homematic IP wired

Wired Access Point

HmIPW-DRAP

EN Installation and Operating Manual

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1 Package contents

1x Wired Access Point
1x Bus connection cable
1x Bus blind plug
1x Network cable
1x Operating manual

2 Information about this manual

Read this manual carefully before beginning operation with your Homematic IP Wired device. Keep the manual for later consultation. If you hand the device over to other persons for use, please ask them to read this manual.

Symbols used

This indicates a hazard.

This section contains important additional information.

3 Hazard information

We accept no liability for damage caused by use for other than the intended purpose, incorrect handling or failure to observe the hazard warnings. In such cases, all warranty claims are void. We accept no liability for consequential damage.

Do not use the device if it has visible damage or a malfunction. If you have any doubts, have the device checked by a qualified expert.

For safety and licensing reasons (CE), unauthorised conversions to and/or modification of the device are not permitted.

The device is not a toy – do not allow children to play with it.

Plastic film, plastic bags, polystyrene parts, etc. can be dangerous for children. Keep the packaging material out of the reach of children and dispose of it immediately.

Clean the device using a soft and clean lint-free cloth. Do not use any detergents containing solvents for cleaning purposes.

Do not expose the device to moisture, vibrations, constant solar or other heat radiation, excessive cold or mechanical loads. The device must only be operated indoors.

Failure to observe the installation instructions may result in fire or a danger of electric shock. The device is part of the building installation. Observe the relevant national standards and directives during planning and installation.

The device is intended for operation on the Homematic IP Wired Bus only. The Homematic IP Wired Bus is a SELV power circuit. The mains voltage for the building installation and the Homematic IP Wired Bus must be routed separately. Common cable routing for power supply and the Homematic IP Wired Bus in installation and junction boxes is not permitted. The required isolation for a power supply of the building installation to the Homematic IP Wired Bus must be observed at all times.

The 24 V supply voltage, the Ethernet cable and any Ethernet or telecommunication lines of the Homematic IP Wired Bus connected to the bus terminals are SELV circuits. These wires must be routed separately from mains voltage cables by measures for secure separation (e.g. with horizontal and vertical partitions).

For safe operation, the device must be installed in a circuit distribution board that complies with the standards VDE 0603, DIN 43871 (low voltage sub-distribution board (NSUV)), DIN 18015-x. The device must be installed on a mounting rail (top-hat rail, DIN rail) in accordance with DIN EN 60715. Installation and wiring must be carried out in accordance with VDE 0100 (VDE 0100-410, VDE 0100-510). The provisions of the technical connection regulations (TAB) of the energy supplier must be observed.

Observe the permissible cable types and conductor cross sections when connecting to the device terminals.

The device is suitable for use only in residential environments.

4 General system information

This device is part of the Homematic IP Smart Home System and communicates via the Homematic IP. Operation requires connection to a Homematic IP Wired Access Point. Further information on the system requirements and installation planning is to be found in the Homematic IP *Wired system manual*.

All technical documents and updates are to be found at *www.homematic-ip.com*.

5 Function and device overview

The Homematic IP Wired Access Point is the central interface of the Homematic IP Wired system and in combination with a power supply unit forms the basis for the supply voltage to the entire bus. The device is simply connected via Ethernet cable to a router and connects the Homematic IP Cloud service to the wired devices. The Homematic IP Wired system is configured via the free Homematic IP App.

The Homematic IP Wired Access Point is simply installed on a DIN rail in the electrical distribution board. The bus connection cables offer quick and easy installation thanks to pre-assembled cables with plug connectors. The wires are connected and disconnected quickly and screwless thanks to spring-loaded terminals.

The integrated LC display with background lighting can be used to check the correct wiring of the building installation directly at site without having to carry out complex programming. Homematic IP wireless components can also be flexibly integrated at any time in combination with the Homematic IP Access Point (HmIP-HAP) or a Homematic IP Home Control Unit (HmIP-HCU1) for the wireless communication.

