

Operating manual

Manual control unit

Type: FKO MMI

Status: 16.01.2017

Original Operating manual

Document number: DOC0081305755

Legal notice

BRINKMANN PUMPEN
K. H. Brinkmann GmbH & Co. KG
Friedrichstraße 2
58791 Werdohl
Germany
Tel. +49 (0)2392 5006-0
Fax +49 (0)2392 5006-180
sales@brinkmannpumps.de

Exclusion of liability

All general names, trade names, product names or other designations used in this manual may be legally protected even if not labelled as such (e.g. as a trademark). BRINKMANN assumes no liability for their free usage.

The illustrations and texts have been compiled with great care. However, the possibility of errors cannot be ruled out. The compilation is made without any guarantee.

General note on gender equality

BRINKMANN is aware of how language impacts gender equality and always makes an effort to reflect this in documentation. Nevertheless, for the sake of readability, we are unable to use non-gender-specific terms throughout and use the masculine form instead.

© 2013 K.H. BRINKMANN GmbH & Co. KG

All rights reserved by BRINKMANN, including those of reproduction by photocopy and storage in electronic media. Commercial use or distribution of the texts, displayed models, diagrams and photographs appearing in this product are not permitted. This manual may not be reproduced, stored, transmitted or translated in any form or by means of any media - in whole or in part - without prior written permission.

 Contents

1	Important information	4
1.1	Information about documentation	4
1.1.1	Other applicable documents	4
1.1.2	Storing the documentation	4
1.2	Symbols	5
1.2.1	Warnings	5
1.2.2	Signal words	5
1.2.3	Information	5
1.2.4	Text symbols	5
1.3	Qualified staff	6
1.4	CE marking	6
1.5	Safety instructions	6
1.5.1	General information	7
1.5.2	Disassembly & disposal	7
1.6	Proper use	8
1.7	Responsibility	8
2	Overview of FKO MMI	9
2.1	Scope of delivery	9
2.2	Description of FKO MMI	10
2.2.1	Functions	10
3	Operation	11
3.1	Function of buttons	11
3.2	Navigation and input	12
3.3	Menu	13
3.4	Specifying nominal value for the rotation speed	14
3.5	Parameter group menu (expert mode)	15
4	Technical data	18
5	Approvals, standards and guidelines	18
5.1	Standards and guidelines	18
6	List of key words	19
7	EC declaration of conformity	20
8	Notes	21

1 Important information

This chapter contains important information on safe handling of the product and the operating manual.

1.1 Information about documentation

The following information explains how to navigate through the documentation.

Read this manual carefully in its entirety. It contains important information for operating the FKO MMI.

We assume no liability for any damage resulting from non-observance of this manual.

This manual is a part of the product and should be stored in a safe place. It applies exclusively to the FKO MMI from K.H. Brinkmann GmbH & Co. KG. Provide the operator of the system with this manual so it is available when needed.

1.1.1 Other applicable documents

This refers to all manuals that describe how to operate the drive control system and any other manuals for the equipment used.

1.1.2 Storing the documentation

Store this manual and all other applicable documents safely so they are available when needed.

1.2 Symbols

1.2.1 Warnings



General warnings are labelled by a warning triangle with exclamation points.



A warning triangle with a lightning bolt indicates the risk of hazardous voltage.

1.2.2 Signal words

Signal words in warnings indicate the type and severity of the consequences if measures to avoid danger are not followed.

DANGER means that life-threatening personal injury can occur.

WARNING means that severe personal injuries can occur.

CAUTION means that mild to moderate personal injuries can occur.

NOTE means that material damage can occur.

1.2.3 Information



Important information without risks to persons or property is represented by the symbol on the left.

1.2.4 Text symbols

1, 2, 3, etc.	Sequential steps of an instruction
	Effect of an instruction
<input checked="" type="checkbox"/>	Final result of an instruction

1.3 Qualified staff

In the context of this operating manual and the information relating to the product itself, qualified staff refers to electronics specialists who are familiar with the installation, assembly, start-up and operation of the drive control and the dangers involved, and whose specialist training and knowledge of relevant standards and regulations provide them with the necessary abilities.

