

Can be combined with all asynchronous motors from IGK 80-xx

# Frequency-Converter MFR1500

till 750 W

Surface-mounted frequency-converter up to IP65

Continuously variable control of our IGK and IGL motors

Factory installation instead of the terminal box

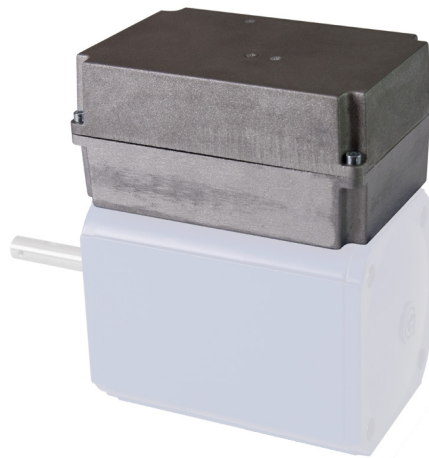
Decentralised solution

- No switch cabinet space is occupied
- No EMC problems
- Expensive shielded motor cable no longer required

High running smoothness due to 10 kHz clocking

- 6 standard operating modes:
- normal
  - pumping
  - high frequency
  - long ramp
  - Motor potentiometer

Commissioning in the shortest possible time (without time-consuming parameterisation)



## Registrations and licence plates



## Description

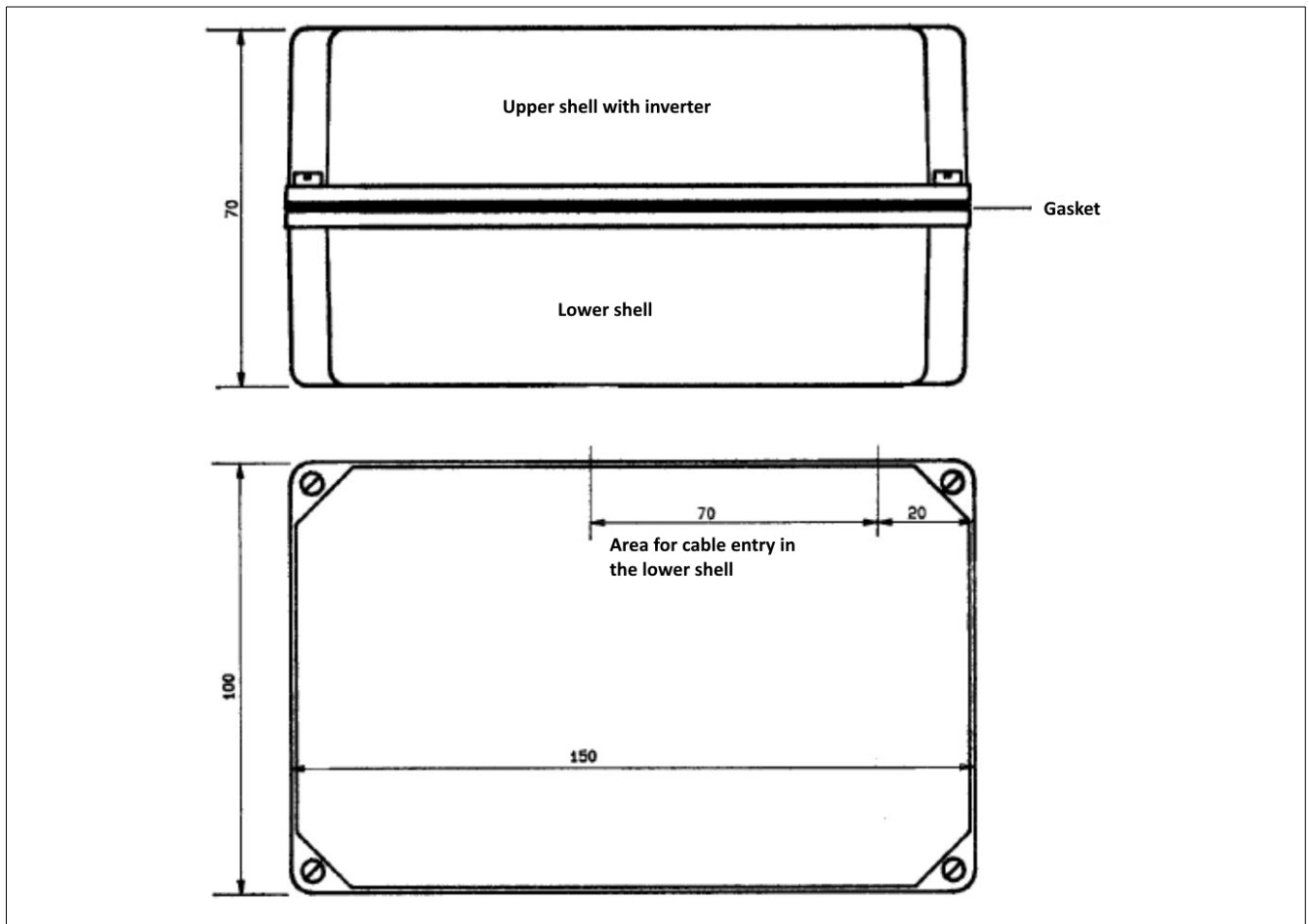
The MFR 600 inverters are designed to steplessly control the speed of 3-phase asynchronous motors from 0 to an adjustable maximum speed.