Device overview

A) System button (device LED)
B) Input for the supply voltage
C) Mode button
D) Select button
E) LC display
F) Ethernet port
G) Bus port 2 clamp terminal
H) Bus port 2 socket
I) Bus port 1 socket
J) Bus port 1 clamp terminal

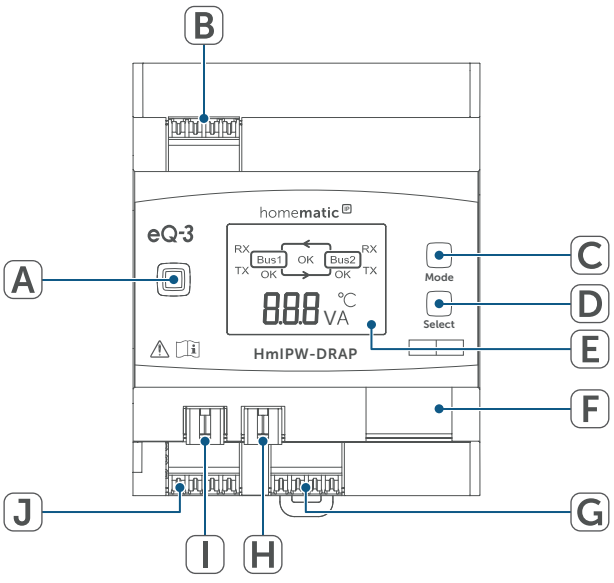

Figure 2

Display overview

BUS1 OK
BUS2 OK
Ring topology (“loop”) OK
RX Data is received by the bus
TX Data is sent to the bus

°C Temperature indication (in device)
R Voltage indication (input or output voltage at bus terminals)
A Current indication (total current or current of single bus)

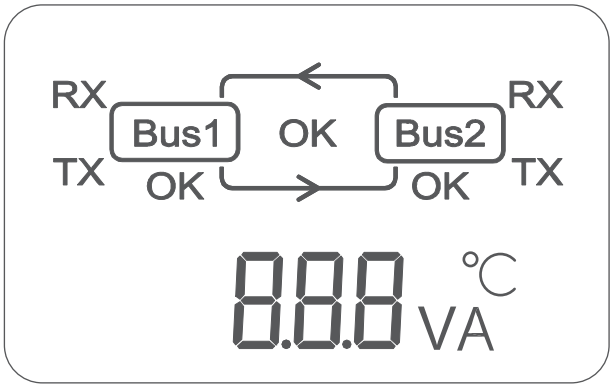

Figure 3

6 System requirements

The Homematic IP Wired system uses bus data lines for the internal communication between the wired devices. While the bus connecting cables for wiring within the control cabinet are already included in the package content, a four-wire bus line is required for communication of external devices.

A separate power supply unit *see Selecting the supply voltage, page 9* is required for the power supply to the Homematic IP Wired system.

A router with network and Internet connection is required for setup and configuration of the wired devices. The wired system can be flexibly configured, operated and controlled by smartphone (with the latest Android or iOS operating system) via the Homematic IP Cloud in combination with the Homematic IP App.

7 Topology of the bus system

The Homematic IP Wired devices are linked to one another via bus lines for an interference-safe and robust connection. The topology of the bus that connects the single Homematic IP Wired components can be configured as required. The following figure shows the possible topologies as an example and purely symbolically (not a connection diagram).

