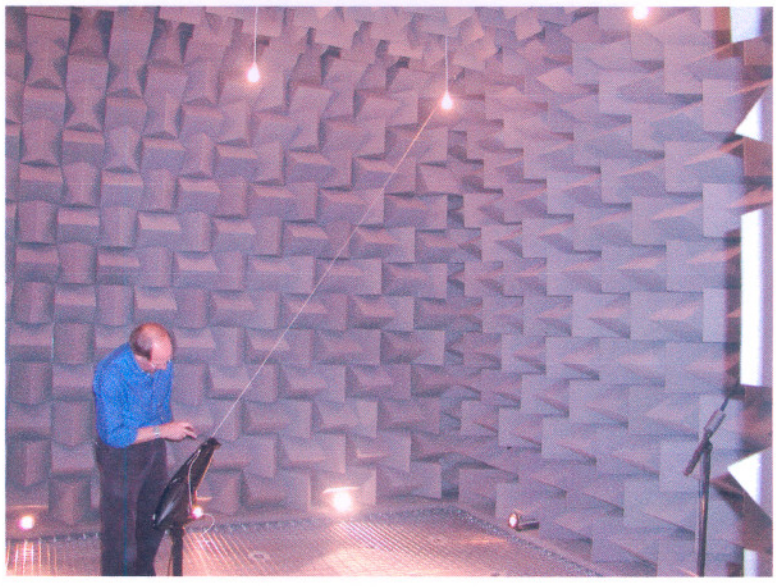
HM AKUSTIK

A member of the IAC Group of Companies

# Aalborg Universitet
# Laboratorie for akustik

## Driftshåndbog for
## Lyddødt rum, lyttekabiner og lytterum



Hvidovre, den 11.09.02

HM Akustik A/S
Jernholmen 44
DK-2650 Hvidovre

CVR: DK-1173 3174
Reg.: A/S 166.021

Tlf.: (+45) 36 77 88 00
Fax: (+45) 36 77 50 88

Web: www.hm-akustik.dk
E-mail: mail@hm-akustik.dk

## 1. Indholdsfortegnelse

## 2. Indledning

### Definition af entreprisen

Nærværende drifts- og vedligeholdelsesvejledning omfatter entreprise E11 i forbindelse med nyt akustiklaboratorium på Aalborg Universitet.

Entreprisen omfatter levering og montering af lyddødt rum, lytterum og 2 stk. lyttekabiner.

## 3. Telefon og adresseliste

Entreprenør :

IAC Nordic A/S (HM akustik)
Jernholmen 14
2650 Hvidovre

Tlf.: + 45 36 77 88 00
Fax: + 45 36 77 50 88

Levering af alle konstruktioner :

IAC Ltd.
IAC House, Morside Road
Winchester
Hampshire, SO23 7US
England

Tlf.: + 44 (0) 1962 873000
Fax: + 44 (0) 1962 873111

Elektriske installationer :

Aalborg Lysteknik
Svendsgade 6
9000 aalborg

Tlf.: +45 98 12 55 54
Fax: +45 98 35 13 77

Parketgulve og tæpper :

Aalborg Gulvservice ApS
Gørtlervej 15
9000 aalborg

Tlf.: +45 98 11 75 22
Fax: +45 98 11 56 22

## 4. Summarisk beskrivelse

Entreprisen omfatter levering og montering af 4 lokaler som skal anvendes som aksutiske laboratorier. Lokalerne opfylder beskrevne akustiske krav i henhold til diverse standarder.

De 4 lokaler er :

- Lytterum – i alt 60 $m^2$ – lokale 1.01
- Lyddøde rum – lokale 1.04
- 2 lyttekabiner – hver 9 $m^2$ – lokale 1.07 og 1.08

Entreprisen omfatter opbygning af fritstående uafhængige rum inden i råhusets rum. Rummene består af gulve på svingningsdæmpere samt vægge og tage.

Overflader i det lyddøde rum består af skumgummikiler. Der er indbygget wiregulv med fangnet under.

Overflader i lytterum består af parketgulve, tæpper, akustiklofter samt stofbeklædning på vægge.

Indvendige døre og vinduer er indeholdt i entreprisen.

Lysinstallationer incl. 230 volt installation er indeholdt i entreprisen.

Forbindelser, incl. lyddæmpere, til bygningens ventilationsanlæg er indeholdt i entreprisen.

## 5. Beskrivelse af anvendte materialer

### IAC Paneler

Gulv-, væg- og loftpaneler er fabrikat IAC type Moduline udført i gaævaniseret stål og Rockwool.

Panelerne kræver ingen vedligeholdelse.

Leverandør :

IAC Nordic A/S
Jernholmen 44
2650 Hvidovre

Tlf.: 36 77 88 00
Fax: 36 77 50 88

## IAC døre

Indvendige døre er IAC Acoustic doors udført i pulverlakeret stål .

Vedligeholdelse :

(1) Hængsler kræver periodisk smøring and kontrol for slitage

(2) Magnetisk tætningsliste kræver udelukkende renholdelse, evt. med sæbevand. Ved beskadigelse udskiftes magnetisk tætningsliste.

(3) Tætningsliste kan demonteres enkelt ved at trække den ud af fastholdelsesprofilen.

(4) Installation af ny tætningsliste. Fastgør først i toppen ved at trykke tætningslisten ind i fastholdelsesprofilen og tryk den nye liste fast med et skruetrækkerblad eller lignende.

