# GROHE F-DIGITAL DESIGN + ENGINEERING

GROHE GERMANY

99.766.231/ÄM 228115/05.15

Pure Freude an Wasser



www.grohe.com





























# $(\mathbf{GB})$

#### Safety notes



Prevent danger resulting from damaged voltage supply cables. If damaged, the voltage supply cable must be replaced by the manufacturer or his customer service department or an equally qualified person.

- Installation is only possible in frost-free rooms.
- The optional voltage supply unit is only suitable for indoor use.
- The connectors must not be directly or indirectly sprayed with water when cleaning.
- The voltage supply must be separately switchable.
- · Use only genuine replacement parts and accessories. The use of other parts will result in voiding of the warranty and the CE identification, and could lead to injuries.

### **Functioning Principle**

GROHE F-digital is a wireless controlled thermostatic mixer with wax cartridge. Water flow and temperature can be changed and set using the Digital Controller and Diverter.

#### Application

Safe limitation of the maximum outlet temperature is achieved via pre-set temperature limits which can be changed using the Digital Controller. There is a protective user operated override (set at default 38 °C) and a maximum system temperature (set at default 46 °C). The product is preassembled.

#### **Operating conditions**

The maximum permissible distance between the digital controller/diverter of the functional unit and the transceiver is 5 m.

The best wireless reception is achieved when the transceiver is surfacemounted.

#### Sources of interferences

The transceiver operates in the ISM-frequency range (2.4GHz). The installation in the vicinity of equipment with the same channel occupancy (eg wireless devices, RF components, etc. [observe the manufacturer's documentation!]) should be avoided.

#### **Obstructions/barriers**

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For operation under adverse environments, in buildings / rooms with reinforced concrete walls, steel and iron frame, or near of obstructions (eg furniture) of metal, the radio reception can be disturbed and interrupted.

Kind of obstructions	Interference or shielding potential
Wood, synthetic material	Low
Water, brick, marble	Medium
Plaster, concrete, glass, solid wood	High
Metal	Very high

#### **Plumbing Systems**

- · Gravity-fed plumbing systems with an open vented hot water cylinder
- Cold water storage cistern
- · Concealed functional unit
- Inlet Pressure

- maximum:	0.1 MPa
- minimum (recommended):	0.01 MPa
- minimum (priming of pump needed, see later):	0.01 MPa
Maximum total head (for pump to work against):	0 m

- This means that the shower head should always be below the water level available at the supply tanks.
- Maximum ratio of cold to hot (or hot to cold) pressure: 1:5
- The pumped system can be used in cases of mixed supply (high pressure cold and low pressure hot, or low pressure cold and high pressure hot). In these cases, a pressure-reducing valve (not in the scope of delivery) must be used to limit pressure to 0.1 MPa.
- Mixed water flow rate open outlet (no shower connected) at 0.01 MPa: approx. 12 l/min
- · Operational rating: max. 70 minutes on, 30 minutes off

#### **New Water Regulations**

Please ensure plumbing installation complies with the requirements of UK Water Regulations/Bye-laws (Scotland), Building Regulations or any particular regulations, requirements and practices, specified by the local water company or water undertakers.

#### **Technical data**

Operating pressure	max. 0.1 MPa
Test pressure	1.6 MPa
Hot water supply temperature:	min. 50 °C - max. 70 °C
- Recommended (energy saving):	0° C0
<ul> <li>Thermal disinfection possible</li> </ul>	

- · Hot water temperature at supply connection min. 2 °C higher than mixed water temperature.
- max. 40 °C Ambient temperature: • Voltage supply switchable: 100-120 V or 200-240 V AC, 50/60 Hz • Power consumption: 120 VA 2.4332 GHz Radio frequency: · Transmitter power: < 1 mW Digital controller/diverter battery: 3x 3 V Lithium batteries (type CR 2450) Automatic safety shut-off (factory setting): 20 min • Safety stop (factory setting): 38 °C · Maximal temperature: 46 °C · Type of protection: - Functional unit IP 20 - Digital controller/diverter IP X5 - Transceiver IP X5 IP 65 Switching voltage supply housing COLD/HOT • Water connection: Electrical test data Software class: В · Contamination class: 2
- Rated surge voltage: 2500 V • Temperature for ball impact test: 100 °C The test for electromagnetic compatibility (interference emission test) was

performed at the rated voltage and rated current.

