



# MODEL 4300-PG CENTRAL ACCESS PANEL

## User Manual

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MODEL:	
HARDWARE NO.:	
SOFTWARE NO.:	
SERIAL NO.:	

## TABLE OF CONTENTS

1.0	INSTRUMENT OVERVIEW .....	4
	1.1 Features .....	5
	1.2 Specifications .....	6
2.0	INSTALLATION.....	7
	2.1 Main Panel Installation.....	7
	2.2 Sensor and RAB Installation.....	7
3.0	STARTUP AND CONFIGURATION .....	8
	3.1 Status Indications.....	8
	3.2 Password Protection .....	8
	3.3 Display Screens .....	8
	3.3.1 Zone Alarm Status Screen .....	9
	3.3.2 Real Time Screen.....	10
	3.3.3 Overall Alarm Status Screen .....	10
	3.3.4 Relay Analog Board (RAB) and MiniRAB Status Screen.....	10
	3.3.5 Zone ppm Status Screen.....	11
	3.3.6 Zone Devices Status .....	11
	3.3.7 Individual Device Status .....	12
	3.4 Notes on the user interface.....	13
4.0	SETUP CONFIGURATION.....	14
	4.1 Zone / Sensor Setup .....	14
	4.2 Remote Device Setup .....	15
	4.2.1 Select Device Network Address (ID).....	15
	4.2.2 Remote Device Type Setup .....	15
	4.2.2 Remote Device Values/Statue .....	16
	4.3 4300-PG Setup .....	17
	4.4 More Options (mA Output andLateny test).....	18
	4.4.1 mA Output Setup.....	18
	4.4.2 Latency Test.....	19
	4.5 Fire input Code.....	20
5.0	CONTROL CONFIGURATION .....	21
	5.1 Set Gas Alarm Values / mA Span.....	21
	5.2 Alarm Delay.....	22
	5.3 Tools .....	23
	5.3.1 Fan Cycle .....	23
	5.3.2 Force 20mA Output .....	23
	5.3.3 Force Zone Alarms.....	23
	5.3.4 Fan Data Logging.....	23
	5.4 More Setup.....	24
	5.4.1 4300-PG Internal Relay Setup .....	24

- 5.4.2 Relay Analog Board (4300-RAB) Setup .....25
- 5.4.3 Mini Relay Analog Board (miniRAB) Setup .....26
- 6.0 CALIBRATION SETUP .....28
  - 6.1 Calibration .....28
  - 6.2 Calibration using EC-Gold Pushbutton .....28
  - 6.3 Calibration from the 4300-PG .....28
    - 6.3.1 Auto Calibration .....29
    - 6.3.2 Manual Calibration Methods .....29
  - 6.4 Change Remote EC-Gold Alarm Information .....29
  - 6.5 Change Remote EC-Gold mA Output .....29
  - 6.6 Record Calibration Date .....30
- 7.0 SETTING SHEET .....31
  - 7.1 Gas Alarm Setup .....31
  - 7.2 Zone Parameter Setup .....33
  - 7.3 Relay Mapping .....35
    - 7.3.1 4300-PG Internal Relay Mapping .....35
    - 7.3.2 Relay Analog Board (4300-RAB) Relay Mapping .....35
- 8.0 TROUBLE SHOOTING .....41
- 9.0 DETAILED ELECTRICAL AND DIMENSIONAL DRAWINGS .....42

### TABLE OF FIGURES

- Figure 1 – User Interface ..... 8

## 1.0 INSTRUMENT OVERVIEW

The Arjay Model 4300-PG is a flexible monitoring and control system for ventilation of Carbon Monoxide, Nitrogen Dioxide and/or combustible gases such as Propane gas in apartment buildings, offices, commercial buildings, public parking facilities and maintenance garages.

The 4300-PG unit is field configured for the number of zones (up to 16) and number of RS485 network devices per zone.

The 4300-PG provides a central panel that continuously scans the field of sensors for gas concentrations. When a sensor indicates a High level of gas, the controller will determine its zone location and assign the appropriate fan to take action. Should the gas concentration continue to rise, additional fans can be called upon. The unique cross-mapping feature can call upon fans in different areas or garage levels or alert concierge, control room or security centers.