7.1 Possible connection topologies

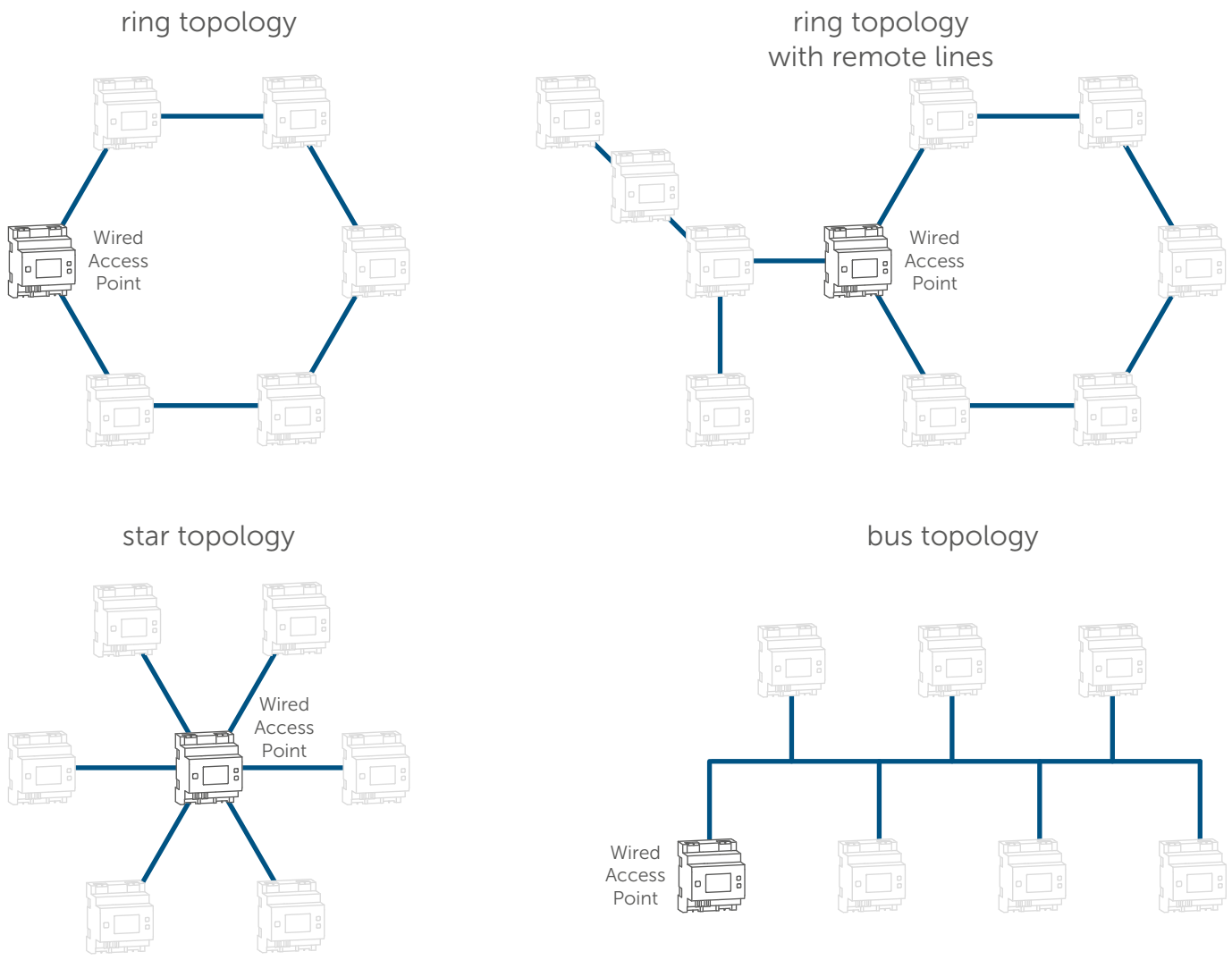

Figure 4

7.2 Operating modes

7.2.1 Ring topology

For the first time, Homematic IP Wired offers easy installation of fault-tolerant networks for a house or building bus system. Even in case of interruptions of the lines, there will be no device or function failures. The Homematic IP Wired Bus supports the setup of a ring topology ("loop") for this. The bus is always routed from the Homematic IP Wired Access Point and from one device to the next and finally back to the Homematic IP Wired Access Point, thus creating a loop. The Wired Access Point checks if the data on the bus is received at both bus terminals. If the line is interrupted at one part of the ring, the bus topology is restructured automatically into two independent bus lines, so that the devices are still working.

7.2.2 Two separate buses

Both bus connections of the Wired Access Point can be operated also as two separate bus lines. Thus, e.g. one bus can be used with the devices within the distribution board. The other bus can then be used for devices of the field installation (e.g. flush-mounted devices) or for devices in additional sub-distribution boards. The Wired Access Point automatically transfers the data in this operating mode from one bus to another.

8 Start-up

8.1 Installation instructions

Read this section completely before starting installation.

Please observe the hazard warnings during installation *see Hazard information, page 3*.

