



## MANUAL

**eGate DUST40**  
**eGate DUST13**  
**eGate KOMBI-DP**  
**eGate RHT-in**  
**eGate RHT-out**



## Pictures of variants



**RHT-out** | eGate-Kombi-LWUS-RHT-IP42



**DUST40** | eGate-Kombi-LWUS-RHT-Dust40



**DUST13** | eGate-Kombi-LWUS-RHT-Dust13



**KOMBI-DP** | eGate-Kombi-LWUS-RHT-DP



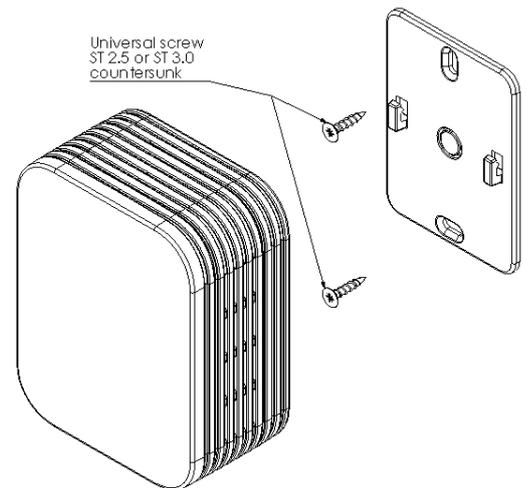
**RHT-in** | eGate-Kombi-LWUS-RHT



## Mounting, except RHT-out

Select the installation location so that air can flow freely on all sides of the transmitter, representing the air that is to be measured. Avoid heat sources and direct sunlight. Mount the device to the measuring location with one of the following ways:

- Simply place the DUST40, DUST13, KOMBI-DP or RHT-in on any surface with the bottom facing down.
- First mount the separate wall holder with two universal countersunk screws (ST 2.5 or ST 3.0). Use applicable length and type of screws depending on wall material. In the correct orientation, the wall holder has its hooks pointing upwards. Attach the DUST40, DUST13, KOMBI-DP or RHT-in to the holder.



### Mounting RHT-out

This model can be mounted using any of the mounting screw holes in the fixed mounting flanges of the enclosure. Always make sure to mount the device in vertical orientation so that the ventilation holes in the bottom of the enclosure point downwards ensuring that water or any other liquids cannot enter through the ventilation holes. Ingress protection class IP42 can only be attained in the correct vertical mounting orientation.

### Mounting KOMBI-DP

Mount as instructed above and then attach the pressure hoses to the two black hose connectors at the bottom of the device. The device measures the pressure difference between the two hose connector ports. Use only flexible plastic hose with inner diameter of 4 mm / 0.15 in. When routing and installing the hose, make sure the hose does not get pinched or blocked. Always minimize the length of the pressure hoses. The maximum recommended pressure hose length is 1 m / 1.09 yd to attain the specified measuring accuracy.

The other hose connector port can and typically will be left without a hose connected to it.

### Power supplies

DUST40, DUST13, KOMBI-DP and RHT-in indicates a power-up by blinking the led next to the micro USB socket.

#### KOMBI-DP, RHT-in, RHT-out variants

These variants are powered with 3 pcs LR6 batteries (AA 1.5 V alkaline). High quality batteries should be used, for example Energizer EN91.

The device is supplied with batteries already installed, so it is ready to be used.

DUST40, DUST13, KOMBI-DP, RHT-in and RHT-out can alternatively be powered with an external supply. When an external power supply is used, the batteries can be omitted or used as a backup supply. Use the micro-USB socket to connect an external supply to the device.

#### DUST40 and DUST13 variants

These variants with PM sensor must be powered with an external supply. Use the micro-USB socket to connect an external supply to the device.



## Operation

After the DUST40, DUST13, KOMBI-DP, RHT-in or RHT-out is successfully installed, it operates on its own. However, there are some considerations that are good to know when using the DUST40, DUST13, KOMBI-DP, RHT-in or RHT-out devices.

### RHT measurement

Temperature is given in °C. Humidity is given in %RH. The eGate cloud platform can convert the readings to °F as necessary.

### dP measurement

The pressure difference between the outlets is measured using the air flow. The direction of the air flow determines the sign of the reading. If the outlet in the left-hand side is in higher pressure than the outlet in the right-hand side, the reading is positive and vice versa. The pressure difference is given in Pa.

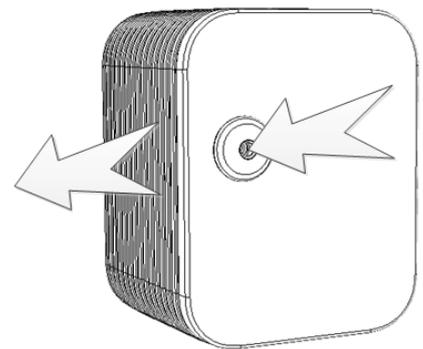
### Particle measurement

A small fan sucks air from the opening in the cover. Inside the device the air passes through a laser beam. The particles will cause a flash when passing the laser, allowing them to be counted and their sizes (diameter) estimated.

The mass of the particles is estimated by assuming that they have a density of 1.65 g/ml and making assumptions of their shape. The result is not accurate if the density, shape, or refractive index deviates significantly from the estimates used in the calibration.

DUST13 sensor variants measure PM1, PM2.5 and PM10. The larger DUST40 sensor measures PM1, PM2.5, PM10 and PM40.

The sensor does not need periodic recalibration. If it appears to have dust deposited inside, compressed air can be used with extreme care to blow it clean.





## Maintenance

### Checking the status

Press the button to check the status of the eGate-Kombi-LWUS. The led located next to the micro USB socket will indicate the status:

- If the led blinks green, everything is fine, and the remaining battery capacity is estimated to be over 20%.
- If the led blinks red, the remaining battery capacity is estimated to be below 20%.
- If the led does not blink at all, the device isn't working properly

### Replacing the batteries

Replace the batteries by following these steps:

- -RHT-IP42 model: Remove the four screws holding the outer enclosure cover in place.
- Remove the device from the holder by pushing it upwards.
- Remove the two PZ1 screws and open the cover.
- Replace the batteries with 3 new LR6 (alkaline AA) batteries observing the polarity. Avoid touching the electronics.
- Reassemble the device.

### Cleaning

If there is visible dust inside the device, blow it away with pressurized air while avoiding too strong pressure. The enclosure exterior can be wiped with a damp cloth, but no drop of liquid must enter the device.

## FCC labels

FCC ID: 2A3B4KOMBI1

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

### FCC CAUTION

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

This equipment complies with FCC/IC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines and RSS-102 of the IC radio frequency (RF) Exposure rules. This equipment should be installed and operated keeping the radiator at least 20cm or more away from person's body.

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### Manufacturer

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