User's guide

INTERFACE AG

Remote HMI for AG Drive VFD

HMI-R1 | HMI-R2

Understanding the HMI
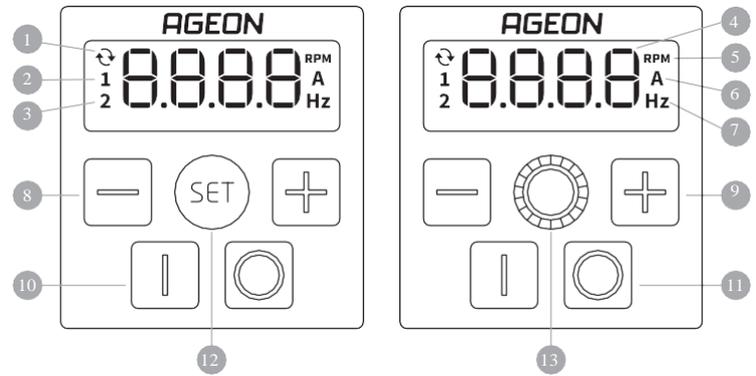
Num.	Name	Function
1		When on, indicates an inversion in the rotation direction.
2		When on, indicates that the output relay is activated.
3		When on, indicates that the second ramp is active. When flashing, indicates that the maximum current protection is active.
4		HIM display
5		Indicates that the value displayed is in rotations per minute (RPM). It must be set a maximum RPM value in **P603** parameter so this feature works.
6		Indicates that the value displayed is in Ampere (A).
7		Indicates that the value displayed is in Hertz (Hz).
8	**" - " key**	Key used to decrement values.
9	**" + " key**	Key used to increment values.
10	**ON key**	Activates the motor when **P302** = 0. When pressed, changes the rotation direction.
11	**OFF key**	Deactivates the driver when **P302** = 0.
12	**SET key**	Key used to enter or exit parameters screen.
13	**Encoder**	Rotary and push button, capable of functioning as SET key, increment key, and decrement key.

Product description

This remote HMI works with AG Drive PRO and Mini inverters. It is applied for expanding HMI of inverters, that can be fixed on the electrical panel door.

The HMI-R1 is the HMI model where the central button is the SET key.

The HMI-R2 features, in place of the SET key, a push and rotary button that functions as an encoder, facilitating navigation during equipment programming and operation.

Technical specifications

Parameters	Model	
Power supply	+5Vdc (+/- 0.5V)	
Nominal power consumption	150 mA	
Connection	AG Drive Mini Mini USB connector	AG Drive PRO RJ45 connector
Operating conditions	0 to 50 °C @ 10 to 85% RH (noncondensing)	
Protection index	IP20	
Panel cutout dimensions	56 x 61 mm	
Compatibility	AG Drive Mini XF2-05-1P1 XF2-10-1P1	AG Drive PRO XF2-05-1P2 XF2-10-1P2 XF2-20-1P2
Maximum distance	50 m (CAT5E/6 cable) and 5 m (USB cable)	

Applications

The AG Interface is ideal for cases where constant access to the inverter is required, and it is installed in a location inaccessible to the user. A typical scenario is the installation of the inverter inside a power/control panel, and users need to modify parameters such as the reference frequency frequently.

Product dimensions
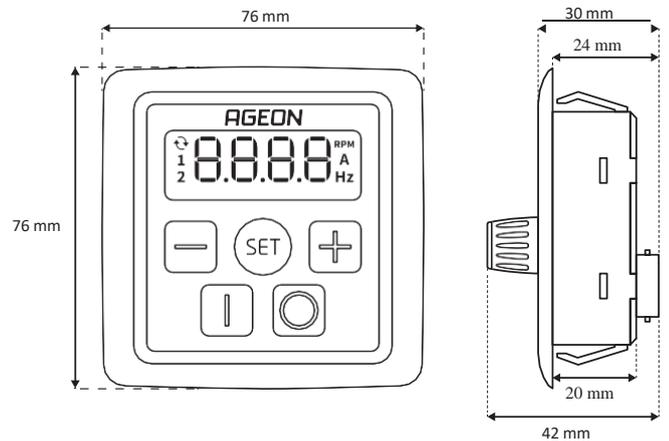
Fixation
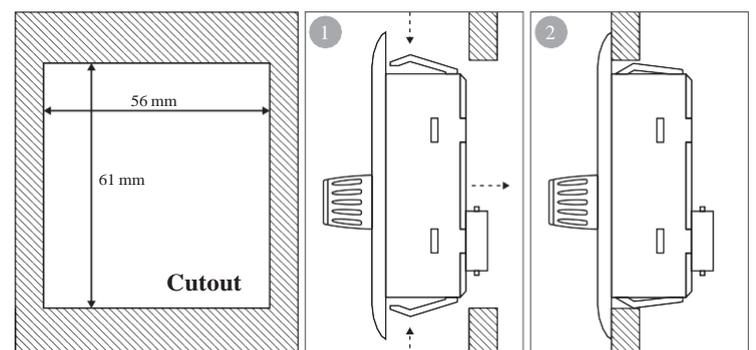
Warnings and recommendations

Warning!

