



Model 6002 and 6002-14B

Installation, Operation, and Maintenance Manual



Gas Detectors

READ AND SAVE THESE INSTRUCTIONS

The purpose of this manual is to aid in the proper installation and operation of fans manufactured by Soler & Palau USA. These instructions are intended to supplement good general practices and are not intended to cover detailed instruction procedures, because of the wide variety and types of fans manufactured by Soler & Palau USA.

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6002-6002-14B_IOM_V6_03022020



6002 and 6002-14B offer precision to assure the health and safety to occupants with the tightest possible controls on energy consumption. They are versatile, self-contained dual gas sensors that are network ready for either peer-to-peer (master slave) operation or central control for a smooth integration into new or existing energy management systems.

Applications:

- Vehicle Emissions
- Combustible Gases
- Refrigerant Gas Leak Detection
- Industrial Health and Safety

Features:

- Stand-alone operation with 1 or 2 adjustable alarm relays, indicators and strobe
- BACnet Laboratory (BTL) listed Smart Sensor, up to 76,800 baud
- BACnet MS/TP RS485 interface
- CAN network interface for master-slave operation or central control
- Pre-calibrated plug-and-play sensor modules
- Impact resistant, water resistant enclosure.

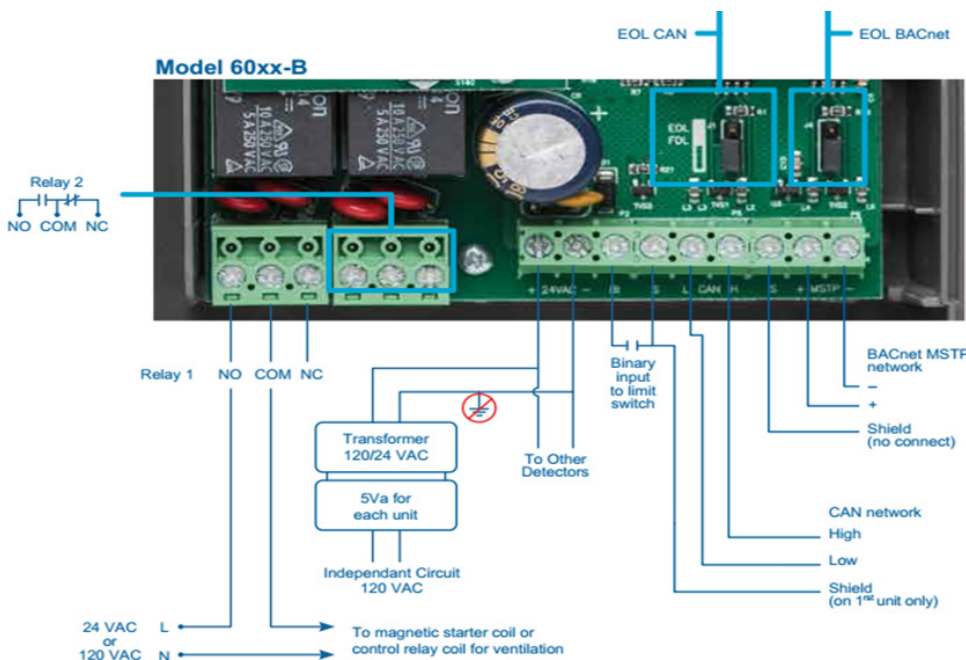
Specifications:

- Supply 24 vac 50/60 hz (17-28 vac) 0.21 amps, 5 va
- Relays (1 or 2) SPDT, 5 amp @ 125 vac, non-inductive
- On delay: 0-999 seconds (16 minutes)
- Off delay: 0-999 seconds (16 minutes)
- Operating temperature -20° C to 50° C (-4° F to 122° F)
- For indoor use
- Flame resistant Polycarbonate ABS enclosure rated UL94 V0, 5VB, and 5VA
- Standards. Conforms to UL61010-1, CSA C22.2 61010-1-12, ANSI/ISA 61010-1, CSA C22.2 no. 205-12
- Pollution degree 2
- Installation category II
- Altitude 2000m
- Humidity max 90% rh. 90% to temperatures up to 31° C (88 ° F), decreasing linearity to 50% rh at 40°C (104°F)

User Interface:

- Back lit LCD display shows gas concentration, user settings, calibration controls
- Red LED alarm indicators, gas level 1 and 2
- High intensity white LED strobe on level 3
- Audible alarm, 85 db at 1 meter
- 4 pushbutton user keypad
- Password control for settings

