Luftfugtighed . . . . .10-95% ikke kondenserende  
Omgivelsestemperatur . . . -30 - +50°C (opstart)  
0 - +40°C (drift)  
Dimensioner . . . . . 171 x 82 x 38,5 mm  
Vægt . . . . . 150 g

### MONTERING

FC-håndterminalen kan hænges på det medfølgende vægbeslag (fig. 2), som monteres på en plan overflade. Håndterminalen løftes ud af vægbeslaget ved at skubbe håndterminalen op, og derefter trække den ud.

### TILSLUTNING

Håndterminalen tilsluttes FC-frekvensomformereren vha. et buskabel med RJ12/6 stik i begge ender (fig. 3). I frekvensomformereren skal jumperen "Ext. Supply" indstilles som vist i fig. 3. Se FC instruktionen for yderligere information om frekvensomformereren.

### LED visninger

Håndterminalen har indbygget to lysdioder (fig. 4) som har flg. funktion:

	On	Blink
Rød LED		Alarm aktiv
Grøn LED	OK	Overstyring m. håndterminal

### Alarmer

Aktuelle alarmer udlæses som vist i tabel 1. Alarmer resettes automatisk hvis fejlen forsvinder, og frekvensomformereren starter op igen. Hvis det maksimale antal genstarter er overskredet, skal alarmeren resettes ved at vælge "Reset Alarm" i alarmmenu. Alternativt kan "Alarm reset" indgangen kortsluttes til stel (fig. 5), eller forsyningsspændingen afbrydes.

### Miljø og genbrug

Hjælp med at beskytte miljøet, ved at bortskaffe emballage og brugte produkter, på en miljørigtig måde.



### Bortskaffelse af produktet

Produkter med dette mærke, må ikke bortskaffes som almindeligt husholdningsaffald, men skal indsamles særskilt i henhold til de

gældende lokale regler.

### Figurer

Figur 1: Dimensioner  
Figur 2: Vægbeslag  
Figur 3: Tilslutning til frekvensomformer  
Figur 4: Lysdiode indikeringer  
Figur 5: Alarm reset indgang  
Figur 6: Indstilling af max/min udgangsfrekvens  
Figur 7: Indstilling af rampe op/ned tid  
Figur 8: Udgangsfrekvens i procent

Tabel 1

Hoved menu	Indstillinger	Beskrivelse	Værdi
Edit setup	Min Hz	Indstilling af Minimum udgangsfrekvens (fig. 6)	0 - 50Hz
	Max Hz	Indstilling af Maximum udgangsfrekvens (fig. 6)	0 - 150Hz
	Up Ramp	Indstilling af Rampe op tid (fig. 7)	0 - 200s
	Down Ramp	Indstilling af Rampe ned tid (fig. 7)	0 - 200s
	Switch Hz	Indstilling af Switch frekvens på udgang	Normal, Medium, High
	Exit	Retur til hovedmenu	
Save setup	User Setup 1	Gemmer aktuelle indstillinger i User Setup 1	
	User Setup 2	Gemmer aktuelle indstillinger i User Setup 2	
	Exit	Retur til hovedmenu	
Load setup	Factory Setup	Henter fabriksindstillinger	
	User Setup 1	Henter indstillinger i User Setup 1	
	User Setup 2	Henter indstillinger i User Setup 2	
	Exit	Retur til hovedmenu	
Status	Set Setpoint	Med FC-HTERM i stilling "HTERM" i menuen "Start/Stop"/ "Control" indstilles ønsket setpunkt på FC i %. Med FC-HTERM i stilling "0-10VDC" i menuen "Start/Stop"/"Control" aflæses aktuelt setpunkt i %.	0 - 100%
	% Out	Viser aktuel udgangsfrekvens i procent af område (fig. 8)	0 - 100%
	Hz Out	Viser aktuel udgangsfrekvens	0 - 150 Hz
	I out	Viser aktuel udgangsstrøm	0 - 20,0 A
	Power	Viser aktuel indgangseffekt	0 - 15,00kW
	Extern Set	Viser aktuel spænding på Extern Set indgang	0 - 10,0 V
	Extern STOP	Viser aktuel status på ON/OFF-input, klemme 14 (fig.5)	"1"=stop / "0"=Start
	Exit	Retur til hovedmenu	
Alarm	Reset Alarm	Aktiveres for at resette alarm når det maksimale antal genstarter er overskredet.	
	Voltage low	Vises når der er alarm pga. for lav netspænding	
	Voltage high	Vises når der er alarm pga. for høj netspænding	
	Current high	Vises når der er alarm pga. for høj udgangsstrøm	
	Temperature high	Vises når der er alarm pga. for høj temperatur i frekvensomformer	
	Phase error	Vises når der er alarm pga. manglende fase på netspændingen	
	Internal error	Vises når der er alarm pga. intern fejl i frekvensomformer.	
	Current limiting	Vises når der er alarm fordi strømbegrænsningen er aktiv (f.eks. kortslettet frekvensomformer udgang)	
	Exit	Retur til hovedmenu	
Start/stop	Operation	Start/stop af frekvensomformer.	Stop/start
	Control	Valg af controlsignal. HTERM = FC reguleres via HTERM. External stop på klemme ON/OFF samt ekstern styresignal på klemme 0-10 VDC, ignoreres. 0-10VDC = FC reguleres i h.t. eksterne styresignaler på klemmerne ON/OFF samt 0-10VDC i FC. External stop har højere prioritet end start.	HTERM / 0-10VDC
	Exit		
Modbus	Slave address	Udlæsning af frekvensomformerens slave adresse på Modbus	48-49 (HEX-værdi)
	FC SW ver.	Udlæsning af frekvensomformerens software version	
	I/O SW ver.	Udlæsning af frekvensomformer I/O modul software version	
	TERM SW ver	Udlæsning af håndterminal software version	
	Exit	Retur til hovedmenu	