## Approval and conformity

This product conforms to the requirements of the relevant EU directives.

The conformity declarations can be obtained from the following address:

**GROHE Deutschland Vertriebs GmbH** 

Zur Porta 9 D-32457 Porta Westfalica

#### Electrical installation



Electrical installation work must only be performed by a qualified electrician. This work must be carried out in accordance with the regulations to IEC 60364-7-701 (corresponding to VDE 0100 Part 701) as well as all national and local regulations.



The electrical installation must comply to "BS 7671 -Requirements for Electrical Installations", commonly referred to as the IEE Wiring Regulations - Part 7, or any particular regulations and practices, specified by the local electricity supply company.

- The electrical supply must be from a switched 3A fused spur which incorporates a disconnection device in the electrical circuit having a contact separation in all poles and the means of disconnection must be incorporated in the fixed wiring in accordance with the national wiring rules.
- It is important that the unit is **not** wired to a user operated isolation switch (typically pull cord) or to a supply that is frequently turned on/off (e.g. wall switch or hotel room card system).
- Only water-resistant round cables with max. outside diameter 6.0 to 8.5mm may be used.
- The voltage supply must be separately switchable.

#### Rough installation

- The functional unit must be accessible for maintenance work, Required dimensions inspection chamber, see fold-out page II, Fig. [1] to [3].
- To simplify the maintenance, GROHE recommends the installation of isolating valves and detachable connections in the inspection chamber.
- The plug-in connectors and the transceiver **must** be accessible.
  The functional unit must **not** be installed with the lid facing downwards. Outlet down is not recommended if inlet pressures are lower
- than 0.01 MPa / 1 m head).
  An adequate ventilation for pump ventilation of the functional unit must
- be ensured.
- A vacant tube **must** be used to connect the functional unit to the voltage supply unit and to the transceiver. The vacant tubes are **not in the scope of delivery.**
- All cables must be intended by using a cable retractor for vacant tubes (EN25).
- In installition cases with more than four bends the cable must be inserted before installation.

Prepare the wall for the installation, refer to the dimensional drawing on fold-out page I and Figs. [1] to [3] on fold-out page II.

- Prepare holes for the functional unit as well as slots for the pipes and empty conduit.

## Flush pipes thoroughly before and after installation (observe EN 806).

Install functional unit, see fold-out page II, Figs. [4] to [7].

- Route the mixed water outlet to the points of discharge, **outlet 1 must be engaged mandatory,** see Fig. [5].

#### Do not solder the connections.

- For sealing a unused outlet the supplied plug (A) can be used.

Flush the functional unit, see fold-out page II, Fig. [8] and fold-out page III, Figs. [9] and [10].

Close the cold and hot water supply. Assemble in reverse order.

## **Final installation**

**Insert batteries into digital controller/diverter,** see fold-out page III, Figs. [11] to [15]. Grease seals. Insert batteries with correct polarity. The digital controller/diverter is registered with the functional unit in the factory.

Secure digital controller/diverter, see Fig. [16a] or [16b] to [19].

Open the hot and cold water supply and check that the connections are watertight.

Establish voltage supply, see fold-out page III, Figs. [20] to [23].

For installation the switching voltage supply housing must be used, see Fig. [20].

For establishing the voltage supply a power plug (B, not in the the scope of delivery) is necessary.

The control cabinet voltage supply ist switchable from 110 to 220 V by switch (C), see Fig. [23].