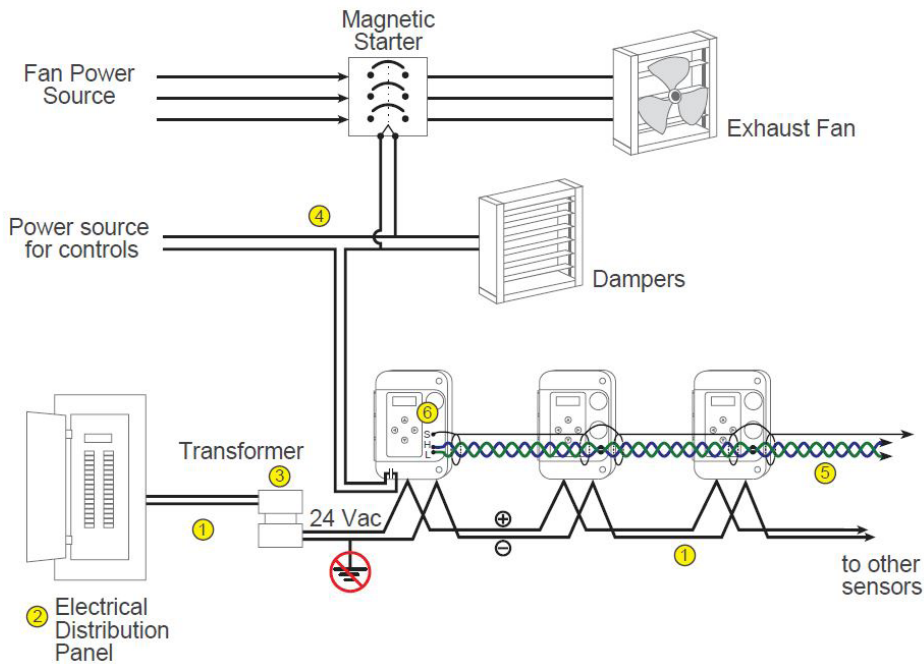
Wiring



Installation Guidelines

Important. All wiring must conform to local building codes, regulations and laws. If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

1. Use ½ inch EMT conduit for all wiring.
2. A switch or circuit breaker must be included in the installation. It must be suitably located and easily reached in a secure location and identified as the disconnect for the "Gas Detection System."
3. Install enclosed 120/24 vac transformer, allow 5 va for each sensor or controller, using 18 to 20 AWG two conductor wire. Do not tie the secondary to ground. Connect multiple sensors to one transformer. Ensure that the polarity of the connections is the same at each sensor or controller.
4. Connect relay contacts (usually relay 1) to ventilation system. Use a magnetic starter so that the sensor contacts energize the starter coil and not the fan motor directly.
5. For multiple sensors interconnected using the CAN network. Chain a shielded twisted pair cable 22 to 24 AWG from screw L and H on one sensor, to the next and continue chain to the last sensor. Maintain the same polarity on each unit. Do not use star, T or H configuration. Make all chain connections at the sensors to avoid T connections.
6. Move the end-of-line jumper (the one above terminal 11, 12) to the on position (UP) on the first sensor, or controller, on the chain and the last sensor/controller on the chain. A controller can be located anywhere on the chain. Ensure its EOL jumper is off (down) if it is in the middle. Any sensor/controller address can be in any location on the chain.
7. Power on the units. They will display the gas type and reading. To verify if sensors are communicating correctly, change setting on one unit. Press → to option 56. Press ↑ from 0 to 1 to turn on the network display. Press ↑ and ← simultaneously to save, then press and hold ← for a few seconds to return home. The unit will display each sensor connected. If the unit does not display the other sensors scrolling by, check the following:
 - each unit must have a unique address, setting 39, with no duplicates
 - end-of-line jumpers are set on units at ends of cable only
 - polarity of the communication cable and the 24 vac is the same on all units
 - verify wire connections for shorts, and loose wires, etc.
8. To further test communication, press and hold the up button on a sensor for 5 seconds to start manual mode (5 minutes). This will close the relay 1 on that unit and all of the other units on the network. See section 5 to set up a configuration for multiple zones.



Coverage

Guidelines for sensor placement of diffusion type sensors are based on the reasonable delay for gas to get from the source to the sensor. All sensors are created equal in this regard.