---

# English

---

The FC hand terminal is used to set FC frequency converters. With the hand terminal, the frequency converter parameters can be adjusted to the fan concerned. Changed settings can be stored in two different user setups, and it is possible to recall the original factory settings, which cannot be changed. The frequency converter can be remotely controlled while operating values such as frequency, current and output can be read on the hand terminal display.

---

## PRODUCT PROGRAMME

---

### Type

FC-HTERM Hand terminal for FC frequency converters

---

### FUNCTION

The hand terminal communicates directly with the FC frequency converter by means of Modbus commands. Factory and user setups are stored in the frequency converter, and the settings will be remembered even if the power supply or hand terminal is disconnected. If the hand terminal is not used for more than 10 minutes, it will automatically revert to the main menu so that the risk of incorrect operation is reduced. Possible settings and displays appear from Table 1.

By turning the hand terminal button, it is possible to scroll upwards or downwards through the menus. Selections are made by pressing the button. Selected values are changed by turning the button. Menus are exited by pressing the button.

### CE MARKING

OJ Electronics A/S hereby declares that the product is manufactured in accordance with Council Directive 92/31/EEC (and subsequent amendments) on electromagnetic compatibility, and Council Directive 73/23/EEC on electrical equipment designed for use within certain voltage limits.

### Applied standards

EN-61800-2 "Adjustable speed electrical power drive systems – Part 2: General requirements".  
EN-61000-6-3 and EN-6100-6-2  
"Electromagnetic compatibility (EMC)".

*The product may only be used if the complete installation complies with applicable directives.*

### TECHNICAL DATA

Supply voltage . . .From FC frequency converter  
Modbus RTU . . . . . 2 x RJ12/6 pole RS485  
Enclosure rating . . . . . IP 21  
Ambient air humidity . .10-95% non-condensing  
Ambient temperature . . . -30 - +50°C (start-up)  
0 - +40°C (operation)  
Dimensions . . . . . 171 x 82 x 38.5 mm  
Weight . . . . . 150 g

### INSTALLATION

The FC hand terminal can be positioned in the accompanying wall bracket (fig. 2), which must be fitted on a plane surface.

The hand terminal is removed from the wall bracket by pushing the terminal upwards and then pulling it out.

### CONNECTION

Connect the hand terminal to the FC frequency converter by means of a bus cable fitted with an RJ12/6 connector at each end (fig. 3). In the frequency converter, set the jumper "Ext. Supply" as illustrated in fig. 3. For further information on the frequency converter, please refer to the FC instruction manual.