Please note the insulation stripping length of the conductor being connected, as indicated on the device.

For electrical safety reasons, only the supplied Homematic IP Wired Bus cable or an eQ-3 Homematic IP Wired Bus cable of another length (available as an accessory) may be used for connecting the Homematic IP Wired Bus. d.

If changes to or work on the house installation are necessary (e.g. extension, bypass of switch or socket inserts) or to/on the low-voltage distribution system for mounting or installing the device, the following safety instructions must be observed:

The installation may only be carried out by persons with the relevant electrical engineering knowledge and experience!*

Incorrect installation can endanger

- your own life,
- and the lives of other users of the electrical system.

Incorrect installation also means that you are running the risk of serious damage to property, e.g. due to fire. You risk personal liability for personal injury and property damage.

Consult an electrician!

***Specialist knowledge required for installation:**

The following specialist knowledge is particularly important during installation:

- The “5 safety rules” to be used:
  - Disconnect from mains
  - Secure against restart
  - Check for absence of voltage
  - Earth and short circuit
  - Cover or cordon off neighbouring live parts
- Selection of suitable tools, measuring equipment and, if necessary, personal protective equipment;
- Evaluation of measuring results;
- Selection of electrical installation material for safeguarding shut-off conditions;
- IP protection types;
- Installation of electrical installation material;
- Type of supply network (TN system, IT system, TT system) and the resulting connection conditions (classic zero balancing, protective earthing, required additional measures, etc.).

Permitted cable cross sections for connecting to the device are:
rigid and flexible cable (without ferrule), 0.25 - 1.5 mm^2

8.2 Selecting the supply voltage

Voltage is supplied to the Homematic IP Wired Access Point via a separate power supply unit. Use a power supply unit intended for application in building automation for the voltage supply (e.g. the *Homematic IP Wired Power Supply Unit*). The basic requirements for this power supply unit are:

- Output voltage: 24 VDC (±5%, or adjustable), < 50 mVpp, SELV
- 10 A max., current-limited
- short circuit-proof
- at least 3750 V isolation voltage (input and output)
- over-voltage category III
- EMV interference immunity according to EN61000-6-2
- Power failure buffering: at least 80 ms

When selecting the power supply unit, please note that the supply cable from the power supply unit to the Wired Access Point must not exceed 3 m.

Every bus line can supply max. 3 A continuous current as long as the power supply unit is designed accordingly.

8.3 Proposal for cable assignment and colour allocation

Function		Ethernet Cat5e according to TIA568A (EU standard)	JY(ST)Y 4x2 according to VDE 0815	JY(ST)Y 2x2 according to VDE 0815	EIB cable	Homematic IP Wired cable
+ (24 VDC)	incoming bus cable	Blue/White	Red			
- (GND, Earth)		Blue	Blue	Black		
A (RS-485)		Orange/White	White			
B (RS-485)		Orange	Yellow			
+ (24 VDC)	outgoing bus cable	Green/White	White	-	-	-
- (GND, Earth)		Green	Green	-	-	-
A (RS-485)		Brown/White	White	-	-	-
B (RS-485)		Brown	Brown	-	-	-

If you are working with a shielded cable, the continuity wire (shield) may only be connected to the "-" terminal of the Wired Access Point.

8.4 Assembly and installation

Proceed as follows to install the device on a DIN rail:

- Disconnect the power distribution panel and cover any live parts, if required.
- Disconnect the corresponding line of the incoming Homematic IP Wired bus.
- Remove the cover from the power distribution panel.
- Place the device on the DIN rail.

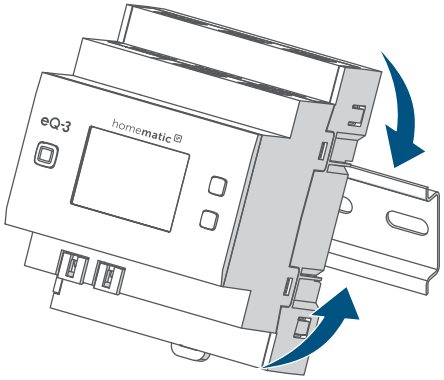

Figure 5

- You should be able to read the letters on the device and in the display.
- During installation, make sure that the locating springs engage properly and that the device is securely seated on the rail.