- For air quality control of exhaust emissions and accumulations of toxic gases the generally acceptable maximum radius of coverage is 50 feet (15 meters). Approximately 7500 square feet (700 square meters).
- For leak detection of combustible gases, ammonia, refrigeration gases the maximum radius is 30 feet (10 meters) since they can escape more quickly and the risk is greater.

The radius of coverage of any sensor does not extend beyond any obstruction that impedes natural circulation of air. This includes walls, stairs, elevators, shelving with solid fill, tool chests, etc. The sensor must "see" the area of coverage; if not, another sensor(s) is required.

Mounting Heights

Mounting heights for gas sensors are based on their density, relative to air. There are three groups:

1. Lighter than air and will be more concentrated near the ceiling; hydrogen, methane (natural gas), ammonia, helium. Install at 1 to 3 feet from ceiling.
2. Similar density to air and will be diluted in air equally at all levels; - carbon monoxide, nitrogen dioxide, hydrogen sulfide, oxygen, carbon dioxide. Install from 3 feet (1 meter) off floor to one half of the ceiling height. For vehicle emissions carbon monoxide detectors combined with nitrogen dioxide detectors are installed at 3 to 5 feet (1 to 2 meters) from the floor when the ceiling is 7 to 10 feet high. If the ceiling height is higher than 10 feet, for example for heavy equipment, the carbon monoxide detectors are installed at 3 to 5 feet (1 to 1.5 meters) from the floor and the nitrogen dioxide detectors should be installed at 50% of the ceiling height and above the vehicle height. If the exhaust pipes of diesel vehicles are below the vehicles, then the nitrogen dioxide detectors should be installed at 3 to 5 feet (1 to 1.5 meters) from the floor. In all cases the detectors must be installed above obstructions blocking circulation of air in front of the detectors; example, maintenance garages in automobile dealerships where tool chests, work tables and storage racks typically line all walls.
3. Heavier than air and will concentrate near the floor; - HFCs, HCFCs, propane, chlorine, most organic vapors (consult Opera), butane.

For all types of sensors avoid drafts, obstacles, aerosols, silicones. Place sensors in the center of its coverage area as much as possible.

OPERATION

Screen Display

The LCD shows the type of gas and the current gas concentration. If two sensor modules are installed, the display will alternate between them.



The bottom left corner will also display the alarm status;

1 indicates alarm 1 on, per settings 0, 1, 2 or if activated by another sensor on the CAN network via setting 36. This is usually the low gas level alarm.

2 indicates alarm 2 on. Per settings 3, 4, 5 or if activated by another sensor on CAN network per setting 37.

3 indicates alarm 3 on. Per settings 6, 7, 8 or if activated by another sensor on CAN network per setting 38. Alarm 3 activates the sounder and strobe.

M indicates manual override mode on. Useful to start ventilation system without the risk of leaving it on too long in cold weather. From the home screen, press and hold ↑ for 5 seconds to start. Then click again to increase time from 5 to 60 minutes. This activates alarm 1, (or 2, and 3 per setting 69) and sends alarm transmit messages (settings 9-17) to other sensors on the CAN network. The unit will return to automatic operation after the time runs down. To cancel manual mode press ↓ several times to reduce time left to run. It will take a few seconds to stop.

T indicates alarm 1 on due to high ambient temperature (setting 51). Useful for summer ventilation.

Default Settings

User settings are factory pre-loaded with default values to facilitate set up and can be changed at any time. Upgrading firmware will not affect user settings.

Alarm thresholds should be set to suit local regulations. Default values for these are general guidelines only.

Changing Settings

Press → and ← to move through the settings. If the keypad lock is on then enter the password first. The screen will display the setting number 0, 1, 2, etc. plus the short description (e.g. AL1 for Alarm 1 and the current setting.)

Press the ↑ or ↓ buttons to increase or decrease the setting.

To save, press ↑ and ← buttons at the same time. The word "OK" will appear. If you do not see "OK" and the new value it is because the buttons were not pressed simultaneously. Try again.