### LED indication

The hand terminal has two LEDs (fig. 4), which indicate the following:

	On	Flashing
Red LED		Alarm active
Green LED	OK	Override by means of hand terminal

### Alarms

Current alarms are read as shown in Table 1. Alarms are automatically reset if the alarm situation passes, and the frequency converter restarts. 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 can be short-circuited to ground (fig. 5) or the supply voltage disconnected.

### Environment protection/recycling

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

### Figures

- Figure 1: Dimensions
- Figure 2: Wall bracket
- Figure 3: Connection to frequency converter
- Figure 4: LED indication
- Figure 5: Alarm reset input
- Figure 6: Setting max./min. output frequency
- Figure 7: Setting ramp up/down time
- Figure 8: Output frequency displayed in per cent

Table 1

Main menu	Settings	Description	Value
Edit setup	Min Hz	Setting minimum output frequency (fig. 6)	0 - 50Hz
	Max Hz	Setting maximum output frequency (fig. 6)	0 - 150Hz
	Up Ramp	Setting ramp up time (fig. 7)	0 - 200s
	Down Ramp	Setting ramp down time (fig. 7)	0 - 200s
	Switch Hz	Setting output switch frequency	Normal, Medium, High
	Exit	Return to main menu	
Save setup	User Setup 1	Saves current settings in User Setup 1	
	User Setup 2	Saves current settings in User Setup 2	
	Exit	Return to main menu	
Load setup	Factory Setup	Collects factory settings	
	User Setup 1	Collects settings in User Setup 1	
	User Setup 2	Collects settings in User Setup 2	
	Exit	Return to main menu	
Status	Set Setpoint	If FC-HTERM is set to "HTERM" in the "Start/Stop" / "Control" menu, the required FC setpoint can be set in %. If FC-HTERM is set to "0-10VDC" in the "Start/Stop" / "Control" menu, the actual setpoint is displayed in %.	0 - 100%
	% Out	Display of output frequency in per cent of area (fig. 8)	0 - 100%
	Hz Out	Display of output frequency	0 - 150 Hz
	I out	Display of output current	0 - 20,0 A
	Power	Display of input power	0 - 15,00kW
	Extern Set	Display of external setpoint input voltage	0 - 10,0 V
	Extern STOP	Viser aktuell status på ON/OFF-input, klemme 14 (fig.5)	"1"=stop / "0"=Start
	Exit	Return to main menu	
Alarm	Reset Alarm	Activate to reset alarm when maximum number of restarts has been exceeded.	
	Voltage low	Displayed in case of alarm due to insufficient power supply.	
	Voltage high	Displayed in case of alarm due to excessive power supply.	
	Current high	Displayed in case of alarm due to excessive output current.	
	Temperature high	Displayed in case of alarm due to excessive temperature in frequency converter.	
	Phase error	Displayed in case of alarm due to missing phase in power supply.	
	Internal error	Displayed in case of alarm due to internal error in frequency converter.	
	Current limiting	Displayed in case of alarm due to current limiting being active (e.g. short-circuited frequency converter output)	
	Exit	Return to main menu	
Start/stop	Operation	Start/stop of frequency converter.	Stop/start
	Control	Choice of control signal. HTERM = FC is controlled via HTERM. External stop on terminal ON/OFF and external control signal on terminal 0-10VDC are ignored.  0-10VDC = FC is controlled by external control signals connected to terminals ON/OFF and 0-10VDC in FC. External stop has higher priority than start.	HTERM / 0-10VDC
	Exit		
Modbus	Slave address	Display of frequency converter slave address on Modbus.	48-49 (HEX value)
	FC SW ver.	Display of frequency converter software version.	
	I/O SW ver.	Display of frequency converter I/O module software version.	
	TERM SW ver	Display of hand terminal software version	
	Exit	Return to main menu	