#### Be sure that personnel protection insulation is obtained!

Connect voltage supply, see fold-out page IV, Fig. [23].

The indicator lamp (D) of the transceiver then flashes one after another blue, green and red.

The buttons of the digital controller/diverter are now inoperative for 3 minutes.

#### Priming of pump

The pump cannot be allowed to run dry and the functional unit will stop this by switching off the functional unit and the lower segment of the digital controller flashes green 4x.

Therefore, in cases of water supply below 0.01 MPa / 1 m head), assistance to the priming of the pump may be necessary.

The simplest way to achieve this is by applying suction to the outlet of the functional unit by:

- Using a hand-operated suction pump on the shower hose,

or

#### - Sucking on the shower hose.

Where a head shower is fitted, this should first be removed and a suitable length of rubber hose temporarily fitted.

If the above does not work, the following should be checked before reattempting the application of suction:

- Make sure that the inlet check valves are not sticking (remove temporarily).

Once the system is running, temperature setting should be varied between hot and cold several times so as to help clear any air pockets from both inlet sides.

The functional unit must be adapted to the local conditions, see section **Function menu of the digital controller, F2 - Setting mode**.

#### Settings in the event of a power failure/when changing batteries

No settings saved by the user will be lost when changing the batteries or in the event of an interruption of the voltage supply to the functional unit.

Please pass these instructions on to the fitting user! The right to make technical modifications is reserved!

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# Operation of the digital controller, see fold-out page IV, Fig. [24].

Button	Description	Visualization
DIE	Start/Stop button Starts and stops the water flow at the saved water temperature and flow rate.	The temperature is represented by the illuminated ring. [from blue to orange (safety stop) to red].
<b>D</b>	Pause button Interrupts the water flow. Pressing the button again within 30 seconds, the operation continues with the last selected settings. The temperatures is limited to the value of the safety stop.	
+	<b>Temperature buttons</b> Starts the water flow and decreses or increases the water temperature. Display when minimum temperature is reached (-). Display when safety stop is reached (+). Display after overriding the safety stop (+).	The temperature is represented by the illuminated ring Illuminated ring flashes blue 3x. Illuminated ring flashes orange 3x. Illuminated ring changes from orange to red.
38 °C	<b>Overriding the safety stop</b> When the safety stop is reached (factory setting 38 °C), press and hold button - / + simultaneously. Then press button + several times.	Illuminated ring flashes 3x orange when the safety stop is reached/unlocked.
$\bigcirc$	<b>Volume control</b> Turning clockwise starts the functional unit and increases the flow rate until maximum. Turning anti-clockwise reduces the flow rate until minimum.	
	Memory function When the water is running the current settings can be saved by pressing and holding the button. Temperatures above 40 °C are not saved.	Water flow is interrupted briefly and illuminated ring flashes green 3x.
,	<b>Warm-up mode</b> If no water is flowing and the pause mode is not active, pressing and holding the button activates water flow for warm-up mode. When the preset temperature is reached, the water flow is stopped (automatic abort after 2 minutes or by pressing a button).	Illuminated ring flashes blue 3x at the start and end of the warm-up phase.
	<b>Cleaning service mode</b> If no water is flowing, pressing and holding both buttons simultaneously activates cleaning service mode. In the cleaning service mode all outlets closed and without function for 2 minutes . <b>Abort</b> the cleaning service mode within two minutes by simultaneously pressing and holding both buttons.	Illuminated ring flashes violet 3x. Illuminated ring flashes violet 1x when actuated. Illuminated ring flashes violet 3x.

Different functions (F1 to F6) can be set or activated via the digital controller/diverter. Start of the function menu only when no water is flowing.

Function F1 - Automatic filling, see fold-out page IV, Fig. [24].