List of Settings Sensor A (upper socket) Settings

NO.	Name	Description	Range	Default
0	AL1	Alarm 1 threshold, activates relay 1	by sensor	
1	A1Del	Alarm 1 Delay on (seconds)	0-999	30
2	A1Off	Alarm 1 Delay off (seconds)	0-999	20
3	AL2	Alarm 2 threshold, activates relay 2	by sensor	
4	A2Del	Alarm 2 Delay on (seconds)	0-999	30
5	A2Off	Alarm 2 Delay off (seconds)	0-999	20
6	AL3	Alarm 3 threshold, sounder and strobe	by sensor	
7	A3Del	Alarm 3 Delay on (seconds)	0-999	180
8	A3Off	Alarm 3 Delay off (seconds)	0-999	20
9	A1Tx	Alarm 1 transmit message, CAN network	0-255	1
10	A1Tx	Alarm 1 transmit message, CAN network	0-255	
11	A1Tx	Alarm 1 transmit message, CAN network	0-255	
12	A2Tx	Alarm 2 transmit message, CAN network	0-255	2
13	A2Tx	Alarm 2 transmit message, CAN network	0-255	
14	A2Tx	Alarm 2 transmit message, CAN network	0-255	
15	A3Tx	Alarm 3 transmit message, CAN network	0-255	3
16	A3Tx	Alarm 3 transmit message, CAN network	0-255	
17	A3Tx	Alarm 3 transmit message, CAN network	0-255	

List of Settings Sensor B (lower socket) Settings

NO.	Name	Description	Range	Default
18	AL1-B	Alarm 1 threshold, activates relay 1	by sensor	
19	A1Del	Alarm 1 Delay on (seconds)	0-999	30
20	A1Off	Alarm 1 Delay off (seconds)	0-999	20
21	AL2-B	Alarm 2 threshold, activates relay 2	by sensor	
22	A2Del	Alarm 2 Delay on (seconds)	0-999	30
23	A2Off	Alarm 2 Delay off (seconds)	0-999	20
24	AL3-B	Alarm 3 threshold, sounder and strobe	by sensor	
25	A3Del	Alarm 3 Delay on (seconds)	0-999	180
26	A3Off	Alarm 3 Delay off (seconds)	0-999	20
27	A1x,A1Tx	Alarm 1 transmit message, CAN network	0-255	1
28	A1Tx	Alarm 1 transmit message, CAN network	0-255	
29	A1Tx	Alarm 1 transmit message, CAN network	0-255	

NO.	Name	Description	Range	Default
30	A2Tx	Alarm 2 transmit message, CAN network	0-255	2
31	A2Tx	Alarm 2 transmit message, CAN network	0-255	
32	BiTx	Binary input transmit message, CAN network	0-255	
33	A3Tx	Alarm 3 transmit message, CAN network	0-255	0
34	A3Tx	Alarm 3 transmit message, CAN network	0-255	
35	A3Tx	Alarm 3 transmit message, CAN network	0-255	

List of General Settings

NO.	Name	Description	Range	Default
36	R1Rx	Receive message to relay 1, CAN network	0-255	0
37	R2Rx	Receive message to relay 2, CAN network	0-255	2
38	R3Rx	Receive message to relay 3, CAN network	0-255	3
39	Adr	Sensor identification address, CAN network	0-32	0
40	AnZA	Adjustment for analog zero output (4ma or 2V) Sensor A to tweak output of controller input errors. Accessing this output low for testing		
41	AnSA	Adjustment for analog span output (20ma or 10V) sensor A to tweak output for controller input errors. Accessing this option forces output high for testing.		
42	AnZB	Adjustment for analog zero output (4ma or 2V) sensor B to tweak output for controller input errors. Accessing this option forces output low for testing		
43	AnSB	Adjustment for analog span output (20ma or 10V) sensor B to tweak output for controller input errors. Accessing this option forces output high for testing		
44	Temp	Temperature delay enable off/on	0/1	0
45	Aud	Local audio alarm enable on alarm 3	0/1	1
46	BAC	BACnet MSTP mode select 0 = BACnet communication disabled 1 = BACnet communication enabled 2 = BACnet communication enabled and display all sensors on CAN network	0/1/2	0
47	BMA	BACnet MAC address	127	0
48	BBR	BACnet baud rate 0 = 9600 1 = 19200 2 = 38400 3 = 76800	0/1/2/3	3
49	KBL	Keyboard lock	0/1	0
50	TMod	Temperature modify/calibrate	-9/+9° C	0
51	ATHi	High temperature alarm limit used for summer ventilation. Alarm 1 is activated when temperature exceeds option disables alarms (seconds)	0-99° C	60
52	W/U	Warm up delay disables alarms	0-255	60
53	BMM	BACnet maximum MAC address when polling for master	0-127	127
59	FlTx	Fault alarm transit message, CAN network	0-255	0
60	ADTxA	Analog drive transmit message, sensor A (top) CAN network	0-255	0
61	AMinA	Analog drive. Minimum percent of scale for zero output. Sensor A	0-100	0
62	AMaxA	Analog drive. Maximum percent of scale for full scale output. Sensor A	0-100	100
63	ADRxA	Receive message code to control local analog output	0-255	0
64	ADTxB	Analog drive transmit message, sensor B (bottom) CAN network	0-255	0
65	AMinB	Analog drive. Minimum percent of scale for zero output. Sensor B	0-255	0