In multi-level garages or garages with multiple fan locations, zone control and cross mapping optimizes energy efficiency by starting fans only in areas where ventilation is needed. When adequate ventilation is achieved, the fans automatically resume their normal speed or turn off.

Using the above setup information, the 4300-PG unit continuously scans all the network devices for their gas type and measured concentration. Up to 4 gas types are supported. For example, the 4300-PG may be configured to monitor Carbon Monoxide, Carbon Dioxide, Nitrogen Dioxide and/or Methane. The Low, High, High/High1 and High/High2 alarm values are independently entered for each gas. A Low alarm is triggered when the concentration of any target gas in that zone exceeds the Low alarm set value. There are total of 64 possible alarms: Low, High, High/High1 and High/High2 alarms per zone for up to 16 zones.

### **Main Panel and Relay Analog Board (RAB)**

The 4300-PG supports four (4) internal relays plus maximum of 8 RABs with up to 8 relays each for a total of 64 relays. When communicating with EC-Gold Dual, there is also the ability to use the on board relays as a mini-RAB. The 4300-PG communicates with the RAB via RS-485 Modbus. Therefore the RAB may be located conveniently anywhere on the sensor runs.

Each of the 64 relays may be independently mapped in the field to any of the 64 alarms (Low, High, High/High1 and High/High2 for up to 16 zones). For Example, Relay1 may be mapped to Zone 1 Low Alarm as well as the High Alarm for all other zones. Relay2 may be mapped to Zone 2 Low Alarm as well as the High Alarm all other zones. This scheme will turn on the individual relays 1 and 2 when their respective zones go into Low alarm and both relays will turn on when any zone goes into High or High/High alarm. This flexibility ensures efficient use of the relays, which can be tailored to unique system requirements.

The common Fault alarm is set if any network device has a fault or does not respond on the network. The Internal Relay1 can be designated as System Fault Alarm relay.

Independent Delay to On and Delay to Off can be set for each gas alarm level (e.g. Low, High, High/High1 & High/High2).

For each zone, the maximum ppm values are calculated and transmitted on 2 standard 4-20mA outputs. (If more than 2 mA outputs is required then a 4300-RAB must be purchased. Two mA outputs per RAB).

## 1.1 Features

- Automatic scanning of up to 99 EC-Gold devices.
- Up to Six (6) wire runs from 4300-PG allowing more flexibility when wiring the EC-Gold devices.
- Devices may be assigned to any of 16 zones
- 2 Standard 4-20mA outputs assigned to any zone to reflect the zone's max. ppm. (Optional Relays Analog Board (RAB) for zones greater than 2.
- Differential, independent Low, High, High/High1 & High/High2 alarms per zone.
- Alarm High and Low differential level may be independently set for up to 4 gases.
- Four (4) internal SPDT 3A relays plus up to 8 Relay Analog Boards (RAB) with up to 8 relays each and up to 8 mini Relay Analog Boards (miniRAB) with up to 3 relays each. Each relay is user selectable to be linked to any combination of alarm sources: Low, High, High/High1 & High/High2 alarms for all 16 zones. Internal Relay1 can be designated for System Fault Alarm.
- Optional output (200mA) linked to common High/High2 alarm for Buzzer and/or Red Pilot Light. Each Auxiliary relay board also has a Buzzer output and push to acknowledge input.
- Independent Delay to On and Off for all alarm level, plus a 60-minute override function in order to test system without time delay.
- Keypad accessible Test function for all zones alarms and 4-20mA or 0-20mA outputs.
- Real time clock for Calibration reminder setting.
- RS485 Modbus protocol to communicate with the EC-Gold devices.
- RS485 Modbus protocol for upstream BAS.
- Front panel LCD and membrane keypad user interface.
- Run time recording
- Fan cycling on low alarm relays available in order to turn fans On in peak AM & PM periods.
- Fire alarm input to disable exhaust fans in case of fire.
- Two range software available (e.g. Zone 1, sensor 1-10 & sensor 50-60).