Leverandør :

IAC Nordic A/S
Jernholmen 44
2650 Hvidovre

Tlf.: 36 77 88 00
Fax: 36 77 50 88

## IAC Vinduer

Indvendige vinduer er IAC Acoustic windows udført i pulverlakeret stål .

Vedligeholdelse :

(5) Hængsler kræver periodisk smøring and kontrol for slitage

(6) Magnetisk tætningsliste kræver udelukkende renholdelse, evt. med sæbevand. Ved beskadigelse udskiftes magnetisk tætningsliste.

(7) Tætningsliste kan demonteres enkelt ved at trække den ud af fastholdelsesprofilen.

(8) Installation af ny tætningsliste. Fastgør først i toppen ved at trykke tætningslisten ind i fastholdelsesprofilen og tryk den nye liste fast med et skruetrækkerblad eller lignende.

Leverandør :

IAC Nordic A/S
Jernholmen 44
2650 Hvidovre

Tlf.: 36 77 88 00
Fax: 36 77 50 88

## Vægbeklædning af stof

Vægge i lytterum og lyttekabiner er beklædt med stof.

### Regelmæssig rengøring

Let støvsugning af stofoverflader et par gange om måneden anbefales og vil forlænge stoffets levetid væsentligt. Ved anvendelse af rengøringsmidler bør der kun anvendes anderkendte mærkevare til polstrede varer. Leverandørens anvisninger skal følges.

Brug aldrig rengøringsmidler som er beregnet til hårde overflader. Før et rengøringsmiddel tages i brug, bør der udføres en prøve på et stykke løst stof eller lign.

Pletter bør fjernes hurtigst muligt, helst inden de er tørret ind.

Leverandør :

IAC Nordic A/S
Jernholmen 44
2650 Hvidovre

Tlf.: 36 77 88 00
Fax: 36 77 50 88

Eller direkte fra :

Interface Fabrics
Hopton Mills
Mirford
West Yorkshire WF14 8HE
England

Tlf.: + 44 1924 490591
Fax: + 44 1924 495605

## Akustiklofter

I lyttekabiner og lytterum, er der anvendt følgende akustiklofter :

Parafon Fjord Classic i dimension 600x600x18 mm monteret i Movinord T24 synligt skinnesystem.

Rengøring : Børstning eller støvsugning med blød børste. Tåler aftørring med fugtig klud eller svamp.

Dansk importør af Parafon og Movinord :

IAC Nordic A/S
Jernholmen 44
2650 Hvidovre

Tlf.: 36 77 88 00
Fax: 36 77 50 88

Produktion :

Parafon Akustik AB
S – 541 86 Skövde
Sverige

Tlf.: 0046 500 42 42 00
Fax: 0046 500 42 42 42

## Lysarmaturer

Loftlys i lyddøde rum er almindelige porcelænsfatninger med 75 W glødepærer.

Gulvlys i lyddøde rum er Halogenspots GU 10 M/KIP med 35 W halogenpærer GU.

Loftbelysning i lytterum og lyttekabiner er Fagerhult Endigo Armaturer HF m/dæmp.
40 W 2G11 lysrør.

Vedligeholdelse : Udskiftning af pærer og lysstofrør efter behov.

Leverandør :

Fagerhult A/S
Baltershøj 13 – 15
2635 Ishøj

Tlf.: 43 55 37 00
Fax: 43 55 37 30

## IAC Kiler

Gulv, vægge og loft i det lyddøde rum er beklædt med lydabsorberende kiler af DX30 skumgummi.

Kilerne kræver ingen vedligeholdelse udover eventuel støvsugning med blød børste.

Leverandør :

IAC Nordic A/S
Jernholmen 44
2650 Hvidovre

Tlf.: 36 77 88 00
Fax: 36 77 50 88

## Hejsesystem i lyddøde rum

Hejsesystem betjenes fra betjeningskontakter på væggen indenfor den yderste dør.

Systemet må maksimalt belastes med 25 kg. per wire.

Vedligeholdelse : Bevægelige dele smøres efter behov, dog min. en gang om året.

Sikkerhedscertificat vedlægges.

Funktionsbeskrivelse for frekvensomformer (vector 8200) for styring af actuator vedlægges.

Leverandør :

IAC Nordic A/S
Jernholmen 44
2650 Hvidovre

Tlf.: 36 77 88 00
Fax: 36 77 50 88

Eller direkte fra :

Precision Actuation Systems Ltd.
First Road
Blantyre Industrial Estate
Blantyre
Glasgow G72 0BW
Glasgow
Great Britain

Tlf.: 0044 1698 829811
Fax: 0044 1698 829775

# PRECISION
## ACTUATION SYSTEMS

**Precision Actuation Systems Limited**
Registered Office:
First Road
Blantyre Industrial Estate
Blantyre
Glasgow G72 0BW
Telephone: (01698) 829811
Facsimile: (01698) 829775
e-mail: sales@precisionactuation.co.uk

---

Unique Consignment Identifier: WAR0558 #1

Destination: HVIDOVRE, DENMARK DK-2650

---

**CONSIGNMENT SECURITY CERTIFICATE**

I, the undersigned, on behalf of the named below company, certify that to the best of my knowledge:

The consignment to which this document refers has been prepared in accordance with the requirements of the UK National Aviation Security Programme governing known customer procedures and can be considered as 'known cargo'.