66	AMaxB	Analog drive. Maximum percent of scale for full scale output. Sensor B	0-100	100
67	ADRxB	Receive message code to control local Analog output B	0-255	0
68	Baud	Baud rate for CAN network Maximum network wire length is 1500 feet at rate 0 and 3000 feet at rate 1. Set Baud rate = 1 when used with model 5000 network	0-1	0
69	Man	Manual mode activates alarms 1, 1+2 or 1+2+3. See screen display section.	1-3	1
70	BDI	Bacnet device instance replace default 60,000 + BMA (setting 47) BACnet device instance replaces default 6	0-4,194,304	60000

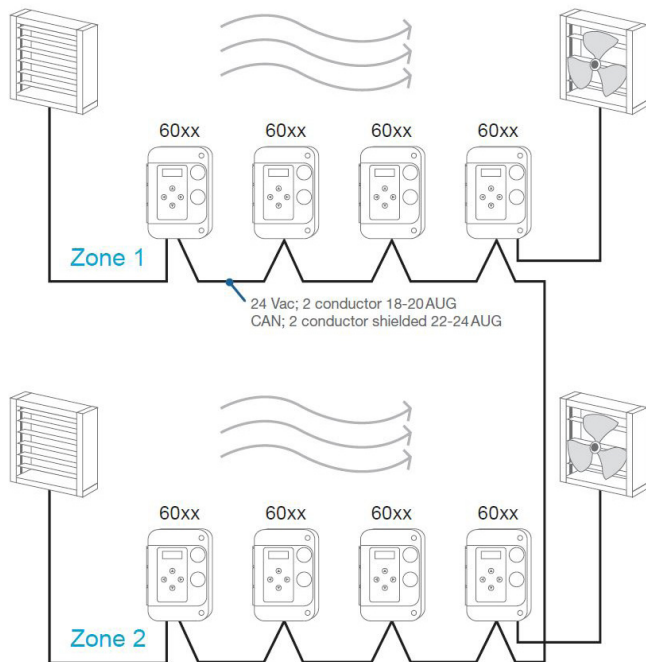
Sequence of Operation

1. Sensors are pre-loaded with options for normal operation and can be changed by the user at any time via the key pad.
2. On power-up the display will show the software revision number and the Warm-Up Timer will count down (setting 52, default 1 minute). Relays are inactive during this time. Press any button to cancel the warm-up period.
3. The display will show the gas type and the current gas concentration. For dual-sensors the display will alternate between the two sensor modules and show the gas type and concentration of each. If the network display option is turned on (option 56) the display will show each sensor that is connected via the CAN network, its address, gas type and concentration. Detector will display for 3 seconds and then cycle to the next, lowest address to the highest and then start again.
4. If the gas level rises above the Level One Set Point then the Delay-On Timer will start. The time setting range is from 1 to 999 seconds. If the gas level drops below level one the timer will reset and start over the next time it goes over.
5. If the gas level stays above the Alarm 1 Level for the set time the relay 1 on-board will energize, and remain energized as long as the gas remains above the alarm setting. The bottom left corner of the display will indicate a 1 and the alarm 1 LED will light up. In addition, the Alarm 1 Transmit Message (default is 1) will be sent to all detectors and controllers via the CAN network.
6. All sensors or controllers on the CAN network with a Relay 1 Receive Message (setting 36) = 1 will energize their on-board relay 1, and display a 1 in the bottom left hand corner of their display.
7. When the current gas concentration drops below the Alarm 1 set point, the Delay-Off time will start. The timer will clear if the gas rises above the alarm setting.
8. When the Delay-Off Timer times out the relay 1 will de-energize, the Alarm 1 LED will turn off and the Relay 1 Transmit message will stop being sent, thereby de-energizing relays on other units.
9. If the temperature exceeds the Hi Temperature Alarm, setting 51, relay 1 will activate, the Alarm 1 LED will turn on and the Alarm 1 Transmit message will be sent via the CAN network to other sensors and controllers. When temperature drops one degree, the alarm 1 will be turned off and the Alarm 1 Transmit message will stop being sent.
10. If the gas level rises to the Alarm Level 2 setting, then the Level 2, Delay-On Timer will begin, and after timing-out the on-board relay 2 will activate (for models 60xx-B only) the Alarm 2 LED will turn on, the Relay 2 Transmit message (default = 2) will be sent out on the CAN network activating remote units with that same Relay 2 Receive message (option 37).
11. When the current gas concentration drops below the Alarm 2 setting, for longer than the Alarm 2 Off-Delay Setting the relay 2 will turn off, the Relay 2 LED will turn off, and the Relay 2 Transmit message will stop being sent on the CAN network.