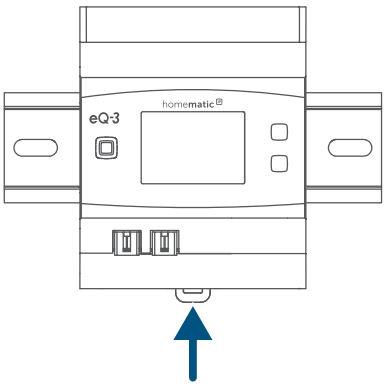

Figure 6

- Wire the device according to the connection drawing and observe the installation instructions *see Installation instructions, page 8*.

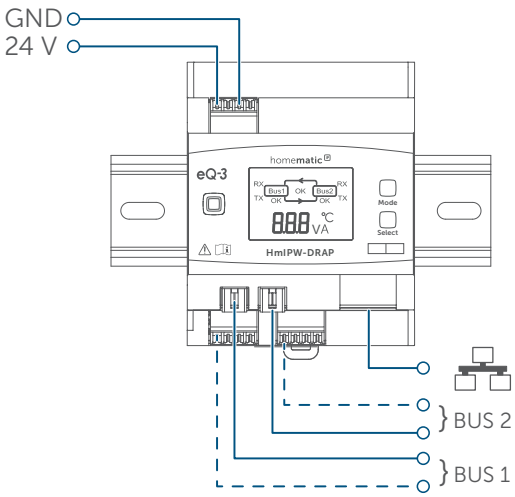

Figure 7

- Plug the network cable into the Ethernet port and connect it to a router.
- Connect a previously installed 24 V power supply unit with the correct polarity to the device via the input for the supply voltage.
- Connect the bus connection cable to bus port 1 or bus port 2 and connect all other wired devices via the bus *see Topology of the bus system, page 7*.

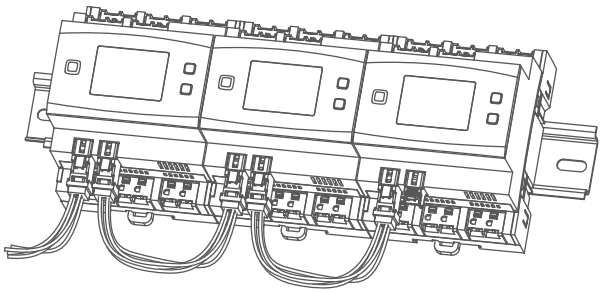

Figure 8

- Use the supplied bus blind plug, if bus connection 1 or bus connection 2 are not needed.
- Fit the cover of the power distribution panel again.
- Switch the fuse of the power circuit on .
- Switch the Homematic IP wired bus on to activate the pairing mode of the device.

After installation and before pairing the device with the Wired Access Point, simple operating functions are already available to you directly on the device (for test purposes if necessary).

8.5 Pairing with a control unit

Read this entire section before starting the pairing procedure.

Set up your Wired Access Point via the Homematic IP Homematic IP app so that you can use Wired devices in the system. Homematic IP Further information on the system and on combining it with other Homematic IP devices is to be found in the Homematic IP *Wired system manual*.

Proceed as follows to in the Homematic IP app:

- Open the Homematic IP app.
- Tap on **...More** in the homescreen.
- Tap on **Pair device**.
- Connect the power supply.
- The pairing mode is active for 3 minutes.

You can manually start the pairing mode for another 3 minutes by pressing the system button shortly.

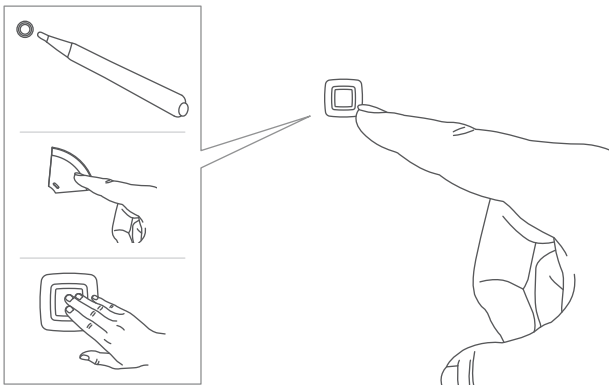

Figure 9

The type of system button depends on your device. Further information is to be found in the device overview.