Fig. 1 - Dimensions

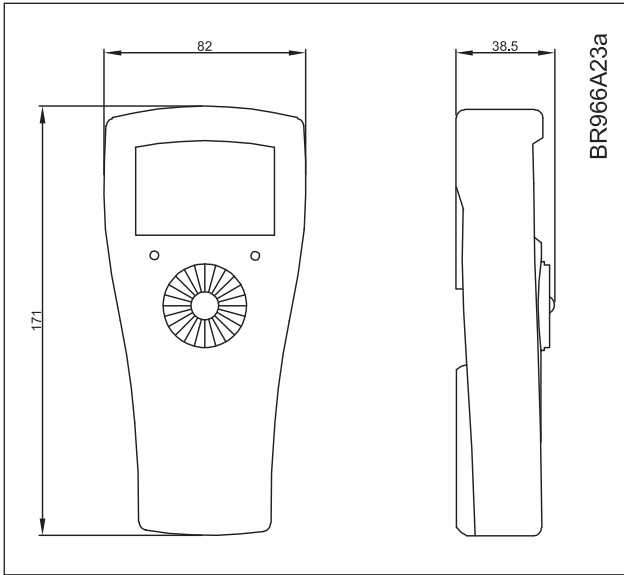


Fig. 2 - Wall bracket

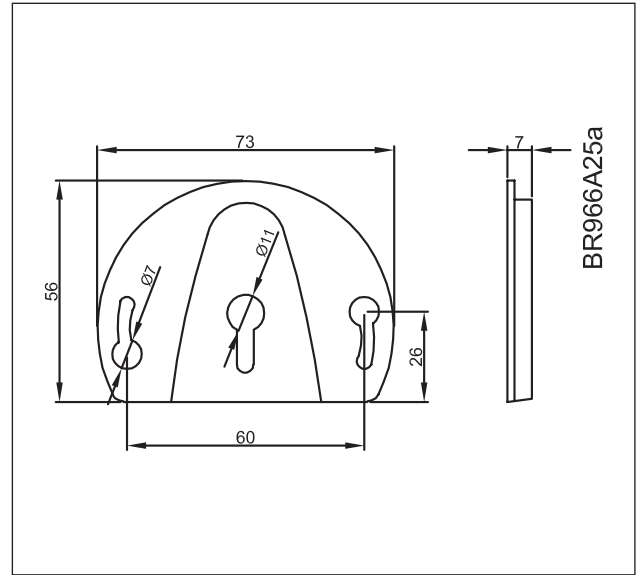


Fig. 3 - Connection to frequency converter

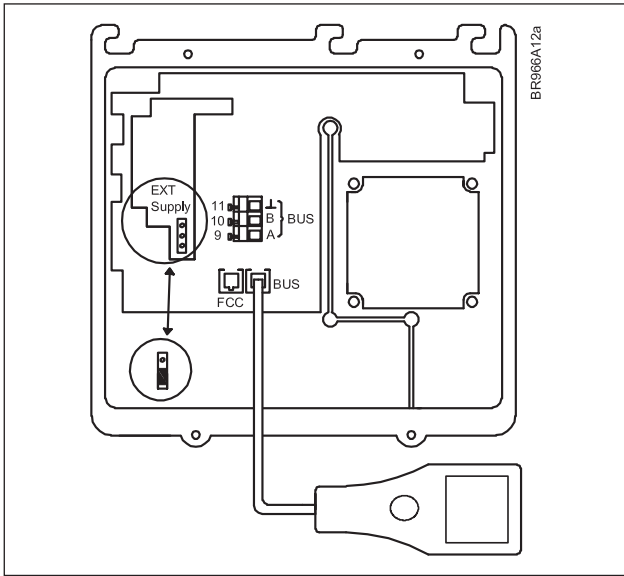


Fig. 4 - LED indication

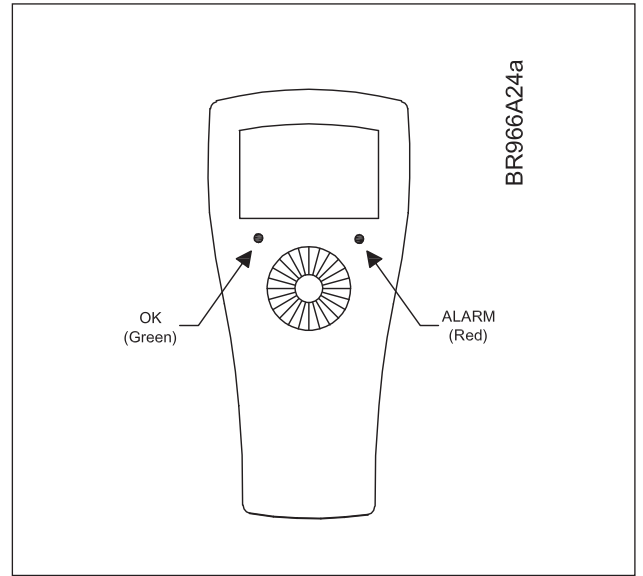