12. When the gas concentration rises above the Alarm Level 3 setting, for more than the Alarm 3 Delay-On timer the audible alarm will sound, the LED strobe flasher will start Qf (If enabled, setting 45), a 3 will appear in the bottom left corner of the display, and the Alarm 3 Transmit message (default 3) will be sent to other sensors or controllers. They can be silenced by pressing any button.
13. When the gas concentration drops below the Alarm 3 set point for longer than the Alarm 3 Delay-Off setting then the audible alarm and strobe flasher will stop and the Alarm 3 Transmit message will stop being sent on the CAN network.
14. On a sensor fault condition, the units will transmit the Fault Transmit Message, option 59, to other sensors or controllers.
15. A Manual Over-ride mode is available to test relay functions and to activate ventilation. From the home screen press and hold the up arrow for 5 seconds. Press the up arrow to increase the timer by 5 minutes per click up to 60 minutes. The screen will display MAN 5 and timer will energize relay 1 and send the Alarm 1 Transmit Message on the CAN network. After the time runs down the unit will return to automatic operation. To cancel, press the down arrow several times to reduce the timer to zero and return to normal operation. To activate alarm, Level 2 or 3 as well with this procedure, set option 69 to 2 or 3.

Network Configuration

Using CAN Network with No central controller (master/slave operation)

One of the 60XX series gas sensors can be used as the controller. It can activate the ventilation for all the sensors, or a group. The use of a dedicated controller is optional, - to add a display in some specific location, such as before entering a mechanical room or to interface with several fan starters located in one place. Starters and air dampers are connected to the sensor closest to it in each zone.



Default Configuration

Sensors are shipped pre-loaded with default settings which can be changed in the field to suit the desired sequence with simple keypad input. When a sensor goes into alarm level 1, 2 or 3 it activates its relays and transmits a message to all other sensors to activate their relays also. The ventilation system can be connected to any of the relays (usually level 1). This is a configuration for one ventilation zone.

Creating Zones or groups

To control multiple zones on the same network, set the transmit message on each sensor to different messages for different zones. The default transmit messages are 1, 2, 3 for alarm levels 1, 2, 3 for zone 1.

Set zone 2 sensors to transmit messages to 4, 5, 6

Set zone 3 sensors to transmit 7, 8, 9 and so on.

Addresses

Set each sensor and controller to a different address (setting 39). 1, 2, 3, 4 etc. It is important to have no duplicates on the same network cable.

Output Relays

Relay number 1 and 2 will activate if the gas on that sensor goes into alarm level 1, or 2. It will also activate when it sees its receive code (setting 36, 37) on the network, sent by other sensors.

The controller has no sensors on board so the relays will only activate if it sees its receive codes on the network. The 6000 controller could control two zones via its two relays. When no controller is used, the master needs to be a member of the group it is controlling.

Maintenance Guide

All sensors are shipped from the factory pre-calibrated. To maintain accuracy and conformity with standards it is essential that they be calibrated by a qualified technician once or twice per year.

Calibration Procedure

Use certified precision mixtures to adjust the sensitivity of the sensor due to normal wear and aging and guarantee that the designed alarm set points are respected. It will also indicate the general condition of a sensor that is due for replacement. So called "automatic calibration" or "self-test" will not provide this level of security.