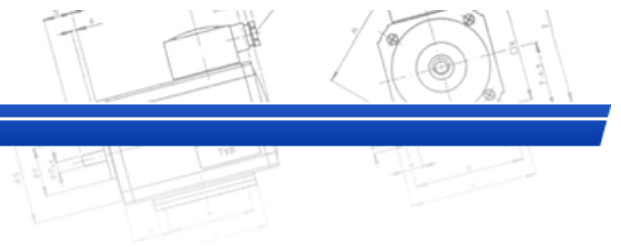
The device is designed so that it can be mounted directly on the motor to be controlled instead of the terminal box, whereby protection ratings of up to IP68 are possible if appropriate seals are used.

Mounting on the motor is particularly favourable because the electrical connections to the motor are inside the closed metal housing, which makes radio interference suppression much easier. In addition, the elimination of the motor cable makes the electrical installation much simpler and the elimination of cable capacitance and running times reduces both the power loss of the inverter and the voltage load on the motor.

The MFR1500 works with a clock frequency of approx. 10 kHz. This makes it possible to achieve outstanding smooth running and jerk-free operation even at low speeds. It is designed for 2-quadrant operation (driving in both directions of rotation). Braking is possible up to the power corresponding to the power loss of the motor, whereby the motor is overexcited (with overvoltage) in braking mode, i.e. the motor power loss will be greatly increased in braking mode

## Skizze





## General data

Operating temperature	On the outside of the lower shell	0 - 70°C
Dimensions		150 x 100 x 70 mm
Weight		0,88 kg

## Technical data

Nominal voltage		115 / 230 VAC $\pm$ 15%, 50-60 Hz
recomm. Back-up fuse		10 A inert
Max. motor size		750 W
Motor current	at 30°C	5,5 A <sub>eff</sub>
Output frequency	Normal operation	0-150 Hz
	Pump operation	0-55 Hz
	High frequency operation	0-600 Hz
	cond. Minimum frequency	0-50% of the respective maximum frequency
Ramp time	Normal operation	0.2 - 15 s or 4 - 300 s
	Pump operation	5s
	High frequency operation	0,2 – 15 s Or 4 - 300 s

## Control inputs

Analogue input for (Selection by jumper)		Potentionmeter
		0-10 V external voltage
		0-20 mA
Internal resistance	Voltage setpoint	4-20 mA
	Voltage setpoint	> 500 Ohm
Digital inputs	Current setpoint	470 Ohm
		Clearance
		Direction of rotation