1.4 CE marking

With the CE marking, we, as the manufacturer of the device, confirm that the basic requirements of the following guidelines are met:

Directive on Electromagnetic Compatibility (Directive 2014/30/EU of the Council)

See page 20 EC declaration of conformity.

1.5 Safety instructions

The following warnings, precautionary measures and comments are provided for your safety and serve to prevent damage to the drive control and the components connected to it. This chapter contains warnings and information that are generally applicable when handling drive controls. They are split into general information, transport & storage and dismantling & disposal.

Specific warnings and comments that apply to specific activities can be found at the start of the appropriate chapters and are repeated or added to at various critical points in these chapters.

Please read this information carefully as it is provided for your personal safety and will also prolong the life of the drive control and connected devices.

1.5.1 General information

 **DANGER!**

RISK OF DEATH DUE TO ROTATING PARTS!

The motor can rotate during the programming. Depending on the equipment, this can cause a dangerous situation for persons and the equipment.

Make sure that no one is located in hazardous zones and that the motor is disconnected.

 **DANGER!**

RISK OF DEATH DUE TO ELECTRIC SHOCK!

Hazardous currents are present on the motor and drive control. These can lead to injury or death.

When working on the device, de-energize the device and secure it from being switched on again.

NOTE

This operating manual must be kept near the device and available to all users.

1.5.2 Disassembly & disposal



Components with electronic parts may not be disposed of along with normal household waste. They have to be collected separately with waste electrical and electronic equipment in accordance with applicable legislation.

1.6 Proper use

The application and performance parameters of the FKO drive control from BRINKMANN are displayed and programmed with the FKO MMI. This device may only be used for the FKO drive control.

This device may only be used under the allowed environmental conditions. Incorrect use may cause damage to the device. The FKO MMI may only be used for its intended purpose. Any use that differs from or goes beyond the stated intended purpose is considered non-intended use. The manufacturer accepts no liability for any damage resulting from such non-intended use. Modifications to the FKO MMI are prohibited.

Any instance of misuse of the FKO MMI will result in the termination of the guarantee, warranty and general liability of the manufacturer.

The FKO MMI may not be operated in areas where there is a danger of explosion.

Repairs may only be performed by authorised repair bodies. Independent and unauthorised intervention may result in death, injury or property damage. The warranty provided by BRINKMANN will be invalidated in such cases.

1.7 Responsibility

As a basic principle, electronic devices are not fail-safe. The operator and/or the contractor setting up the machine or system is responsible for ensuring that the drive switches to a safe state if the device fails.

The “Electrical equipment of machines” section in DIN EN 60204-1; VDE 0113-1:2007-06, “Safety of machinery” describes the safety requirements for electrical control units. These are provided for the safety of people and machines and must be observed in order to retain the functional capability of the machine or system.

An emergency stop feature does not have to result in the power supply to the drive being switched off. To avoid dangerous situations, it may be useful for individual drives to remain operational or for specific safety procedures to be initiated. The effectiveness of emergency stop measures is evaluated by means of a risk assessment for the machine or system and its electrical equipment, and is determined by selecting a circuit category according to DIN EN 13849 “Safety of machinery – Safety-related parts of control systems”.

2 Overview of FKO MMI

This chapter contains information on the scope of delivery and the function description.

2.1 Scope of delivery

Compare your product with the scope of delivery provided below.

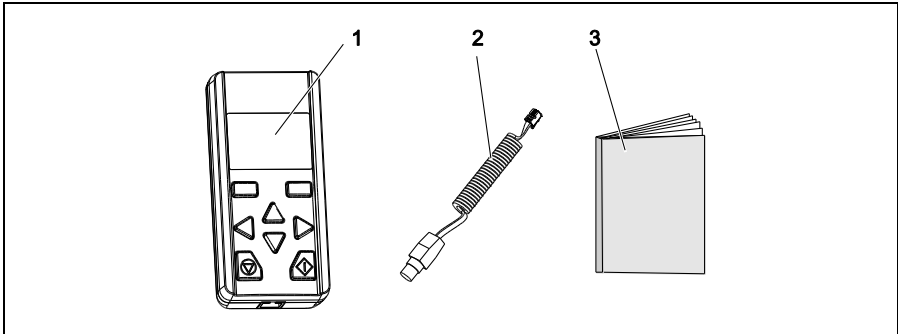


Fig. 1: Scope of delivery

- 1 FKO MMI manual control unit (part no. 6UMZU0AA-K07323)
- 2 Communication cable with RJ11 and M12 plug
- 3 Brief instruction (Download from the BRINKMANN homepage at www.brinkmannpumps.de/Support/Downloads/Frequenzumrichter)

2.2 Description of FKO MMI

The FKO MMI is connected to the FKO M12 interface. The FKO MMI displays the parameters. The parameters are programmed with the function buttons.