Calibration Procedure for Electro-chemical and Catalytic sensors (CO NO2 CH4 NH3 CL2)

1. Use certified bottled calibration gas mixtures only. Ensure that sensors are powered on for a minimum of the break-in period for the sensor. For electro-chemical type sensors, this is only a few minutes.
2. Press the right arrow to enter settings
3. Press the ↑ and → at the same time to enter calibration mode. SAZ (sensor A zero) will display and the current gas reading on the top line
4. Inject bottled zero gas into first sensor. Use a flow rate of 0.1 LPM to 1 LPM. The gas fitting to sensor should not be sealed tight. If it is the pressure will increase and distort the reading (high).
5. Adjust gas reading to zero with the ↑ and ↓ buttons
6. Press ↑ and ← at the same time to save.
7. Press → the display will show SAS (sensor A span) and the current gas reading
8. Inject bottled span gas into first sensor and wait until the gas reading stops going up. The span gas should must be within the range of sensor's scale.
9. Adjust the reading to match the concentration in the bottle
10. Press ↑ and ← at the same time to save
11. If second sensor installed press → and repeat steps 4 to 10 for sensor B
12. Press left arrow several times to return to settings and home.

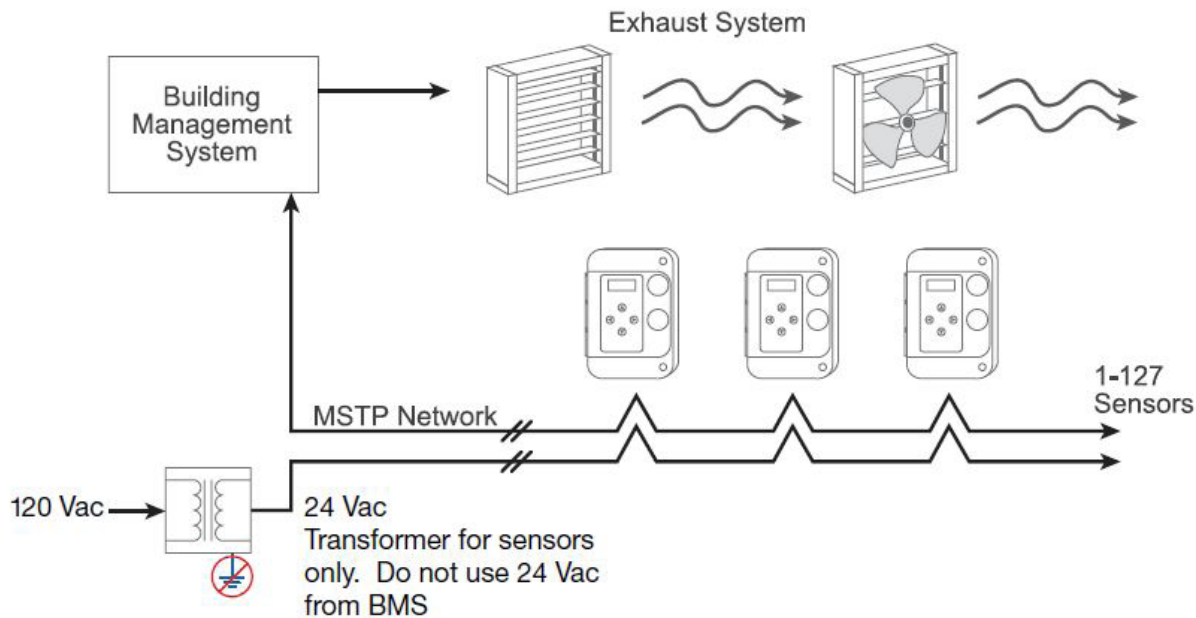
Calibration Procedure for Refrigerant (type 13, 20) and VOC (type 01) sensors

- 1.0 Use certified bottled calibration gas mixed with air only, not nitrogen. Ensure that sensors are powered on for a minimum of the break-in period for the sensor. For these types sensors, this is two days.
- 2.0 Inject bottled span gas
- 3.0 Adjust the blue potentiometer on the module to set the sensor reading displayed to that of the bottle mix. Do not change the factory calibration constants in calibration mode as above.
- 4.0 Remove span gas mix and supply air. Sensor will return to zero.
- 5.0 If sensor does not return to zero, it needs replacement

BACnet Network Configuration

Setting 46	Bacnet Mode select 0 = communication disabled 1 = communication enabled 2 = communication enabled and display all sensors on CAN network	0, 1, 2	Default 0
Setting 47	BMA MAC address	0-127	0
Setting 48	Baud rate	0 = 9600 1 = 19200 2 = 38400 3 = 76800	3
Setting 53	Max Master	1-127	127
Setting 54	Diagnostic tool to test MSTP communication. Format XXXYYZZ where YY= ID of device that passed token to current sensor and YY = ID if device that received token.		
Setting 70	Device ID	4,194,304	50,000+BMA