Button	Description	Visualization
	<ul> <li>Start the function menu</li> <li>Select the function by simultaneously pressing and holding the - / + buttons.</li> <li>Start function F1 - Automatic filling <ul> <li>=&gt; Confirm by simultaneously pressing the - / + buttons.</li> </ul> </li> <li>Changing the point of discharge by turning the ring (not for 36 292) <ul> <li>=&gt; Confirm by simultaneously pressing the - / + buttons.</li> </ul> </li> <li>Stop the water flow/timer by turning the ring anti-clockwise.</li> <li>Continue the water flow/timer by turning the ring anti-clockwise.</li> <li>Again stop the water flow/timer by turning the ring anti-clockwise.</li> <li>After 30 minutes (max. running time) the water flow stops automatically.</li> <li>Pressing the - / + buttons saves the quantity/duration and exits the menu. Abort after 3 minutes without triggering (only when no water is flowing).</li> <li>Abort the function menu by pressing and holding Start/Stopp.</li> </ul>	Illuminated ring flashes red 1x. Illuminated ring flashes green 1x. Point of dischare changes Illuminated ring flashes green 1x and timer started. Water flow/timer stops. Water flow/timer continues. Water flow/timer stops. Water flow stops. Illuminated ring flashes green 3x. Illuminated ring flashes violet 1x.

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Function F2 - Setting mode (adaption to the local conditions), see fold-out page IV, Figs. [24] and [25].

Button	Description	Visualization
	<ul> <li>Start the function menu</li> <li>Select the function by simultaneously pressing and holding the - / + buttons.</li> <li>F2 Function select by turning the ring</li> <li>Start F2 - Setting mode <ul> <li>Sconfirm by simultaneously pressing the - / + buttons.</li> </ul> </li> <li>Changing the point of discharge by turning the ring (not for 36 293) <ul> <li>Confirm by simultaneously pressing the - / + buttons.</li> </ul> </li> <li>Changing the point of discharge by turning the ring (not for 36 293) <ul> <li>Confirm by simultaneously pressing the - / + buttons.</li> </ul> </li> <li>Turn ring and set <i>minmum flow rate</i>. <ul> <li>Confirm the setting by simultaneously pressing the - / + buttons.</li> </ul> </li> <li>Turn ring and set <i>maximum flow rate</i>. <ul> <li>Confirm the setting by simultaneously pressing the - / + buttons.</li> </ul> </li> <li>Turn ring, measure water outlet temperature and set at 38 °C.</li> <li>Confirm the setting 38 °C by simultaneously pressing the - / + buttons.</li> </ul> Abort the function menu by pressing and holding Start/Stopp button or after 3 minutes without triggering.	Illuminated ring flashes 1x red.         Illuminated ring flashes 2x red.         Illuminated ring flashes green 1x and water flow starts.         Point of discharge changes.         Illuminated ring flashes green 1x.         Illuminated ring flashes green 1x.

Function F3 - Register/de-register additional (max. 3) digital controller/diverter (not for 36 293), see fold-out page IV, Fig. [24].

Button	Description	Visualization
	Start the function menu	
	- Select the function by simultaneously pressing and holding the - / + buttons.	Illuminated ring flashes red 1x.
$(\mathcal{I},\mathcal{I})$	<ul> <li>F3 Function select by turning the ring</li> </ul>	Illuminated ring flashes red 3x.
~ ~	<ul> <li>Start F3 - Register additional digital controller/diverter</li> </ul>	
	=> Confirm by simultaneously pressing the - / + buttons.	Illuminated ring flashes green 1x.
	- Press the buttons 1 + 3 of the additional digital controller/diverter simultaneously in	Illuminated ring flashes green 1x.
	order to register it.	
3	- Pressing the - / + buttons simultaneously on the pending digital controller saves the	Illuminated ring flashes green 3x.
	selection and exits the menu.	
	<ul> <li>Start F3 - De-register additional digital controller/diverter</li> </ul>	
	=> Confirm by simultaneously pressing the - / + buttons.	Illuminated ring flashes green 1x.
	- Pressing the - / + buttons simultaneously on the factory digital controller to de-	Illuminated ring flashes green 3x.
	register all additional controllers/diverters.	
	Abort the function menu by pressing and holding Start/Stopp button or after	Illuminated ring flashes violet 1x.
	3 minutes without triggering.	