I understand that a false declaration may lead to legal action being taken.

**Signed:** W. Dalziel **Name (Block Capitals):** W. DALZIEL

**Position:** DESPATCHER **Company:** Precision Actuation Systems Ltd.

**Date:** 21/11/01

EDK82ZAFS
00420090
04/01

# Function module
# Standard-I/O

## These instructions

- inform about the most important technical data, installation, handling and commissioning of the function module.
- are only valid
  - for function modules with the nameplate data E82ZAFS
  - for function modules with the nameplate data E82ZAFS001 (coated)
  - together with the Operating Instructions for the corresponding controller.

## Description

The function module E82ZAFS enables the control of Lenze controllers using analog and digital control signals.

## Range of application

The function module can be used together with controllers as of the nameplate labelling

- 8200 frequency inverters
  - E82xVxxxxxBxxxXX0x0x (8200 vector/8200 motec/Drive PLC)

## Accessories

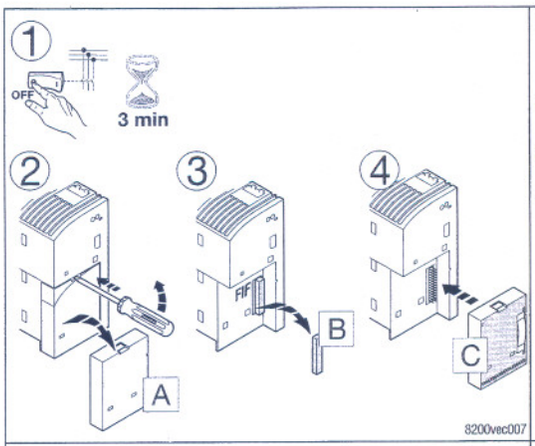
The delivery package includes a screw driver for the terminals of the function module.

The electrical connection and interfaces remain live for at least 3 minutes after mains separation.

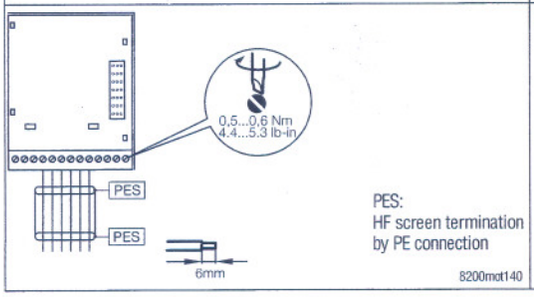
# Mechanical installation for 8200 vector

The pins of the FIF interface carry dangerous voltage!

- This function module must only be mounted when the controller is not connected to the mains.
- After the disconnection, wait for 3 minutes before you start working on the module.



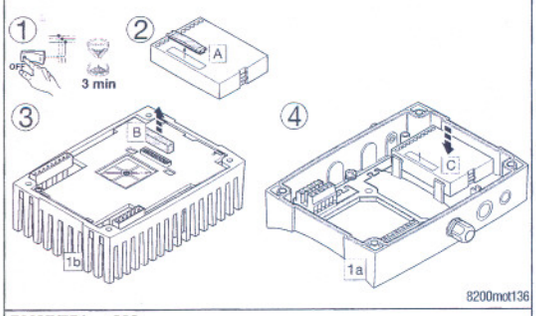

1. **Disconnect the controller from the mains and wait for at least 3 minutes!**
2. Remove and keep blank cover [A].
3. Remove and keep FIF cover [B].
4. Plug the function module [C] onto the FIF interface.




5. Assign the terminals of the function module.

# Mechanical installation for 8200 motec

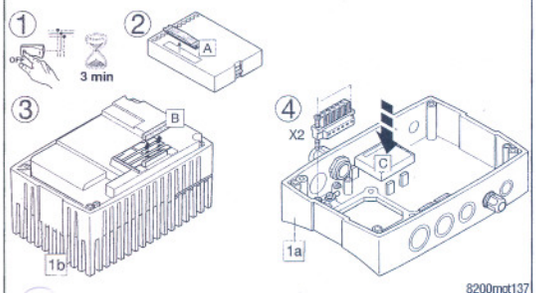
**E82MV251 / 371**



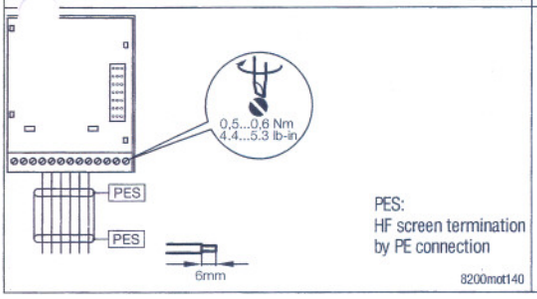

8200mot136

1. **Disconnect the controller from the mains and wait for at least 3 minutes before opening the motec !**
2. Remove A protection cover.
3. Remove and keep B FIF cover.
4. Insert function module C into the housing [1a].