## 1.2 Specifications

<b>Power Input:</b>	24VDC 250mA Max. (Controller only). 24VDC external power supply amperage depends on number of devices (100mA per EC-Gold, EC-Gold II, 250mA per EC-Gold Dual)
<b>User Interface:</b>	
Calibration & Setup Network	<ul style="list-style-type: none"> <li>- 4 Line x 20 Character LCD and 4x4 membrane keypad.</li> <li>- RS-485 Modbus protocol connection to EC-Gold devices. EC-Gold Dual and EC-Gold II can have up to 4 sensors per device.</li> <li>- RS-485 Modbus protocol connection to upstream BAS.</li> </ul>
<b>Outputs:</b>	
Alarms	<ul style="list-style-type: none"> <li>- Differential Low, High, High/High1 and High/High2 alarms per zone for up to 16 zones.</li> <li>- Up to 4 gases are supported with independent Low, High, High/High1 and High/High2 alarms for each gas type.</li> <li>- Common Sensor Fault alarm</li> </ul>
Relay Contacts	<ul style="list-style-type: none"> <li>- 4 internal SPDT 3A relays (Controller) and up to 64 external SPDT 10A/120VAC relays in banks of 8 (4300-RAB).</li> <li>- Each bank of 8 is accessible via RS-485 and may be located conveniently in garage area to save initial electrical wiring cost.</li> <li>- Each relay may be field linked to any combination of 64 alarm sources: Low, High, High/High1 and High/High2 alarms per zone for up to 16 zones.</li> <li>- Internal Relay1 may be designated as a System Fault alarm.</li> </ul>
Alarm Delay	- Independent Delay to On and Delay to Off for each alarm level. Delay range: 0-99 minutes field adjustable
Buzzer and/or Red Pilot Light (Optional)	- Activated by any zone's High/High2 alarm with acknowledge input. Each bank of 8 relays also includes a buzzer and acknowledge input. Max. 200mA.
4-20mA OR 0-20mA Outputs	- 2 internal mA outputs and 2 per Relay Analog Board (4300-RAB)
<b>Environmental:</b>	
Ambient Temperature	-20°C - 55°C
Relative humidity	90% max. with no condensation
<b>Mechanical Specification:</b>	Refer to dimensional drawing

## 2.0 INSTALLATION

**NOTE: If any damage to the instrument is found, please notify an Arjay Engineering representative as soon as possible prior to installation.**

### 2.1 Main Panel Installation

Choose a mounting location in accordance with good instrument practice. Extremes of ambient temperature and vibration should be avoided (see specifications and installation drawing).

There are up to six (6) wire runs available for sensors. Sensors must be daisy chained along each wire (*No T-Tapping*). Zones are in a sequential format (e.g. Zone 1: 1-10, Zone 2: 11-20 etc.)

All user connections are via mating plug/receptacle connectors to make installation and service easier.

**IMPORTANT NOTE: RS485 communication wire must be shielded and must not be run in same conduit as high voltage lines. The shield of the cable must be daisy chained as well as grounded to earth ground at main panel. If splitter boxes are used in ceilings, make sure the shields are also connected together.**

### 2.2 Sensor and RAB Installation

The sensors and RAB can be mounted up to 4000 feet maximum away from the main panel. (Longer wire runs may require a RS485 repeater).

#### **Recommended Cables:**

1. *For 24VDC Power:* 2 Conductor 14-16AWG Shielded Cable
2. *For RS485 Network:* 2 Conductor Low Capacitance 22-24AWG Shielded Cable (Belden 9841, 3105A or equivalent)

#### **CAUTION:**

THE UNIT HOUSES SENSITIVE ELECTRONIC COMPONENTS AND SHOULD BE HANDLED WITH CARE. IF PUNCHING OR DRILLING THROUGH THE ENCLOSURE WALLS, MAKE SURE THAT THE INTERNAL ELECTRONIC MODULES ARE SHIELDED FROM DEBRIS ESPECIALLY METAL PARTICLES.

PLEASE MAKE SURE THAT THE CONNECTIONS HAVE THE POLARITY AS INDICATED OR THE CONTROLLER MAY BE DAMAGED.

USE GOOD INSTALLATION PRACTICE! DO NOT RUN HIGH VOLTAGE CABLE IN THE SAME CONDUIT AS SIGNAL WIRES.

