KS8-LCP 0-10 $C0_2$ TRANSMITTER

Installation Manual

Instructions for :-

KS8-LCP0-10 C02 Sensor

For safe and correct use please read the installation manuals supplied with the equipment.

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Safety precautions

Before installation and electric work

Before installing the unit, make sure you read all the “Safety precautions”.

Symbols used in the text

⚠ Warning: Describes precautions that should be observed to prevent danger of injury or death to the user.
⚠ Caution: Describes precautions that should be observed to prevent damage to the unit.

⚠ Warning: Carefully read the labels affixed to the main unit.

⚠ Warning:

- Ask the dealer or an authorised technician to install the unit.
  Improper installation by the user may result in water leakage, electric shock, or fire.
- Use the specified cables for wiring. Make the connections securely so that any outside forces acting on the cables are not applied to the terminals. Inadequate connection and fastening may generate heat and cause a fire.
- Never repair the unit. If the controller must be repaired, consult the dealer.
  If the unit is repaired improperly, electric shock, or fire may result.
- When handling this product, always wear protective equipment. EG: Gloves, full arm protection namely boiler suit, and safety glasses.
  Improper handling may result in injury.
- If refrigerant gas leaks during installation work, ventilate the room.
  If the refrigerant gas comes into contact with a flame, poisonous gases will be released.
- Install the controller according to this Installation Manual.
  If the unit is installed improperly, electric shock, or fire may result.
  Have all electric work done by a licensed electrician according to "Electric Facility Engineering Standard", "Interior Wire Regulations" and the instructions given in this manual and always use a special circuit.
- If the power source capacity is inadequate or electric work is performed im-properly, electric shock and fire may result.
  Keep the electric parts away from any water - washing water etc…
  Contact may result in electric shock, fire or smoke.
- After completing installation work, make sure that refrigerant gas is not leaking.
  If the refrigerant gas leaks and is exposed to a fan heater, stove, oven, or other heat source, it may generate noxious gases.
- Do not reconstruct or change the settings of the protection devices.
  If the pressure switch, thermal switch, or other protection device is shorted or operated forcibly, or parts other than those specified by Mitsubishi Electric are used, fire or explosion may result.

To dispose of this product, consult your dealer. Do not use a leak detection additive.

⚠

Safety precautions

Before installation

⚠ Caution:

- Do not install the unit where combustible gas may leak.
  If the gas leaks and accumulates around the unit, an explosion may result.

⚠ Caution:

- Ground the unit.
  Do not connect the ground wire to gas or water pipes, lightning rods, or telephone ground lines. Improper grounding may result in electric shock.
- Install the power cable so that tension is not applied to the cable.
  Tension may cause the cable to break and generate heat which may, in turn, cause fire.
- Install a leak circuit breaker, as required.
  If a leak circuit breaker is not installed, electric shock may result.
- Use power line cables of sufficient current carrying capacity and rating.
  Cables that are too small may leak, generate heat, and cause a fire.
- Use only a circuit breaker and fuse of the specified capacity.
  A fuse or circuit breaker of a larger capacity or a steel or copper wire may result in a general unit failure or fire.
- Be very careful regarding product transportation.
  Two people should be used to carry products of 20kg or more.
- Some products use PP bands for packaging. Do not use any PP bands for a means of transportation.
- Safely dispose of the packing materials.
  Packing materials, such as nails and other metal or wooden parts, may cause stabs or other injuries.
  Tear apart and throw away plastic packaging bags so that children will not play with them - If children play with a plastic bag which has not been torn apart, they face the risk of suffocation.