**E82MV551 ... 222**




8200mot137




PES:
HF screen termination by PE connection

8200mot140

5. Assign the terminals of the function module.



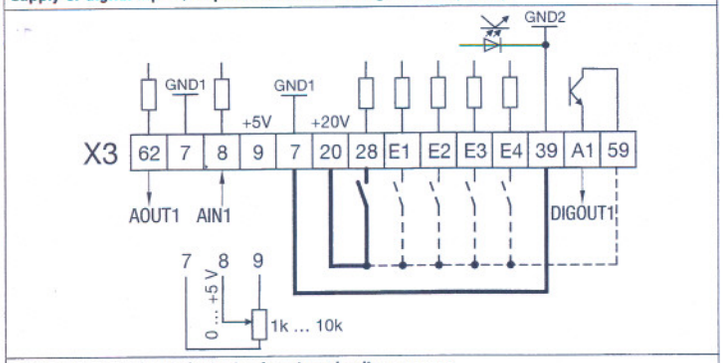
# Switch position

| Signal to X3/8 | Switch position | | | | | C0034 |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | |
| 0 ... 5 V | OFF | OFF | ON | OFF | OFF | 0 |
| **0 ... 10 V (default setting)** | **OFF** | **OFF** | **ON** | **OFF** | **ON** | **0** |
| 0 ... 20 mA | OFF | OFF | ON | ON | OFF | 0 |
| 4 ... 20 mA | OFF | OFF | ON | ON | OFF | 1 |
| 4 ... 20 mA open circuit monitoring | OFF | OFF | ON | ON | OFF | 3 |
| -10 V ... +10 V | ON | ON | OFF | OFF | OFF | 2 |

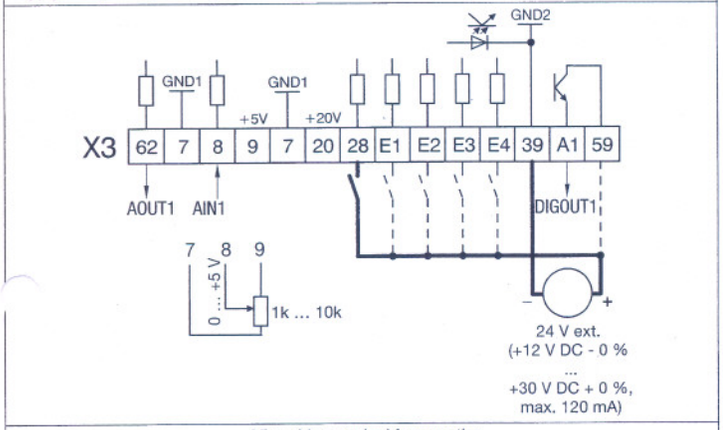
Always set DIP switches and C0034 for the same range, otherwise the controller will misinterprete the analog input signal at X3/8.
If a setpoint potentiometer is supplied internally via X3/9, the DIP switch must be set to a voltage range 0 ... 5 V. Otherwise it is not possible to use the complete speed range.

# Terminal assignment

**Supply of digital inputs/outputs via internal voltage source (X3/20)**




**Supply of digital inputs/outputs via external voltage source**




Min. wiring required for operation

| | |
|---|---|
| **Electrical connection** | Screw terminals |
| **Possible connections** | rigid: 1.5 mm² (AWG 16) |
| | flexible: |
| | 1.0 mm² (AWG 18) |
| | 0.5 mm² (AWG 20) |
| | 0.5 mm² (AWG 20) |
| **Tightening torques** | 0.5 ... 0.6 Nm (4.4 .. 5.3 lb-in) |



# Terminal description

| X3 | Signal type | Function (bold = Lenze setting) | Level | | | Technical data |
|---|---|---|---|---|---|---|
| 8 | Analog input | Act. or setpoint input (Use DIP switch and C0034 to change the range!) | 0 ... +5 V<br>**0 ... +10 V**<br>-10 V ... +10 V [1]<br>0 ... +20 mA<br>+4 ... +20 mA<br>+4 ... +20 mA<br>(open-circuit monitored) | | | Resolution: 10 bit<br>Linearity error: ±0.5 %<br>Temperature error:<br>0.3 % (0 ... +60°C)<br>Input resistance<br>• Voltage signal: > 50 kΩ<br>• Current signal: 250 Ω |
| 62 | Analog output | **Output frequency** | 0 ... +10V | | | Resolution: 10 bit<br>Linearity error: ±0.5 %<br>Temperature error:<br>0.3 % (0 ... +60°C)<br>Load capacity: max. 2 mA |
| 28 | Digital inputs | Controller inhibit (CINH) | 1 = START | | | Input resistance: 3.3 kΩ<br>1 = HIGH (+12 ... +30 V)<br>0 = LOW (0 ... +3 V)<br>(PLC level, HTL) |
| E1 [2] | | **Activation of JOG frequencies**<br>**JOG1 = 20 Hz**<br>**JOG2 = 30 Hz**<br>**JOG3 = 40 Hz** | | E1 | E2 | |
| | | | JOG1 | 1 | 0 | |
| E2 | | | JOG2 | 0 | 1 | |
| | | | JOG3 | 1 | 1 | |
| E3 | | **DC brake (DCB)** | 1 = DCB active | | | |
| E4 | | **Reversal of direction of rotation CW/CCW rotation** | | E4 | | |
| | | | CW | 0 | | |
| | | | CCW | 1 | | |
| A1 | Digital output | **Ready for operation** | 0/+20 V at DC internal<br>0/+24 V at DC external | | | Load capacity:<br>10 mA<br>50 mA |
| 9 | - | Internal, stabilized DC voltage source for setpoint potentiometer | +5.2 V (ref.: X3/7) | | | Load capacity: max. 10 mA |
| 20 | - | Internal DC voltage supply for control of digital inputs and output | +20 V (ref.: X3/7) | | | Max. load capacity<br>∑ I = 40 mA |
| 59 | - | DC supply for A1 | +20 V (internal, bridge to X3/20) | | | |
| | | | +24 V (external) | | | |
| 7 | - | GND1, reference potential for analog signals | - | | | isolated to GND2 |
| 39 | - | GND2, reference potential for digital signals | - | | | isolated to GND1 |