Function F4 - Factory reset, see fold-out page IV, Fig. [24].

Button Description Visualization	
Button       Description       Visualization         Start the function menu       -       Start the function menu         -       -       Select the function by simultaneously pressing and holding the - / + buttons.       Illuminated ring flashes red 1:         -       F4 Function select by turning the ring       Illuminated ring flashes red 4:         -       F4 Function select by turning the ring       Illuminated ring flashes red 4:         -       F4 Function of digital controller.       Illuminated ring flashes green         -       Press + button of digital controller.       Segment of illuminated ring fl         -       Press Start/Stop button of digital controller.       Segment of illuminated ring fl         -       Press Start/Stop button of digital controller.       Segment of illuminated ring fl         -       Press Start/Stop button of digital controller.       Segment of illuminated ring fl         -       Press Abort menu.       Abort the function menu by pressing and holding Start/Stopp button or after       Illuminated ring flashes violet	x. x. ashes blue 1x. ashes blue 1x. ashes blue 1x. ashes blue 1x. 1 3x. 3x. 1 x.

Function F5 - Activate continuous operation, see fold-out page IV, Fig. [24].

Button	Description	Visualization
	<ul> <li>Start the function menu</li> <li>Select the function by simultaneously pressing and holding the -/+ buttons.</li> <li>F5 Function select by turning the ring</li> <li>Start F5 - Activate continuous operation <ul> <li>&gt; Confirm by simultaneously pressing the -/+ buttons.</li> </ul> </li> <li>Press Start/Stop button of digital controller.</li> <li>Press - button of digital controller.</li> <li>Press s + button of digital controller.</li> <li>Pressing the -/+ buttons simultaneously starts the continuous operation.</li> <li>False entry =&gt; abort menu.</li> <li>Caution: Risk of scalding. All points of discharge opened, do not stay in the wet area. The 38 °C setted safety stop is deactivated.</li> <li>Abort of the function after 15 minutes (after that cold water runs for a minute) or prematurely by operating the digital controller/diverter as well as a the transceiver (no cold water running).</li> </ul>	Illuminated ring flashes red 1x. Illuminated ring flashes red 5x. Illuminated ring flashes green 1x. Segment of illuminated ring flashes blue 1x. Segment of illuminated ring flashes blue 1x. Illuminated ring flashes cyan 3x. Illuminated ring flashes violet 3x.

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### Function F6 - Assign points of discharge to the buttons of the digital diverter (not for 36 293), see fold-out page IV, Fig. [24].

Button	Description	Visualization
2 1	<ul> <li>Start the function menu</li> <li>Select the function by simultaneously pressing and holding the -/+ buttons.</li> <li>F6 Function select by turning the ring.</li> <li>Start F6 - Assign points of discharge to the buttons of the digital diverter.</li> <li>=&gt; Confirm by simultaneously pressing the -/+ buttons.</li> <li>Press one of the digital diverter buttons 1, 2 or 3.</li> </ul>	Illuminated ring flashes red 1x. Illuminated ring flashes red 6x Illuminated ring flashes green 1x. Water flow starts and the segment of the selected
3	<ul> <li>Change point of discharge by turning the digital controler ring. The buttons are factory assigned to the points of discharge 1 - 2 - 3.</li> <li>By further turning the point of discharge may be closed. A maximum of two point of discharge could be stored as closed.</li> </ul>	button flashes blue 1x. Water flow changes to the selected point of discharge.
	- Press the next digital diverter button.	Water flow starts and the segment of the selected button flashes blue 1x.
	=> Pressing the - / + buttons simultaneously saves the selection and exits the menu. Abort the function menu by pressing and holding <b>Start/Stopp</b> button or after 3 minutes without triggering.	Illuminated ring flashes green 3x. Illuminated ring flashes violet 1x.