Up to eight data records can be stored in an MMI. The data records can be copied to other FKOs. The FKO MMI receives all signals for programming from the FKO drive control.



*The FKO MMI may only be operated with the FKO drive control!
Any other connection is not allowed.*

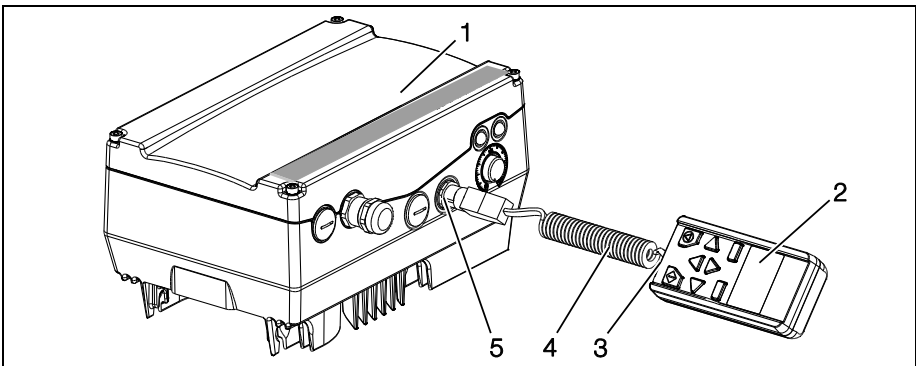


Fig. 2: FKO MMI with FKO drive control

- | | |
|-------------------------------|-----------------------|
| 1 FKO drive control | 4 Communication cable |
| 2 FKO MMI manual control unit | 5 M12 socket |
| 3 RJ11 socket | |

2.2.1 Functions

The following functions are possible with the FKO MMI:

- Parametrisation of device configuration
- Control (e.g. locking and releasing)
- Display of various process values
- Saving parameter sets (max. 8)
- Transferring parameter sets to different FKOs

3 Operation

3.1 Function of buttons

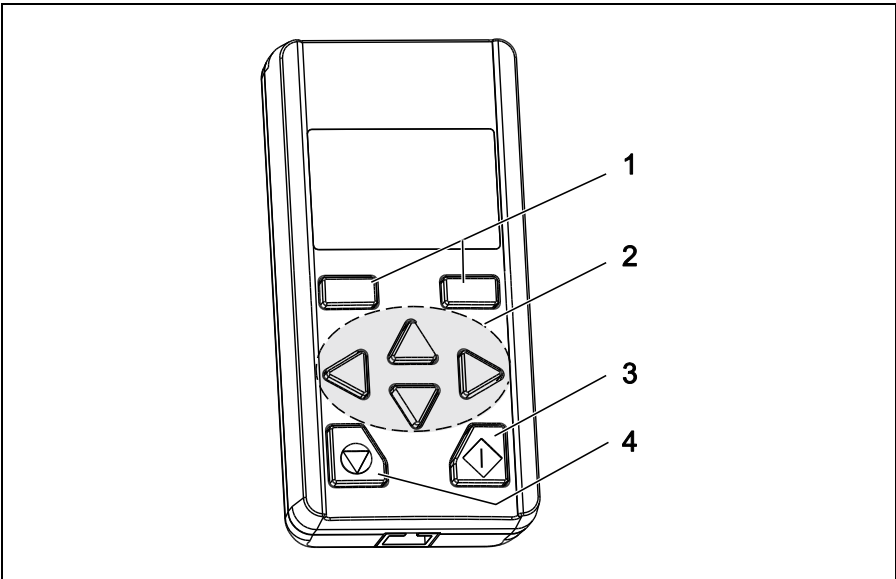


Fig. 3: Button functions

- 1 Confirm buttons
- 2 "UP"/"DOWN" buttons
"LEFT" / "RIGHT" buttons
- 3 Start button
- 4 Stop button