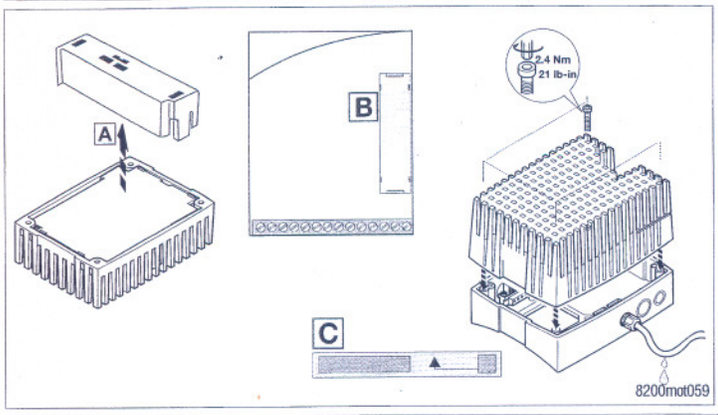
[1] Offset (C0026) and gain (C0027) must be adjusted separately for every function module. The adjustment data must t entered again
=> when changing the function module
=> after having loaded the Lenze settings

[2] or frequency input 0 ... 10 kHz, configuration under C0425

# Motec assembly

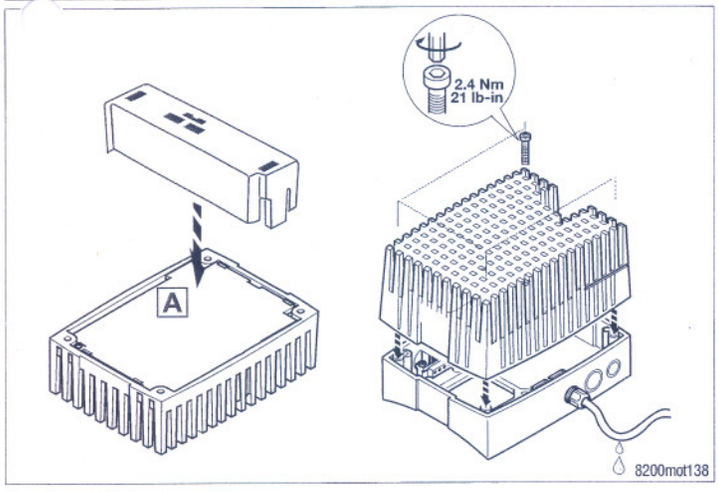
**motec with function module**

- Remove and keep the protection cover of the function module [B] and the FIF cover [A] before assembly! Otherwise, the motec can be damaged!
- Complete the motec nameplate with the sticker [C], which is delivered toegether with the function module, before commissioning.




**motec without function module**

The FIF cover [A] must be plugged on. Otherwise, the motec is not ready for operation!






# Commissioning

- If your configuration differs from the Lenze settings, please read the instructions given under "Individual settings".
- Please observe
  - that the setpoint range is set correctly by using the DIP switch at the function module.
  - and that C0034 is adapted to the settings of the DIP switch.
  - Example: Setpoint selection (0 ... 5 V) via potentiometer at X3/7, X3/8 and X3/9 ⇨ C0034 = 0, DIP switch 1 = OFF, 2 = OFF, 3 = ON, 4 = OFF, 5 = OFF
- The controller is only ready for operation if a HIGH signal is applied to X3/28 (controller enable via terminal).
  - Please observe, that the controller can be inhibited through various sources. All sources act like a series connection of switches.
  - If the drive does not start although the controller has been enabled through X3/28, check whether the controller is inhibited though a different source.

| Step | Lenze setting | | | | | Individual setting | Drive reaction |
|---|---|---|---|---|---|---|---|
| 1. Plug in the keypad | | | | | | | |
| 2. Switch on the mains voltage. | The controller is ready for operation after approx. 1 second. The controller inhibit is active. | | | | | | The green LED is blinking. Keypad: RDY IMP |
| 3. Control digital inputs. | | E4 | E3 | E2 | E1 | • Adapt the digital input under C0007 or C0410 to your application. • The digital input should be set such that the controller can start operation after being enabled via terminal. | |
| | CW rotation | LOW | LOW | LOW | LOW | | |
| | CCW rotation | HIGH | | | | | |
| 4. Enter the setpoint. | Apply a voltage of 0 ... +10 V to X3/8. | | | | | • Depending on the DIP switch position: - Apply voltage or current to X3/8. - Check C0034. | |
| 5. Enable the controller via terminal. | X3/28 = HIGH (+12 ... +30 V) | | | | | | The green LED is on. IMP off. The drive should be running now. |

E82ZBC
00408683
06/99

# Communication module
## Keypad and accessories

**These instructions**

- include the most important technical data.
- describe the installation, the handling of the keypad and keypad accessories.
- is valid only
  - for *Keypad* labelled E82ZBC or E82ZBB,
  - for *hand-held terminals* labelled E82ZBH,
  - for *mounting kits (door)* labelled E82ZBHT,
  - for *connection cables* labelled E82ZWLxxx,
  - together with the Operating Instructions of the corresponding controller.