#### Maintenance

Inspect and clean all components and replace if necessary.

Close isolating valves. Open all occupied outlets with digital controller/diverter. Disconnect voltage supply. Æ

I. Change digital controller/diverter batteries, see fold-out page IV, Fig. [26] and fold-out page III, Figs. [11] to [15]. Insert batteries with correct polarity.

II. Servo motor and thermostatic compact cartridge, see fold-out page IV, Fig. [27] to [29]. Assemble in reverse order.

## Observe the correct installation position of the thermostatic compact cartridge, see detail Fig. [28].

- 1.Connect plug connector servo motor, see Fig. [27].
- 2. Establish voltage supply. The servo motor calibrates and the buttons of the digital controller/diverter are now inoperative for 3 minutes. Finally the cams must be positioned one above the other, see Fig. [29]. If cams are not positioned one above the other, disconnect voltage supply and than reconnect again.

#### 4. Turn the adjusting nut (E) until the water temperature reaches 38 °C, see Figs. [22] and [24].

5. Put servo motor to thermostatic compact cartridge.

III. Non-return valve, see fold-out page IV, Fig. [30].

Assemble in reverse order.

IV. Solenoid valve, see fold-out page IV, Fig. [31]. Assemble in reverse order.

### Service

In the event of problems with installation, please switch off the voltage supply and consult a specialist installer or the GROHE Service Hotline via email at TechnicalSupport-HQ@grohe.com.

### Replacement parts

See fold-out page I (\* = special accessories).

#### **Disposal instructions**

This category of device does not belong in the domestic waste, X but must be disposed of separately in accordance with the



relevant local national regulations.

Dispose of batteries in accordance with national regulations.

Fault	Cause	Remedy
Water does not flow	<ul> <li>Water supply interrupted</li> <li>Plug-in connector without contact or no voltage supply</li> </ul>	<ul> <li>Open shut-off valves, isolating valves</li> <li>Attach plug-in connectors and connect voltage supply</li> </ul>
	Solenoid valve defective	- Replace solenoid valve, see section Maintenance
Flow rate too low	Functional unit not adapted to local conditions	<ul> <li>Adapt functional unit to local conditions, see Function F2 - Setting mode</li> </ul>
Water too cold/hot	Functional unit not adapted to local conditions	<ul> <li>Adapt functional unit to local conditions, see Function F2 - Setting mode</li> </ul>
No function	Digital controller not ready or registered	- Register digital controller/diverter, see Function F3 - Register/de- register
Segment flashes 1x white	<ul><li>Digital controller/diverter out of range</li><li>Radio interference</li></ul>	<ul> <li>Check transceiver or change position</li> <li>Deactivate potential source of interference and check function again</li> <li>=&gt; If positive reconfigure the interference source (eg wireless router)</li> </ul>
	Obstacle in transmission path	- Rectify the fault see section <b>Operating conditions</b>
	• 1x: Batteries digital controller/diverter almost empty	- Check installation or replace unit battery, see section Maintenance
Segment flashes green	• 3x: Temperature too high	<ul> <li>Wait until feeler gauge is cooling down</li> <li>Calibrate functional unit, see section F2 - Setting mode</li> </ul>
	<ul> <li>4x: Pump runs dry</li> <li>5x: Calibration servo motor not completed</li> </ul>	<ul> <li>Prime pump, see section Final installation</li> <li>Wait 3 minutes, switch off the voltage supply and reconnect</li> </ul>
	Software malfunction	- Switch off the voltage supply and consult a specialist installer

3. Open isolating valves and start water flow at the digital controller.

Segment flashes 1x yellow		or the GROHE Service Hotline
Segment flashes 1x red	Hard- or software malfunction	<ul> <li>Switch off the voltage supply and consult a specialist installer or return the product to GROHE</li> </ul>

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