3.2 Navigation and input

Buttons	Function
"UP"/"DOWN" buttons	Selecting parameters, changing values
"LEFT"/"RIGHT" arrows	Navigating cursor
Confirm buttons	With these buttons, the command showed in the display is activated via the button
"START"/"STOP" buttons	With these buttons, the motor is started or stopped
Commands	Procedures
Next	Calling up parameters and submenu
Back	One menu level higher
Cancel	End entry without saving
Change	Call up edit mode (cursor blinks)
Save	Save selection, entry or change
Enter	Confirm the selected parameter set
Start	Command for motor detection
Enter	Procedures
Displaying tens, hundreds, thousands place	Press "LEFT" arrow until the desired tens, hundreds or thousands place is displayed.
Displaying decimal places	Press "RIGHT" arrow until the desired decimal places are displayed.
Entering negative values	Place cursor on the plus sign, select the minus sign with the "UP" arrow and save.

3.3 Menu

If the FKO MMI is connected to the FKO and the FKO is switched on, the menu appears on the display of the MMI.

For the *Parameter groups* menu, there are two modes:

Standard mode

contains all necessary parameters for standard application from the factory.

Expert mode (see menu overview in Chapter 3.5)

Contains advanced parameters for special uses. The expert mode is activated in the main menu (see Fig 4 View of main menu).

The FKO MMI always starts in standard mode. If the FKO MMI is de-energized, the standard mode is active again.

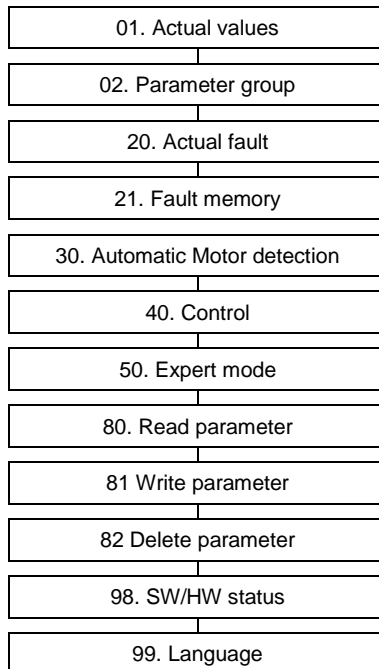


Fig. 4: View of main menu

The entire menu is mapped in the FKO operating manual.

3.4 Specifying nominal value for the rotation speed

With the FKO MMI, a nominal value (in %) can be specified for the rotation speed. This nominal value is specified as a percentage of the nominal motor rotation speed.

The ACTUAL rotation speed can be read on the display. With the "START" and "STOP" button, the motor is switched on and off.



If the minimum frequency is > 0, the motor continues to rotate at the minimum frequency after switching off the nominal value. (02Parameter group (Expert mode)>Basic parameter>Low speed)

Procedures

- 1 As the nominal value source, set "3: MMI/PC" (02.Parameter groups > Basic parameter > Reference channel)
- 2 As the software enable signal, set "9: "Autostart" and save (02.Parameter groups > Basic parameter > Enable software)
- 3 Under the menu item "40.Control", set a nominal value in %. Using the "UP", "DOWN", "LEFT" or "RIGHT" arrows, set the desired percentage.



A negative nominal value causes a change in direction of rotation.

- 4 Press the "START" button and start the motor.
 - ↳ The motor rotates. The actual rotation speed is displayed in the MMI.
 - ☑ With the FKO MMI, the motor can be switched on and off and a nominal rotation speed can be specified.

3.5 Parameter group menu (expert mode)

In expert mode, the "0.2 Parameter group" menu contains advanced parameters for special applications. The expert mode is activated in the main menu (see Fig 4 View of main menu).