Before starting the test run

⚠ Caution:

- Do not touch the switches with wet fingers.
  Touching a switch with wet fingers can cause electric shock.
- Do not touch the refrigerant pipes during and immediately after operation.
  During and immediately after operation, the refrigerant pipes may be hot or cold, depending on the condition of the refrigerant flowing through the refrigerant piping, compressor, and other refrigerant cycle parts. Your hands may suffer burns or frostbite if you touch the refrigerant pipes.
- Do not operate the air conditioner with the panels and guards removed.
  Rotating, hot, or high-voltage parts can cause injuries.
- Do not turn off the power immediately after stopping operation.
  Always wait at least five minutes before turning off the power. Otherwise, water leakage and other problems may occur.

Disclaimer

Warranty:

All products manufactured on behalf of Mitsubishi Electric UK are warranted against defective materials for a period of three years from the date of delivery to the original purchaser.

⚠ **Warning:**

Kooltech UK assumes no liability for damages consequent to the user of this product. We reserve the right to change this manual at any time without notice. The information furnished by us is believed to be accurate and reliable. However, no responsibility is assumed by us for its use, nor for any infringements of patents or other rights of third parties resulting from its use.

Installation Instructions

The IAQ-sensor product KS8-LCP0-10 (sensor for wall mounting) is designed to measure carbon dioxide (CO2) in rooms. Option TR is prepared for temperature measurements by the resistive temperature probe mounted by the user. The temperature probe is potential free (floating). Option - displays the measured CO2 value in ppm (parts-per-million) on the LCD.
The units are designed for connecting to Direct Digital Control (DDC) with 0-10V or
2-10V signal inputs. The two parallel signal outputs OUT1 (0-10V) and OUT2 (2-10V or 4-20 mA) give linear signal voltages or currents corresponding to the measuring range.

The output OUT2 also indicates the status by setting the output voltage to 1V or the output current to 2 mA when the sensor self-diagnostics detects any error.

To open the wall mounted housing

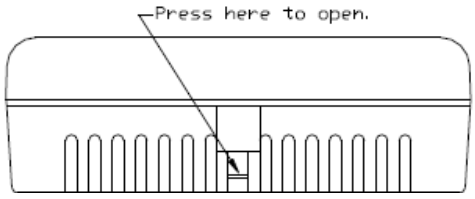


Figure 1. Closed housing seen from above. The housing is opened by pressing a screw driver on the locking hook. The locking hook is then released.

Electrical connections

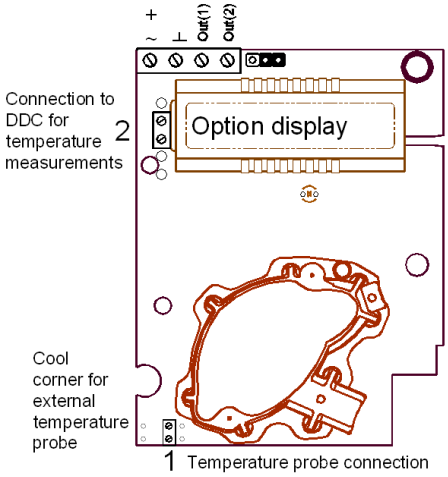
The power supply has to be connected to ~ + and ⊥ ⊥ is considered as system ground. *The same ground reference has to be used for the KS8-LCP0-10 unit and for the DDC/signal receiver.*

PLEASE NOTE!

The same ground reference has to be used for the *KS8-LCP0-10* unit and for the control system!

Terminal	Function	Electrical data	Remarks Standard settings	Remarks Settings of this sensor
~ + ⊥	Power (+) Power ground (-)	24 VAC/DC+ (+-20%), 2W 24 VAC/DC-	System voltage reference	
Out(1)	Analogue output 1 (+)	0-10 VDC	0-2000 ppm CO2	
Out(2)	Analogue output 2 (+)	2,0-10,0 VDC or 4,0-20,0 mA 0,9-1,6 VDC or 1.5-2,5 mA 0 VDC or 0mA	0-2000 ppm CO2 Status = ERROR Status = NOT READY	