## Operating modes

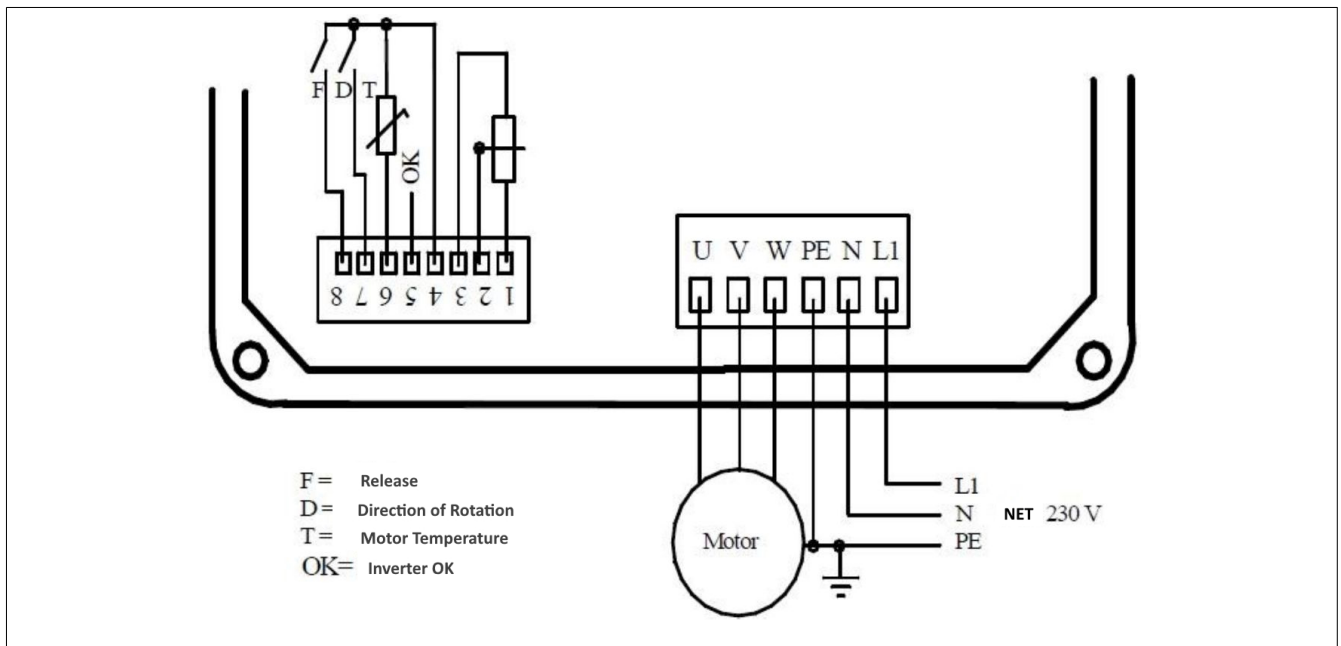
The devices can be switched to different operating modes using a DIP switch.

Normal operation:	In normal operation, the frequency range extends up to 150 Hz. The 'Boost' trim pot can be used to increase the motor voltage in the lower speed range. This results in a direct current in the motor at frequency 0, which enables braking to a standstill. This direct current is automatically switched off 4 seconds after reaching frequency 0. This is necessary for reasons of motor heating.
Pump operation:	In pump mode, the maximum frequency is limited to 55 Hz and the ramp is fixed at 5 seconds. The 'Boost' and 'Ramp' trim potentiometers are ineffective in this operating mode. In pump mode, the frequency-voltage ratio is reduced with decreasing frequency. As a result, the drive is operated in partial load mode with significantly reduced power loss.
High frequency operation:	In high-frequency mode, the maximum frequency can be set to values up to 600 Hz. In this operating mode, the required voltage/frequency ratio for the motor is set using the 'Boost' trimmer potentiometer.
Long ramp:	The 'Long ramp' operating mode switches the setting range of the ramp time from 0.2 - 15 s to 4 - 300 s (based on a frequency step of 150 or 600 Hz). <b>The long ramp cannot be used in pump mode.</b>
Motor potentiometer:	In Motorpoti operating mode, the motor speed can be set using 2 buttons.
200 Hz:	The operating mode automatically ramps up the inverter to 200 Hz with a ramp of approx. 1 s, all trim potentiometers and control signals are ineffective.