### 3.0 STARTUP AND CONFIGURATION

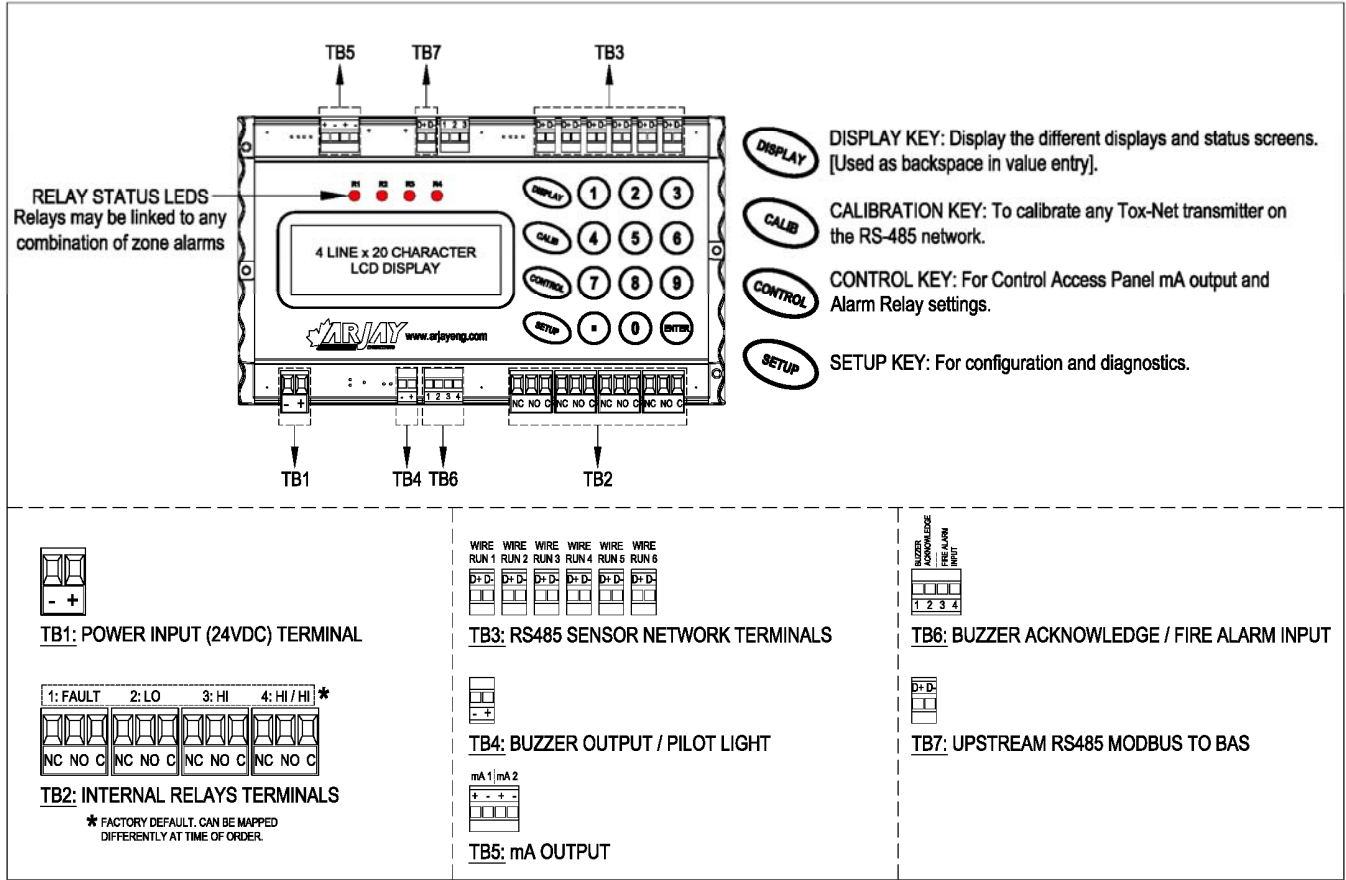


Figure 1 – User Interface

#### 3.1 Status Indications

One LED per Relay status. Each relay is triggered by the user-selected combination of zone Low, High, High/High1 and High/High2 alarms.

#### 3.2 Password Protection

A password must be entered to access any of the 3 value entry menus: CALIB, CONTROL, SETUP. The factory initial password is 2000. The customer can choose their own password according to section 4.3. The prompt for entering the password is always 9999 regardless of the actual password.