Failing to comply with the following recommendations may result in damage to the equipment or operator and improper functioning of the device.

- This accessory must be installed by authorized and qualified personnel.

- When a greater cable length is necessary, use CAT5e/6 Ethernet cable that complies with all safety standards and is suitable for the application.

- Do not use cables with length exceeding 50 m (CAT5e/6 cable) or 5 m (USB cable), risk of a communication failure with the inverter.

- Never make splices in the communication cable.

- Do not expose the product to environmental conditions beyond the specifications.

- This product is an exclusive accessory for the AG Drive PRO and AG Drive Mini inverter families.

- Never use with other products or devices, risk of permanent damage.

- Never use the same conduit for power and communication cabling.

- Do not use the USB and RJ45 connections simultaneously, risk of permanent damage to the product.

- Before using the AG Interface, ensure that the inverter installation is correct and in accordance with all safety standards.

Electrical installation

Connect the HMI to the inverter using a CAT5e/6 Ethernet cable, following the T-568A standard.

For the USB version, use a USB cable of up to 5 meters between the inverter and the HMI.

Inverter programming for equipment utilization

The AG Interface is a Modbus RTU master device. Therefore, to operate the inverter using the AG Interface, it is necessary to program the following parameters in the inverter:

- **P301** = 4 - Selects the frequency reference for Modbus communication (this parameter can be programmed directly by the AG Interface if **P701** = iHrE);

- **P302** = 3 - Selects the inverter command for Modbus communication (this parameter can be programmed directly by the AG Interface if **P701** = iHrE);

- **P701** = iHrE - Special Modbus address for the AG Interface.

Operation

The operation of the AG Interface is the same as in the built-in HMI of the inverters. To program the inverter via AG Interface, use the keys according to the procedure below. On HMI-R1 or HMI-R2, use the rotary button as the SET key when pressed and as the increment and decrement key when rotated.

- Enter the parameter screen by pressing the SET key continuously for 5 seconds. In the product version with an encoder, press the knob instead;

- Navigate through the parameters using the "+" and "-" keys. In the product version with an encoder, values can be adjusted using the encoder (rotate counterclockwise to decrement and clockwise to increment);

- When the desired parameter appears on the display, press the SET key again to enter it. The parameter value will flash on the display;

- Adjust the parameter using the "+" and "-" keys or the encoder;

- To confirm the programmed value and exit the parameter, press the SET key again;

- To exit the parameters screen, press the SET key continuously for 5 seconds or do not press any key for 10 seconds;

- While the motor is activated, by default, the HMI displays the value of **P001**, output frequency. Pressing SET, the HMI displays **P003**, output current. Pressing SET again, it displays the motor speed, and pressing it for the third time, it returns the display to show the output frequency again.

HMI messages

During operation, the HMI may display the following messages:

Message	Meaning
Rdy	It indicates that the inverter is ready to operate. In this state, the motor is stationary, awaiting the command to start.
Sub	It indicates that the voltage at the inverter input is insufficient to operate the motor. In this state, the motor is stationary, waiting for the voltage to return to normal.
Stop	It indicates that the inverter has been disabled through DI2. For more details, refer to the description of parameter **P304**.

In case of an error, the HMI may display the following messages:

Message	Meaning
E002	Overvoltage on the DC bus
E003	Undervoltage on the DC bus
E004	Overtemperature
E005	Overload
E006	Hardware overcurrent
E007	In case it happens, please contact Ageon's technical support.
E008	Output phase loss
E009	Modbus Communication Failure: Occurs when the HMI does not detect a valid response from the inverter for more than 1 update period. This may happen due to communication noise, a faulty inverter, or when the value of **P701** is different from iHrE.

For more details on errors, operation, and programming, refer to the manual of the AG Drive used with the AG Interface.

Package content

- AG Drive HMI
- AG Interface user's guide