**Description**

The keypad enables the communication with Lenze controllers via a keypad.

**Scope of application**

The keypad can be used with controllers as from the nameplate labelling:

- 8200 frequency inverters
  - E82xxxxxxxBxxxXXVx1x

**Required accessories**

Connection cable (for hand-held terminal and door installation only)

**Function**

- Parameterization
- Control (e.g. inhibit and enable)
- Display operating data
- Enter setpoints
- Transfer parameter sets to other controllers

**General data and operating conditions of the keypad**

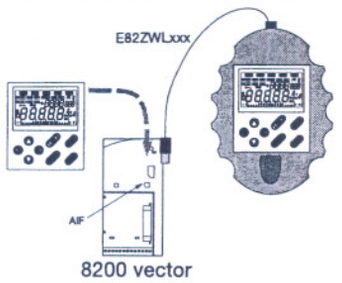
| | |
|---|---|
| **Insulation voltage to ground/PE** | 50 V AC |
| **Enclosure** | IP55 |
| **Ambient temperature** | during operation: -10 ... +60 °C<br>Transport: -25 ... +70 °C<br>Storage: -25 ... +60 °C |
| **Climatic conditions** | Class 3K3 acc. to EN 50178 (without condensation, medium relative humidity 85 %) |
| **Dimensions (L x W x H)** | 75 mm x 62 mm x 23 mm |



# Installation

The 8200 motec maintains its degree of protection even if the connection cable is inserted and the sealing plug is removed.
The keypad can be connected or disconnected and parameterized during operation.
The rear side of the keypad is bolted to the hand-held terminal (remove rubber coating).
Use the kit E82ZBHT (cut-out 45.3 x 45.3 mm) to mount the keypad e.g. to a control cabinet panel.

**8200 vector**




**With hand-held terminal**

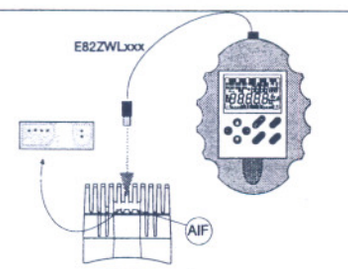
1. Plug keypad into the hand-held terminal and bolt (for E82ZBC only).
2. Connect hand-held terminal to the AIF interface using the connection cable.

**Without hand-held terminal**

1. Plug keypad to the AIF interface.

The keypad is ready when the mains voltage is applied.

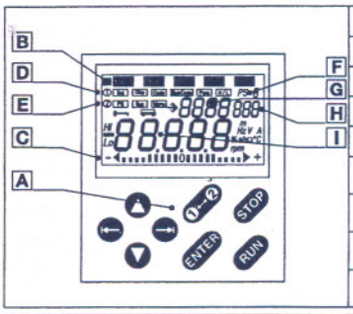
**8200 motec**




1. Plug keypad into the hand-held terminal and bolt (for E82ZBC only).
2. Remove sealing plug at the heatsink of the motec.
3. Connect hand-held terminal to the AIF interface using the connection cable.

The keypad is ready when the mains voltage is applied.

## Display / Functions




| | | |
|---|---|---|
| A | Function keys | |
| B | Status displays | |
| C | Bargraph display | |
| D | Function bar 1 | |
| E | Function bar 2 | |
| F | Parameter set to be changed | Modification possible, if display flashing |
| G | Code number | |
| H | Subcode number | |
| I | Parameter value with unit | |

| | | |
|---|---|---|
| A | **Function keys** | |
| | RUN | Enable controller (X3/28 must be applied to HIGH level) |
| | STOP | Inhibit controller |
| | 1↔2 | Change function bar 1↔ function bar 2 |
| | ⬅➡ | To the right/left in the active function bar |
| | ▲▼ | Incrase/decrease value. Scroll: Keep key pressed |
| | ENTER | Save parameters if→ flashing. Confirmation by *StOrE* in the display. |
| B | **Status displays** | |
| | RDY | Ready |
| | IMP | Pulse inhibit (power outputs inhibited) |
| | Imax | Set current limit exceeded (C0022 (motor mode) or C0023 (generator mode)) |
| | Warn | Warning active |
| | Trip | Fault active |
| C | **Bargraph display** | |
| | | Value set under C0004 in %. (Default setting: unit load capacity C0056). Display range: - 180 % ... + 180 % (each bar = 20 %) |
| D | **Function bar 1** | |
| | Set | Setpoint input via▼▲ (Not possible with active password protection (display = *"LOC"*) |
| | Disp | display function: (active after every mains connection) — Display memory unit 1 of the user menu (C0517/1) and active parameter set |
| | Code | Select codes (display G) |
| | SubCode | Select subcodes (display H) |
| | Para | Change parameter of a (sub)code (display I) |
| | H/L | Display values with more than five digits |
| | | H: High values (Display *"HI"*) |
| | | L: Low values (Display *"LO"*) |
| E | **Function bar 2** | |
| | PS | Parameter set 1 ... Select parameter set 4 for change (Display e.g. PS *2* ( F). The parameter sets can only be activated using digital signals (configuration using C007 or C0410).) |
| | Bus | Select controller on the system bus (CAN) (remote parameterization) (The selected controller (1 ... 63) can be parameterized from the momentary drive. = function active) |
| | Menu | Select menu. The user menu is active after every mains connection. If necessary, change to *ALL*. ( *uSEr*: Code list in the user menu (C0517). *ALL*: List of all codes. *FunCt*: Specific codes only for the function modules INTERBUS, PROFIBUS-DP and LECOM-B.) |



## User menu

After every mains switching, you have access to the user menu with the ten mos important drive parameters to commission a standard application with linear V/ characteristic. For the complete code list please refer to the operating instructions of th controller.