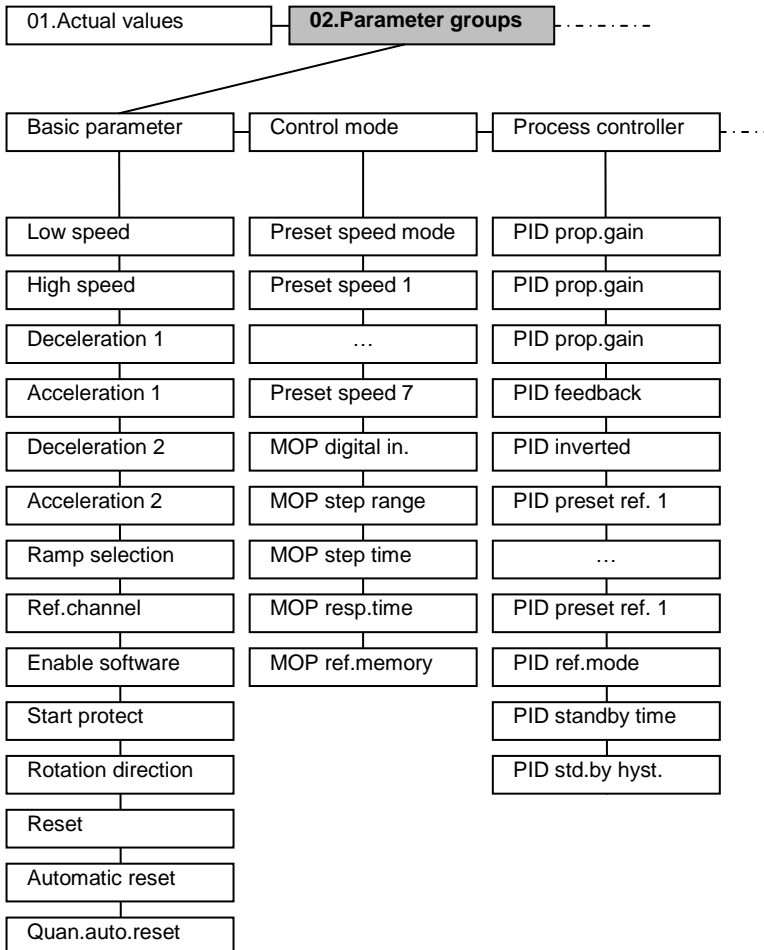


Fig. 5: View of parameter group (expert mode) – Part 1

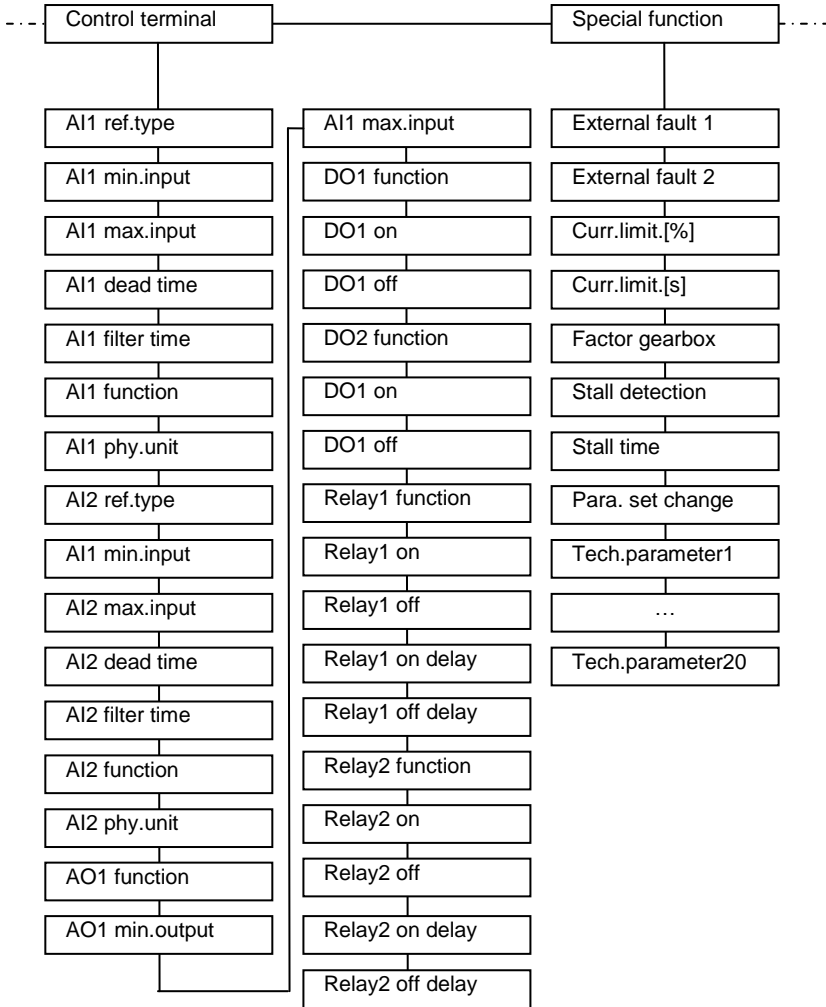
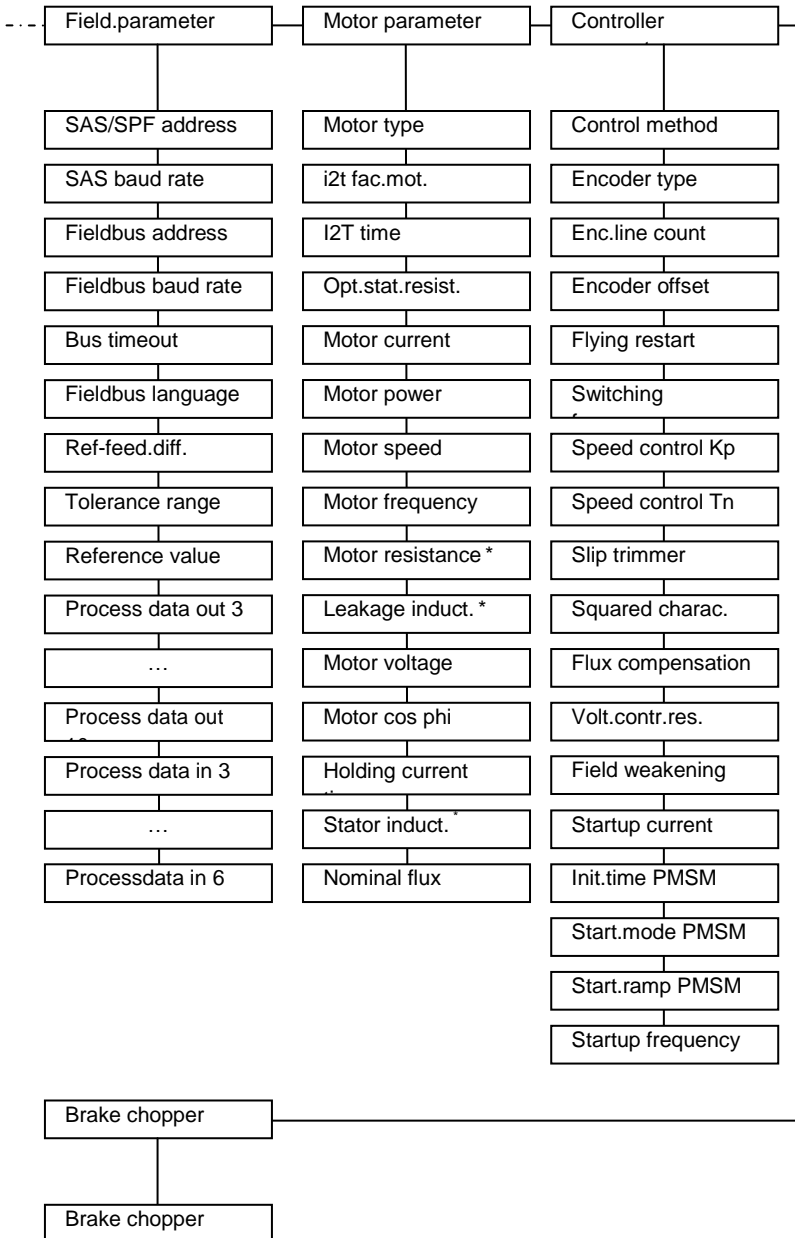


Fig. 6: View of parameter group (expert mode) – Part 2



*) These values are automatically determined and entered during motor detection.

Fig. 7: View of parameter group (expert mode) – Part 3

4 Technical data

Article number	10004768
Connection cable	3m RJ11 on M12 plug
Measurement (L / W / H)	105/50/25 mm
Weight	83 g
Protection class	IP21

Tab. 1: Technical data

5 Approvals, standards and guidelines

This chapter contains information about the respective approvals, standards and guidelines.