#### 3.3 Display Screens

After power up and the initial startup screen has been displayed for about 3 seconds, the CAP scans all active EC-Gold devices on the network (as set by the "number of remotes" setting explained later). This may take several seconds depending on the number of sensors. The following screen will now appear:

```

Z 1: Ok
Z 2: Ok
Z 3: Ok
Z 4: Ok
    
```



**PLEASE NOTE: ALL DISPLAYS SHOWN IN THIS MANUAL ARE FOR EXAMPLE ONLY. ACTUAL VALUES WILL BE VARY.**

**3.3.1 Zone Alarm Status Screen**

The following is a typical display:

```

Z 1: Ok
Z 2: Ok
Z 3: Ok
Z 4: Ok
    
```

The alarm status is displayed for each zone. If there are more than 4 zones, press the <DISPLAY> key to view the status of the remaining zones.

Each line starts with the zone number and displays the zone status. The status may be one of the following:

OK	All EC-Gold devices in this zone are responding on the network, are functioning properly and there are no gas alarms.
Low Alarm	At least one EC-Gold device in this zone has a ppm level at or above the Low Alarm ppm level for at least the Low Alarm Delay On time.
High Alarm	At least one EC-Gold device in this zone has a ppm level at or above the High Alarm ppm level for at least the High Alarm Delay On time.
HiHi1 Alarm	At least one EC-Gold device in this zone has a ppm level at or above the High/High1 Alarm ppm level for at least the High/High1 Alarm Delay On time.
HiHi2 Alarm	At least one EC-Gold device in this zone has a ppm level at or above the High/High2 Alarm ppm level for at least the High/High2 Alarm Delay On time.
No response (NR)	At least one EC-Gold device in this zone is not responding on the network.
DEL>	Alarm Delay ON
DEL<	Alarm Delay OFF
Fan Cycle	ON
CAL or CAL REMINDER	Sensor Calibration Reminder
Device Fault (ERR)	Indicates that one of the device in the zone is in fault. Check zone status (Sec. 3.3.6) to see which device is in error (ERR) and then device status in to see which fault code.

### 3.3.2 Real Time Screen

To view this screen, press the <ENTER> key while viewing the Zone alarm status screen.

```
Current Date / Time
2013/06/30 19:19:19

YYYY/MM/DD  HH:MM:SS
```

Press <ENTER> key to return to Zone alarm status screen.

### 3.3.3 Overall Alarm Status Screen

To view this screen, press the <DISPLAY> key while viewing the Zone Alarm Status Screen.

```
Max ppm=25 by #5
Network:    OK
Devices:    OK
Alarm status:Low
```

The top line displays the maximum ppm registered by any EC-Gold device in any zone and the device network address which caused it.

The second line displays the network status: either "OK" if all active EC-Gold devices and networked resources are responding, or "Net no response: x" and the number (quantity) of not responding devices or networked resources is displayed. For example if 1 EC-Gold device and 1 RAB board are not responding then "Net no response: 2" is displayed.

The third line displays the common EC-Gold device status. This includes EC-Gold devices that have sensor faults or if they are not responding on the network. If all EC-Gold devices are OK, then "OK" is displayed, else "Sensor Fault: x" is displayed where "x" is the number (quantity) of EC-Gold devices with sensor or instrument faults or not responding. Note: if an EC-Gold device is not responding then this will be indicated on line 2 and 3 i.e. you will get "Net no response" and "Sensor Fault" errors. Press zone alarm status screen (Section 3.3.1) to see which zone is in fault. Then press the appropriate zone # to see which actual sensor is in fault. Sensor status in setup menu can determine which fault code (see Section 4.2 for more info).

### 3.3.4 Relay Analog Board (RAB) and MiniRAB Status Screen

To view this screen, continually press the <DISPLAY> key until the Overall Alarm Status Screen appears.

```
RAB1: OK
RAB2: OK
```

*This screen will only show up if 4300-RAB were purchased.*

```
miniRAB1: OK
miniRAB2: OK
```

*This screen will only show up if miniRAB were purchased.*

The status of the RAB is displayed. If only one RAB module is installed, the bottom 3 lines are blank. "OK" means the RAB module is responding on the network.