The first code of the user menu (C0517/1) is displayed after mains connection or usin Disp.

**C0050** — **Output frequency**

-480.00 {Hz} 480.00

**C0034** — **Setpoint input standard I/O (X3/8)**

| | |
|---|---|
| **-0-** | 0 ... 5 V / 0 ... 10 V / 0 ... 20 mA |
| -1- | 4 ... 20 mA |
| -2- | -10 V ... +10 V |
| -3- | 4 ... 20 mA with protection against open circuit (TRIP Sd5, if I < 4 mA) |

**C0034** — **Setpoint input application I/O**

**C0034/1** (Subcode 1 of C0034) : **X3/1U, X3/1I**
**C0034/2** (Subcode 2 of C0034) : **X3/2U, X3/2I**

| | |
|---|---|
| **-0-** | 0 ... 5 V / 0 ... 10 V |
| -1- | -10 V ... +10 V |
| -2- | 0 ... 20 mA |
| -3- | 4 ... 20 mA |
| -4- | 4 ... 20 mA with protection against open circuit (TRIP Sd5 when I < 4 mA) |

**C0007** — **Configuration digital inputs**

| | E4 | E3 | E2 | E1 |
|---|---|---|---|---|
| **-0-** | CW/CCW | DCB | JOG2/3 | JOG1/3 |
| -1- | CW/CCW | PAR | JOG2/3 | JOG1/3 |
| -2- | CW/CCW | QSP | JOG2/3 | JOG1/3 |
| -3- | CW/CCW | PAR | DCB | JOG1/3 |
| -4- | CW/CCW | QSP | PAR | JOG1/3 |
| -5- | CW/CCW | DCB | TRIP-Set | JOG1/3 |
| -6- | CW/CCW | PAR | TRIP-Set | JOG1/3 |
| -7- | CW/CCW | PAR | DCB | TRIP-Set |
| -8- | CW/CCW | QSP | PAR | TRIP-Set |
| -9- | CW/CCW | QSP | TRIP Set | JOG1/3 |
| -10- | CW/CCW | TRIP Set | UP | DOWN |
| -11- | CW/CCW | DCB | UP | DOWN |
| -12- | CW/CCW | PAR | UP | DOWN |
| -13- | CW/CCW | QSP | UP | DOWN |
| -14- | CCW/QSP | CW/QSP | DCB | JOG1/3 |
| -15- | CCW/QSP | CW/QSP | PAR | JOG1/3 |
| -16- | CCW/QSP | CW/QSP | JOG2/3 | JOG1/3 |

-17- ... -51- enhanced settings (see operating instructions)

- CW = clockwise rotation, CCW = counter-clockwise rotation, DCB = DC injection braking, PAR = change-over (PAR1 ⇔ PAR2) PAR1 = LOW; PAR2 = HIGH (The corresponding terminal must be assigned to the function "PAR" in PAR1 and in PAR2)
- JOG1/3, JOG2/3 = selection of fixed setpoints (JOG1: JOG1/3 = HIGH, JOG2/3 = LOW, JOG2: JOG1/3 = LOW, JOG2/3 = HIGH, JOG3: JOG1/3 = HIGH, JOG2/3 = HIGH)
- QSP = Quick stop, TRIP Set = external fault, UP/DOWN = motor pot functions

# User menu

| | | | |
|---|---|---|---|
| **C0010** | **minimum output frequency** | | **Operation with Lenze geared motors, setting range 1 : 6** |
| **0.00** | 480.00 | | →C0010: 14.5 Hz |
| **C0011** | **maximum output frequency** | | →C0011: 87.0 Hz |
| 7.50 **{ 50.00 Hz }** | 480.00 | Set fix 45 Hz | |
| **C0012** | **Acceleration time main setpoint** | | Reference: Frequency change 0 Hz ... C0011 |
| 0.00 **{ 5.00 s }** | 1300.00 | Set fix 0,5 s | |
| **C0013** | **Deceleration time main setpoint** | | Reference: Frequency change C0011 ... 0 Hz |
| 0.00 **{ 5.00 s }** | 1300.00 | | |
| **C0015** | **V/f rated frequency** | | Setting is valid for all permitted mains voltages |
| 7.50 **{ 50.00 Hz }** | 960.00 | | |
| **C0016** | **$U_{min}$ boost** | | |
| 0.00 **{ depending on the controller)** | 40.0 | | |
| **C0002 see chapter 'Parameter set transfer'** | | | |

## Change entries in the user menu

| Action | | Key | Result | Note |
|---|---|---|---|---|
| 1. | Change to the menu "ALL" | 1→2 | 2 | Change to function bar 2 |
| 2. | | ⊖⊖ | Menu | |
| 3. | | ▽△ | ALL | Select menu "ALL" (list of all codes) |
| 4. | | 1→2 | 1 | Confirm selection, change to function bar 1 |
| 5. | Select user menu | ⊖ | Code | |
| 6. | | △ | 0517 | Code for user menu |
| 7. | Select memory unit | ⊖⊖ | SubCode 001 | Code saved under C0517/1 is displayed (default setting: output frequency C0050) |
| 8. | | △ | 001 ... 010 | Select subcode |
| 9. | Change entry | ⊖ | Para | |
| 10. | | ▽△ | XXXXX | Enter code number<br>The sytem does not check whether the code number exists!<br>"0" must be entered to delete the entry. |
| 11. | | ENTER | STOrE | Confirm entry and restart<br>"loop" at step 7. to change other memory units |