Ventilation Controlled by BACnet Building Automation



Object Table

Type and Instance	Object Name	Object Property	Parameter
AV 0	gas reading 1	Present value (R)	Gas reading local sensor A
AV 1	gas reading 2	Present value (R)	Gas reading local sensor B
AV 2	Ambient temperature	Present value (R)	Temperature in celsius
BI 0	Input 1	Present value (R)	Auxiliary input state 0/1
BO 0	Relay 1	Present value (R/W)	Relay 1 status on 0/1
BO 1	Relay 2 Or alarm 2	Present value (R/W)	Relay 2 or alarm 2 status 0/1
BO 2	Alarm 3	Present value (R/W)	Alarm 3 Indicator status 0/1
AV XXX	Gas reading XXX X = sensor 1 (top) or 2 (bottom), YY = CAN Address	Present value (R)	Gas reading all sensors on CAN network

WARRANTY:

Soler & Palau USA warrants this controller equipment to be free from defects in material and workmanship for two (2) years from date of shipment and the sensor will have a one (1) year from date of shipment. Any units or parts which prove to be defective and are reported during the warranty period will be replaced at our option when returned to our factory, transportation prepaid. Deterioration or wear by heat, abrasive action, chemicals, improper installation or operation or lack of normal maintenance shall not constitute defects, and are not covered by warranty.

The motor is warranted by the motor manufacturer for one (1) year. If the motor becomes defective in the warranty period, it should be taken to the nearest authorized motor service station. If this is not done, the motor manufacturer will not warrant the motor. Call the factory for instructions if authorized service station is not known.

Soler & Palau USA will not be responsible for any installation, removal or re-installation costs or any consequential damage resulting in failure to meet conditions of any warranty.

LIMITATION OF WARRANTY AND LIABILITY

This warranty does not apply to any such S&P product or parts which have failed as a result of faulty installation or abuse, or incorrect electrical connections or alterations, made by others, or use under abnormal operating conditions or misapplication of the products and parts.

Soler & Palau USA will not approve for payment any repairs made outside the factory without prior written consent of its Jacksonville, Florida office.

The foregoing shall constitute our sole and exclusive warranty and our sole and exclusive liability and is in lieu of all other warranties, whether written, oral, implied or statutory. There are no warranties which extend beyond the description of the page hereof. Seller does not warrant that said goods and articles are of merchantable quality or that they are fit for any particular purpose. The liability of seller on any claim of any kind, including negligence, for any loss or damage arising out of or connected with, or resulting from the sale and purchase of the products and parts covered by this proposal, acknowledgement, order or from the performance or breach of any contract pertaining to such sale or purchase, or from the design, manufacture, sale, delivery, resale, installation, technical direction of installation, inspection, repair, operation or use of any products or parts covered by this proposal, acknowledgement, order or furnished by seller shall, in no case exceed the price allocable to the products or parts thereof which give rise to the claim and shall terminate five (5) years after the shipment of said products and parts.

In no event, whether as a result of breach of contract, or warranty or alleged negligence, defects, incorrect advice or other causes, shall seller be liable for special or consequential damages, including, but not limited to, loss of profits or revenue, loss of use of the equipment or any associated equipment, cost of capital, cost of substitute equipment, facilities or services, down time costs, or claims of customers of the purchaser for such damages. Soler & Palau USA neither assumes nor authorizes any persons to assume for it any other liability in connection with the sale of its fan products and parts. Some states do not allow the exclusion or limitation of incidental or consequential damages, so all of the above limitations or exclusions may not apply to you.

SAFETY ACCESSORIES WARNING:

The responsibility for providing safety accessories for equipment supplied by Soler & Palau USA is that of the installer and user of this equipment. Soler & Palau USA sells its equipment with and without safety accessories, and accordingly it can supply such safety accessories upon receipt of order.

The user, in making its determination as to the appropriate safety accessories to be installed and any warning notices, should consider (1) the location of the installation, (2) the accessibility of employees and other persons to this equipment, (3) any adjacent equipment, (4) applicable building codes, and (5) requirements of the Federal Occupational Safety and Health Act. Users and installers of this equipment should read "RECOMMENDED SAFETY PRACTICES FOR AIR MOVING DEVICES" which is published by Air Movement and Control Association, 30 West University Drive, Arlington Heights, Illinois 60004.