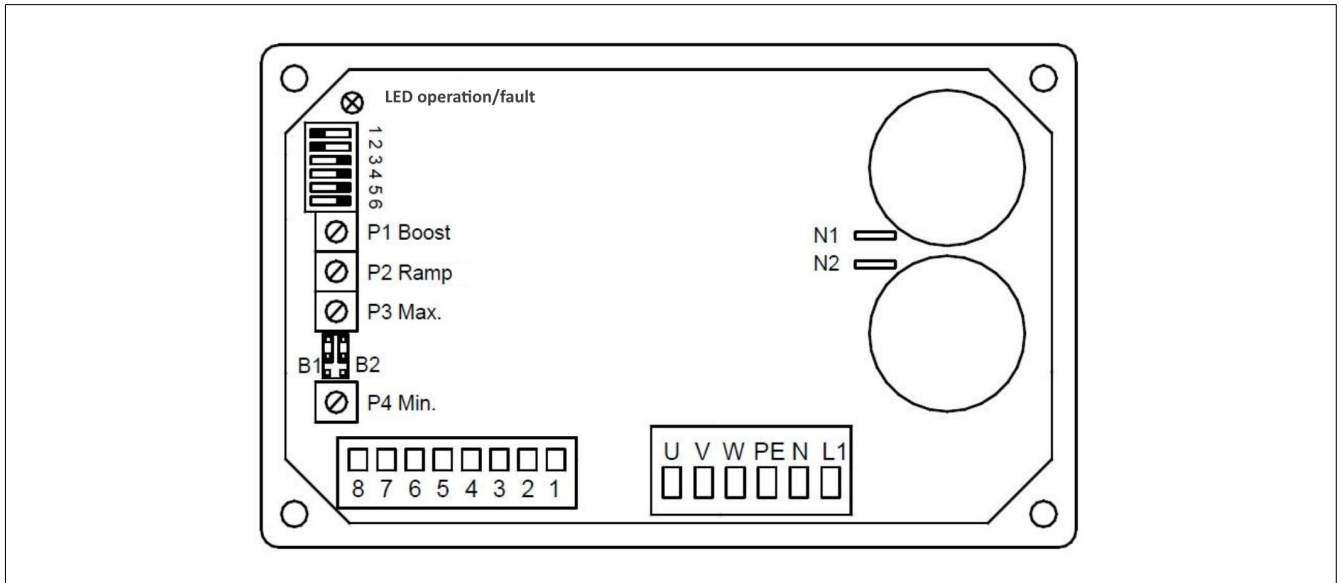
The operating mode may only be switched when the power is switched off. After switching off the mains voltage, wait at least 30 seconds before switching or any other intervention.

## Connection example



## Simple setting / commissioning

The required adjustment elements have been deliberately reduced to a minimum. They can be conveniently changed with the device open using jumpers and trim pots.



## Customised adaptation

The MFR consists of two half shells. For mechanical and thermal reasons, the electronics are located on the side facing away from the motor.

The other half-shell can now be machined almost at will by the customer or by us. For example, recesses for the motor terminal board or holes for mounting on the drive or the machine are possible.

Electrical installations according to your ideas can be realised at short notice. The direct installation of operating elements such as the potentiometer for speed adjustment and a switch for selecting the direction or starting/stopping the drive are popular here.

### One example:



## Available options

Potentiometer	10-turn potentiometer mounted directly on the side
Cable bushing	2 pcs. M16 screw fittings

## Accessories (optional)

External potentiometer	External 10 kOhm potentiometer with scale and rotary knob
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