# Edit parameters

**Change and save parameters**
The user menu is active after every mains switching.
Change to the menu ALL to call all codes.
If you should make a mistake during parameterization, load the default setting under C0002 and start again.

| Action | | Key | Result | Note |
|---|---|---|---|---|
| 1. | Plug in key-pad | | Disp XX.XX Hz | The function Disp is active. The first code in the user menu is displayed (C0517/1, default setting: C0050 = output frequency). |
| 2. | If necessary, change to the menu "ALL" | 1→2 | 2 | Change to function bar 2 |
| 3. | | ⊖⊖ | Menu | |
| 4. | | ▽△ | ALL | Select menu "ALL" (list of all codes) |
| 5. | | 1→2 | 1 | Confirm selection and change to function bar 1 |
| 6. | Inhibit con-troller | STOP | RDY IMP | Necessary only, if you change C0002, C0148, C0174 and/or C0469 |
| 7. | Set parame-ters | ⊖⊖ | Code | |
| 8. | | ▽△ | XXXX | Select code |
| 9. | | ⊖ | SubCode 001 | For codes without subcodes: automatic jump to Para |
| 10. | | ▽△ | XXX | Select subcode |
| 11. | | ⊖ | Para | |
| 12. | | ▽△ | XXXXX | Set parameters |
| 13. | | ENTER | STOrE | Confirm entry, if → is flashing |
| | | ⊖ | | Confirm entry, if → is not flashing; ENTER is inactive |

**Change parameter set (PS)**
You can use the keypad only to change over the parameter set, to modify parameters. To activate a parameter set (PS) for operation, you must use digital signals (configuration under C0410 or C0007)!
The function Disp displays the currently active PS.

| Action | | Key | Result | Note |
|---|---|---|---|---|
| 1. | Select function | 1→2 | 2 | Change to function bar 2 |
| 2. | | ⊖⊖ | PS | |
| 3. | Select PS | ▽△ | 1 ... 4 | Select PS to be changed |
| 4. | | 1→2 | 1 | Confirm selection and change to function bar 1 |
| 5. | Set parameters | | | Proceed as described in the table above |

# Parameter set transfer

The PS transfer also changes password-protected codes. For notes about password protection please refer to the operating instructions of the controller.

| **Code C0002** | **PS transfer** | |
|---|---|---|
| -0- | Function performed | |
| **PS of the controller** | | |
| -1- ... -4- | Default setting⇨ PAR1 ... 4 | Overwrite selected PS of the controller with the default setting |
| -10- | Keypad ⇨ PAR1 / 2 / 3 / 4 | Overwrite all PS of the controller with the keypad data |
| -11- ... -14- | Keypad ⇨ PAR1 ... 4 | Overwrite individual PS of the controller with the keypad data |
| -20- | PAR1 / 2 / 3 / 4 ⇨ Keypad | Copy all PS of the controller to the keypad |
| **PS of a function module on FIF**(not for standard I/O or syste mbus (CAN)) | | |
| -31- ... -34- | Default setting⇨ FPAR1 ... 4 | Overwrite selected PS of the function with the default setting |
| -40- | Keypad ⇨ FPAR1 / 2 / 3 / 4 | Overwrite all PS of the function module with the keypad data |
| -41- ...-44- | Keypad ⇨ FPAR1 ... 4 | Overwrite individual PS of the function module with the keypad data |
| -50- | FPAR1 / 2 / 3 / 4 ⇨ Keypad | Copy all PS of the function module to the keypad |
| **PS controller + function module on FIF** (not for standard I/O or systembus (CAN))<br>Operation with application I/O: Always transfer PS of the controller and application I/O jointly! | | |
| -61- ... -64- | Default setting⇨<br>PAR1 ... 4 + FPAR1 ... 4 | Overwrite individual PS with the default setting |
| -70- | Keypad ⇨<br>PAR1 / 2 / 3 / 4 + FPAR1 / 2 / 3 / 4 | Overwrite all PS with the keypad data |
| -71- ... -74- | Keypad ⇨<br>PAR1 ...4 + FPAR1 ... 4 | Overwrite individual PS with the keypad data |
| -80- | PAR1 / 2 / 3 / 4 + FPAR1 / 2 / 3 / 4<br>⇨ Keypad | Copy all PS to the keypad |

**Please carry out the following steps prior to every PS modification:**

Plug in keypad and inhibit controller with STOP or via terminal (X3/28 = LOW)

**Load default setting**

- Set selection code under C0002, confirm with ENTER

**Transfer PS from controller to keypad**

1. Set 20 or 50 or 80 under C0002, confirm with ENTER
2. If SAvE is not longer illuminated, all PS are transferred to the keypad.

**TransferPS from keypad to controller**

1. Set selection code under C0002, confirm with ENTER
2. If LOAd is no longer illuminated, the PS are transferred to the controller

## 6. Tegninger

Oversigtstegning nr. AO – 03082-1 vedlægges.