For binding information about the particular approvals, please refer to the relevant type plate!

5.1 Standards and guidelines

The following specifically apply:

- Directive on Electromagnetic Compatibility (Directive 2014/30/EU of the Council EN 61800-3:2004 + A1:2012)

6 List of key words

C	
CE marking	6
Configuring nominal value.....	14
D	
Disposal	7
E	
EC Declaration of Conformity	6
EMC limit classes	18
EMC standard	18
Expert mode	15
F	
Functions of buttons.....	11
L	
Legal notice	2
M	
Menu	13
N	
Navigation.....	12
O	
Operation	11
P	
Parameter group (expert mode) ..	15
Proper use	8
R	
Regulations	8
S	
Safety instructions	6
Standard mode.....	13
Standards	18
T	
Technical data.....	18

7 EC declaration of conformity

DEUTSCH / ENGLISH / FRANÇAIS / ESPAÑOL



EG-Konformitätserklärung

EC declaration of conformity / Déclaration de conformité CE / Declaración de conformidad CE

Hersteller / Manufacturer / Constructeur / Fabricante

Brinkmann Pumpen, K. H. Brinkmann GmbH & Co. KG

Friedrichstraße 2, D-58791 Werdohl

Produktbezeichnung / Product name / Désignation du produit / Designación del producto

Handbediengerät für den Antriebsregler / Manual control unit for the drive control / Terminal portatif pour le convertisseur de fréquence / Aparato de mando manual para el regulador de accionamiento

Typ / Type / Tipo

FKO MMI

Das bezeichnete Produkt stimmt mit den folgenden Richtlinien des Rates zur Angleichung der Rechtsvorschriften der EG-Mitgliedsstaaten überein:

The named product conforms to the following Council Directives on approximation of laws of the EEC Member States:

Le produit sus-mentionné est conforme aux Directives du Conseil concernant le rapprochement des législations des Etats membres CEE:

El producto designado cumple con las Directivas del Consejo relativas a la aproximación de las legislaciones de los Estados Miembros de la CEE:

2014/30/EU Richtlinie für elektromagnetische Verträglichkeit

2014/30/EU Council Directive for Electromagnetic compatibility

2014/30/UE Directive du Conseil pour Compatibilité électromagnétique

2014/30/UE Directivas del Consejo para Compatibilidad electromagnética

Die Übereinstimmung mit den Vorschriften dieser Richtlinien wird nachgewiesen durch die vollständige Einhaltung folgender Normen:

Conformity with the requirements of this Directives is testified by complete adherence to the following standards:

La conformité aux prescriptions de ces Directives est démontrée par la conformité intégrale avec les normes suivantes:

La conformidad con las prescripciones de estas directivas queda justificada por haber cumplido totalmente las siguientes normas:

Harmonisierte Europ. Normen / Harmonised Europ. Standards / Normes europ. harmonisées / Normas europ. Armonizadas

EN 61800-3:2004 + A1 :2012

Die Hinweise in der Betriebsanleitung für den Einbau und die Inbetriebnahme des Antriebsreglers sind zu beachten.

The instructions contained in the operating manual for installation and start up the drive control have to be followed.

Les indications d'installation / montage et de mise en service du convertisseur de fréquence prévues dans l'instruction d'emploi doivent être suivies.

Tenga en cuenta las instrucciones en el manual para la instalación y puesta en marcha del regulador de accionamiento.

Brinkmann Pumpen, K. H. Brinkmann GmbH & Co. KG

Werdohl, 16.01.2017

.....
Norbert Burkl Leiter Qualitätsmanagement / Manager of quality management / Directeur de gestion de la qualité / Director de gestión de calidad

Dr. H. Abou Dayé
K. H. Brinkmann GmbH & Co. KG
Friedrichstraße 2, D-58791 Werdohl
Dokumentationsbevollmächtigter /
Representative of documentation/
Mandataire de documentation /
Mandatario de documentación

8 Notes



BRINKMANN PUMPEN
K.H. Brinkmann GmbH & Co. KG
Friedrichstraße 2
58791 Werdohl
Germany
Tel. +49 (0)2392 5006-0
Fax +49 (0)2392 5006-180
sales@brinkmannpumps.de
www.brinkmannpumps.de