- Your device will automatically appear in the Homematic IP app.
- Enter the last four digits of the device number (SGTIN) in your app or scan the QR code. The device number can be found on the sticker supplied or attached to the device.
- Wait until pairing is completed.

- If pairing was successful, the device LED lights up green.
- The device is now ready for use.

If the device LED lights up red to, please try again *Flash codes and displays, page 15*.

- Finally, follow the instructions in the Homematic IP app.

After setting up Wired Access Point Central Control Unit, you can integrate additional Homematic IP Wired devices into the system.

If you want to combine your Wired devices with Homematic IP wireless components, you can pair the Homematic IP Wired devices with an (existing) Homematic IP Central Control Unit. Then proceed as described above to connect the device.

9 Operation

After set-up, simple operations are available directly on the device.

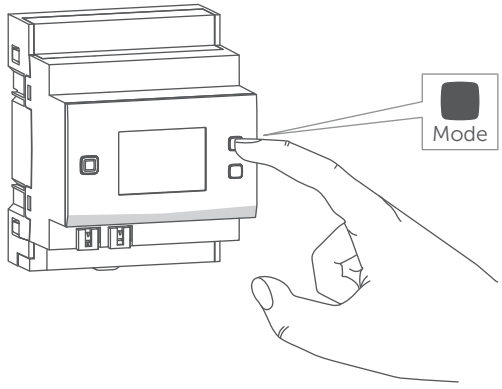

Figure 10: Pressing the Mode button

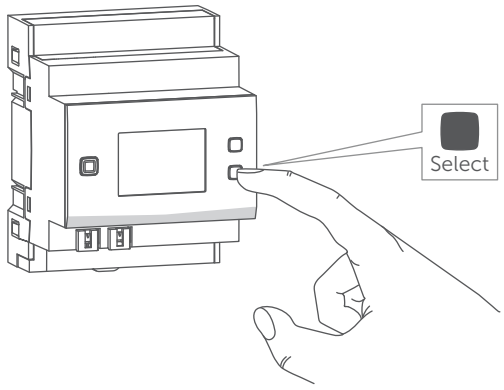

Figure 11: Pressing the Select button

- **Switch on the display**: Press the system button briefly to activate the LC display for all devices connected to the bus.
- **Acknowledgement of short circuit failure**: If the supply voltage on the bus is short-circuited *see Flash codes and displays, page 15*, this error must be cancelled by the user. Press and hold the Select button to switch to error cancelling.
  - Press the Select button briefly to switch between the errors.
  - Press and hold the Mode button to cancel the error.
- **Setting the bus operating mode**: Press and hold the Mode button to switch to the configuration of the bus operating mode (individual bus lines or ring). Use the Select button to switch between the operating modes.
  - Individual bus lines (for bus 1 and bus 2)
  - Ring

  Press the Mode button briefly to accept the configuration.

- **Selecting bus lines**: Press the Mode button briefly to select between one or both bus lines.
  - Pressing once = bus 1
  - Pressing twice = bus 2
  - Pressing three times = bus 1 and bus 2
- **Displaying values**: Press the Select button briefly to switch between the values.
  - Voltage and current (only values > 100 mA) are displayed for the individual bus lines.
  - For the single or both lines, input voltage and total current for both bus lines as well as the temperature in the housing are displayed.

If you have paired the device in the Homematic IP App, additional configurations are available in the device settings:

- **Setting the bus operating mode**: Select the bus operating mode.
  - Ring topology
  - Star topology
- **Brightness of the System button**: Select the brightness of the System button.
- **Power supply unit rated current**: Select the rated current of the power supply unit for the power supply to the Wired Access Point.

