# HDH CARBON DIOXIDE (CO$_2$) TRANSMITTER / - CONTROLLER

HDH and HDH-N transmitters are designed to detect carbon dioxide concentration and temperature in the room space. HDH-RH and HDH-RH-N transmitters have also %rH output.

The CO$_2$ sensor will become self-calibrated regularly by using patented ABCLogic™ method. Outputs, linear 0-10V signals related to CO$_2$-concentration, temperature and humidity can be used for demand controlled ventilation in buildings.

HDH transmitters can be installed on wall surface or on junction box in dry indoor environment.

HDH-N is like HDH, but with a display. As a factory setting the display is scanning between temperature and CO$_2$ (and %rH) every 2 seconds. By pressing the S1 button inside the desired display mode can be selected.

By changing the normal cover (and display) to the HDH-C option HDH (HDH-N) will become as a controller.

By using the HDH-AL3 option (cover and printed circuit board) different CO$_2$ concentrations can be indicated by three LEDs as follows with the hysteresis of 50 ppm:

| | | | |
|---|---|---|---|
| Green | = | < 750 ppm | (good) |
| Yellow | = | > 750 …< 1250 ppm | (passable) |
| Red | = | > 1250 ppm | (poor) |

Normal display is not available with the HDH-AL3 option.

ABCLogic™ & Calibration
ABCLogic™ is a patented self-calibration technique, that is designed to be used in applications where concentrations will drop to outside conditions (appr. 400 ppm) at least twice in a week period (= an unoccupied building) . For applications that do not see periodic ambient conditions, ABCLogic™ can be turned off, but a regular single point calibration of the sensor in 6 -12 months is necessary. Checking and calibration is recommended every 5th year even if ABCLogic™ is on.

Wiring:

| | |
|---|---|
| **1** | 24 V ac/dc |
| **2** | 0 V |
| **3** | 0-10V = 0-2000ppm |
| **4** | 0-10V = 0...+50°C |
| **5** | Option Out 0-10V HDH-RH = 0-100%RH HDH-C = AO3 |
| **S1** | = Display mode Push mom. > Select scanning or current unit |

**Technical data:**

| | |
|---|---|
| Supply | 24Vac (15…28V) / 1VA |
| | 24Vdc (15…36V) / 1 W |
| Ranges | |
| CO$_2$ | 0…2000ppm |
| temperature | CO$_2$ 0…50 °C |
| humidity | 0 …100 %rH |
| Accuracy, 25°C | |
| CO$_2$ | ± 40 ppm +3% from value (ABCLogic™) |
| temperature | ± 0,5°C |
| humidity | ± 2 %rH |
| Long term stability / year | < 2% FS ( ABCLogic™ ) |
| Temperature | 0.2% FS / °C |
| dependence Pressure | 0.17% from value /mbar |
| dependence Operating | 0...+50 °C |
| temperature Outputs | 0 -10V < 2 mA |
| Operating humidity | 0...95 % RH ( non cond.) |
| Time constant (t | < 1,5 min |
| 63%) Warm up time | < 10 min ABS- |
| Housing | plastics, IP20 87 x |
| Dimensions w x h x d | 86 x 30 mm |

**Ordering guide:**

| Model | Product number | Description |
|---|---|---|
| HDH | 1135040 | room CO$_2$ transmitter |
| HDH-N | 1135041 | room transmitter with display |
| HDH-RH | 1135044 | CO$_2$, °C and %rH transmitter |
| HDH-RH-N | 1135045 | room transmitter with display |
| HDH-C | 1135042 | calibration tool and controller option for HDH |
| HDH-AL3 | 1135048 | alarm option, 3 LEDs, for HDH, containing cover and pcb |