Fig. 5 - Alarm reset input

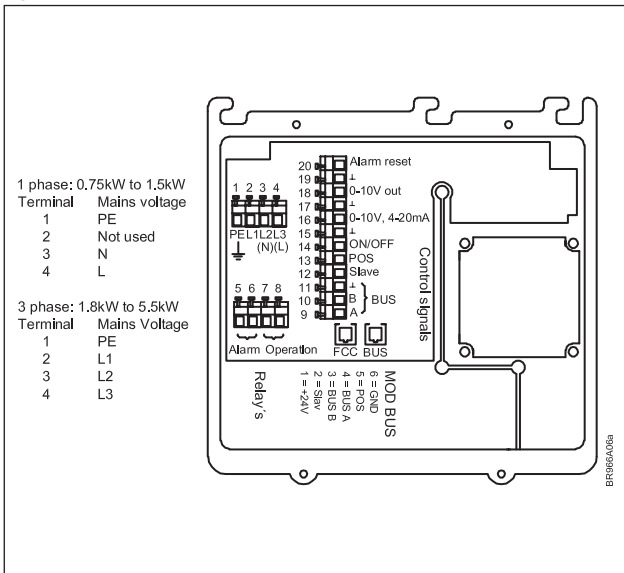


Fig. 6 - Setting max./min. output frequency

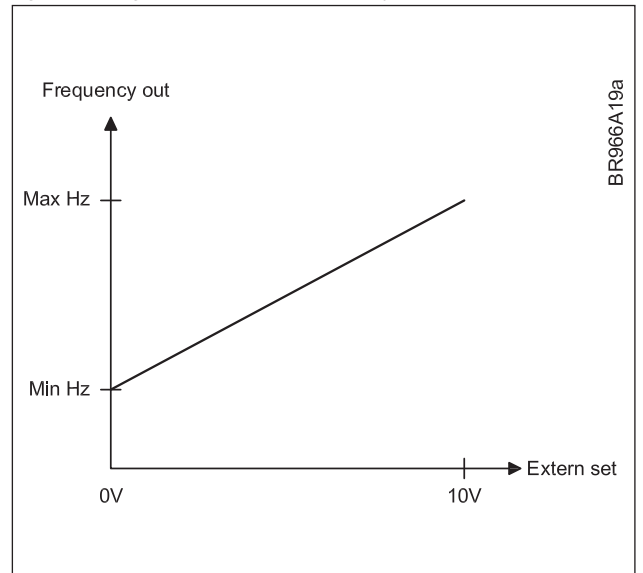


Fig. 7 - Setting ramp up/down time

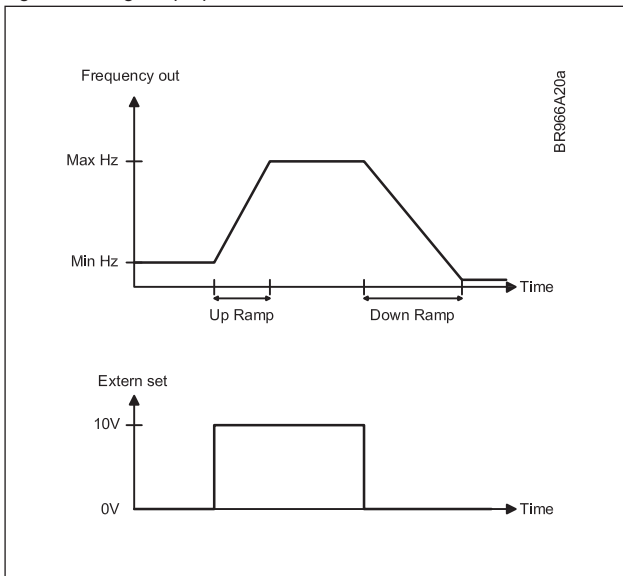


Fig. 8 - Output frequency displayed in percent