Table I. Connections of the main terminal of KS8-LCP0-10



Installation Instructions

Figure 2. PCB with jumper to configure OUT2 and extra terminals for connection of external temperature probe. The measuring body of the temperature probe shall be in the cool lower left corner

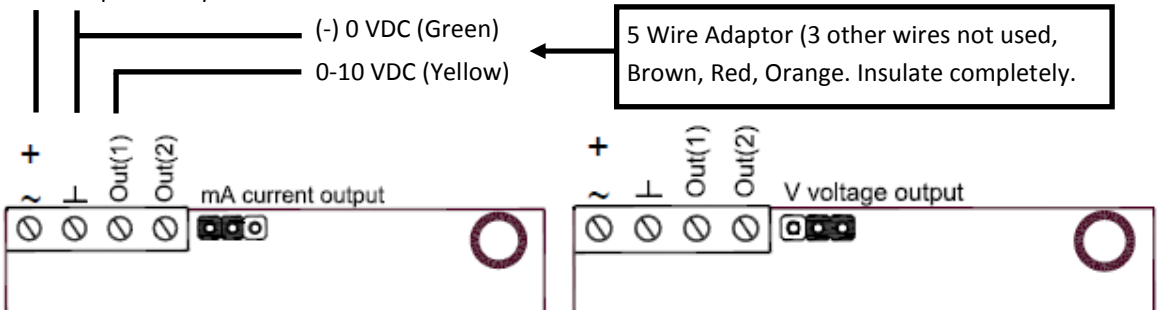


Figure 3. Picture of the PCB with the jumper for setting current output (left position) or voltage output (right position)

Connection of external temperature probe

An external temperature probe can be connected to the terminal marked temperature probe on the PCB. Inside the housing the temperature probe must be folded or rolled so that the measuring body is in the cool corner (lower left) of the PCB (see figure 2). The signal of the external temperature probe is found at the terminal marked Connection to DDC on figure 2.

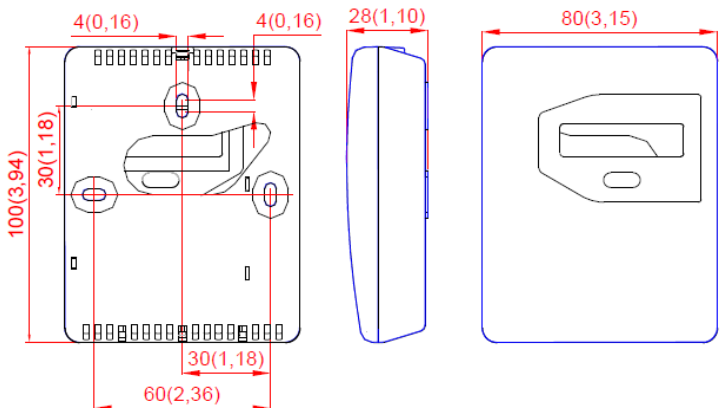
Terminal	Function	Remark
1	Connection of temperature probe	Connected to terminal 2 through the PCB
2	Connection to DDC for temperature measurement	Connected to terminal 1 through the PCB.

Self-diagnostics

The system contains complete self-diagnostic procedures that are executed automatically when the sensor is in operation. The yellow LED is lit if an error is found. Sensors with display show a wrench if an error is found. The wrench is shown and the yellow LED is lit during the first seconds after power up and if the measuring range is exceeded. They are automatically turned off when the sensor returns to normal operation. The output OUT2 indicates the same information by setting the output voltage to 1V or 2 mA.

Maintenance

The KS8-LCP0-10 is basically maintenance free in normal environments thanks to the built-in self-correcting ABC algorithm. Discuss your application with K-Con in order to get advice for a proper calibration strategy.



Mounting of the sensor onto the wall

Please use screws with screw head diameter less than 7,5 mm (0,295 inches) and screw head height less than 2,4 mm (0,094 inches).

Notes

Please be sure to put the contact address/telephone number on this manual before handing it to the customer.

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