10 Troubleshooting

10.1 Flash codes and displays

Flash code/display	Meaning	Solution
1x orange and 1x green light (after switching on the Wired Bus)	Test display	You can continue once the test display has stopped.
Short orange flashes (every 10 s)	Pairing mode active	Enter the last four digits of the device number (SGTIN) in your app or scan the QR code.
Short orange flashes	Transmission of configuration data	Wait until the transmission is completed.
Brief orange flashing (followed by a steady green light)	Transmission confirmed	You can continue operation.
Brief orange flashing (followed by a steady red light)	Transmission failed	Please try again *see Command not confirmed*.
6x long red flashes	Device defective	Please see the display on your app for error messages or contact your retailer.
Alternating long and short orange flashing	Software update	Wait until the update is completed.
	Operating lock activated	Deactivate the operating lock via the app.
E11	Under-voltage (bus voltage too low)	Check the voltage supply and adjust the voltage supply in accordance with the number of devices connected.
E14	Short circuit between data line and 24 V	Remove the short circuit.
E15	The configured and actual bus cabling does not match.	Please check the bus topology and adjust the settings. Eliminate errors, if necessary.

Flash code/display	Meaning	Solution
E16	Short circuit of supply voltage	Resolve the short circuit and acknowledge the error.

11 Restoring factory settings

The factory settings of the device can be restored. If the device is paired with a Central Control Unit, the configurations are automatically restored. If the device is not paired with a Central Control Unit, all the settings are lost.

Proceed as follows to restore the factory settings of the device:

- Press and hold the system button for 4 seconds *Fig. 8*
- The device LED starts flashing orange quickly.
- Release the system button.
- Press and hold the system button for 4 s.
- The device LED lights up green.
- Release the system button to finish restoring the factory settings.

The device will perform a restart.

If the device LED lights up red to, please try again *Flash codes and displays, page 15*.

12 Resetting and deleting the entire installation

The procedure described above must be carried out twice in succession within 5 minutes in order to reset the factory settings of the entire installation:

- Reset the device as described above.
- Wait at least 10 s until the LED has a steady blue light.
- Immediately afterwards, carry out the reset a second time by repeating all the steps described above.

The device restarts and the system has been reset.

13 Maintenance and cleaning

The device is maintenance-free for you. Leave any maintenance or repair to a specialist.

Always switch off the mains voltage (switch off the circuit breaker) before working on the device terminal compartment and when installing or removing the device! Only qualified electricians (in accordance with VDE 0100) are permitted to carry out work on the 230 V mains.

Clean the device using a soft, clean, dry and lint-free cloth. The cloth can be slightly dampened with lukewarm water to remove more stubborn marks. Do not use any detergents containing solvents for cleaning purposes. They could corrode the plastic housing and label.

14 Disposal

This symbol means that the device must not be disposed of as household waste, general waste, or in a yellow bin or a yellow sack. For the protection of health and the environment, you must take the product and all electronic parts included in the scope of delivery to a municipal collection point for waste electrical and electronic equipment to ensure their correct disposal. Distributors of electrical and electronic equipment must also take back waste equipment free of charge. By disposing of it separately, you are making a valuable contribution to the reuse, recycling and other methods of recovery of old devices. Please also remember that you, the end user, are responsible for deleting personal data on any waste electrical and electronic equipment before disposing of it.

CE The CE mark is a free trademark that is intended exclusively for the authorities and does not imply any assurance or guarantee of properties.

If you have any technical questions about the appliance, please contact your specialist dealer.

15 Technical specifications

Short description	HmIPW-DRAP
Supply voltage	24 VDC, ±5 %, SELV
Protection class	III
Degree of protection	IP20
Ambient temperature	-5 - +40°C
Weight	150 g
Dimensions (W x H x D)	4TE, 72 x 90 x 69 mm
Current consumption	6 A max./55 mA typically
Current consumption in standby	55 mA
Power loss of the device for thermal calculation	2.4 W max.
Standby power consumption	1320 mW
Cable type and cross section	rigid and flexible cable (without ferrule), 0.25 - 1.5 mm^2
Installation	On mounting rail (DIN-rail) according to EN 60715
Network	10/100 Mbps, Auto-MDIX
Number of devices per bus	Max. 64, 120 in total
Bus outputs	2x Homematic IP Wired Bus (24 VDC; max. 3 A per bus output, RS485 bus)

Subject to modifications.

Free download of the Homematic IP app!

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