### 3.3.5 Zone ppm Status Screen

To view this screen, continue to press the <DISPLAY> key until the Zone ppm Status Screen appears.

```
Z1Hi/Av: 25(05)/ 3
Z2Hi/Av: 12(11)/ 5
Z3Hi/Av: 0(20)/ 0
Z4Hi/Av: 0(32)/ 0
```

The ppm status is displayed for each zone. **If there are more than 4 zones, press the <DISPLAY> key to view the status of the remaining zones.**

Each line starts with the zone number. The first value is the highest ppm recorded for that zone together with the transmitter network address causing this value. The average value for the entire zone is displayed at the end of the line. In the example above, zone 1 has a high of 25ppm caused by EC-Gold device # 5. The average for the zone is 3 ppm.

### 3.3.6 Zone Devices Status

The status of devices within each zone may be viewed by pressing the following keys on the keypad while in any of the screens described above in sections 3.3.1 – 3.3.5:

Press the zone number to get to the corresponding zone sensor status. For example for zone 1 press “1”. The ENTER key does not need to be pressed. If there is two ranges of sensors within one zone then Press that particular zone # a second time to see the second range of sensors. Note: Press ENTER to go to next zone instead of going back to main screen.

```
z1 ppm: 01:ok 02:ok 03:NR
```

In order to view zones greater than 9, Press DISPLAY key until the range with that particular zone shows up. For example to view zone 14 Press DISPLAY key until range 13-16 shows up. Press the numeric code that corresponds to the zone as per table. Example: If you would like to see zone 14, Press “4”.

0	For Zone 10	3	For Zone 13	6	For Zone 16
1	For Zone 11	4	For Zone 14		
2	For Zone 12	5	For Zone 15		

The status of maximum 11 devices for the corresponding zone are displayed at a time. If more than 11 devices are assigned to the zone, then press the ENTER key repeatedly to view the status of remaining devices.

For each device, the status is displayed beside each device network address.

Status code notes:

OK = Device is good and no alarms

NR = No response from device

ERR = Device Fault

Lo = Device is in low alarm condition

Hi = Device is in high alarm condition

HH1 = Device is in high high 1 alarm condition

HH2 = Device is in high high 2 alarm condition

Pressing the <DISPLAY> key when the last device is on screen cycles back to Zone Alarm Status screen.

### 3.3.7 Individual Device Status

The Individual Device status can be displayed by press <■> key while in Zone Alarm Status Screen (3.3.1).

The 1<sup>st</sup> device (network address:1) status will be displayed as the following (example of EC-Gold device):

```
Zone01: 01 ok
CO:  1 ppm   10 mV
```

Press <ENTER> will display 2<sup>nd</sup> device status (example of EC-Gold Dual).

```
Zone01: 02 ok / Lo / Hi
CO:    1 ppm   10 mV
NO2:  4.0 ppm  200 mV
%LEL  50 ppm   500 mV
```

Continue press <ENTER> will go to display next device status, it will go back the Zone Alarm Status Screen (3.3.1) after displaying all devices.

Notes on the Individual Device Status:

The 1<sup>st</sup> line displays zone number, device network address, each sensor status (see 3.3.6 Status code notes)

The 2<sup>nd</sup> line displays 1<sup>st</sup> sensor ppm and mv values.

The 3<sup>rd</sup> line displays 2<sup>nd</sup> sensor ppm and mv values if the device has the 2<sup>nd</sup> sensor.

The 4<sup>th</sup> line displays 3<sup>rd</sup> sensor ppm and mv values if the device has the 3<sup>rd</sup> sensor.

If want to see the specified Individual Device status, go to the Zone Devices Status (3.3.6) first. Then press <.> key will go to the following screen.

```
REMOTE DEVICE SELECT
Address:  xx
```

Enter the network address of the device, press <ENTER> key will go the specified Individual Device Status. After reviewing the Individual Device Status, press <ENTER> key will go back the Zone Devices Status screen (3.3.6).

### **3.4 Notes on the user interface**

When entering in numeric values, the cursor can be backspaced to correct mistakes by pressing the DISPLAY key. This is only true if the cursor is not at the beginning of the displayed value, in which case the DISPLAY menu is entered.

Values may be entered with any number of decimal places.

If the entered value is out of the allowed limits, the system displays the limiting value for 2 seconds. For example if a gas concentration, Calibration value is entered as 5000.0 then MAX. 999 is displayed for 2 seconds then entry is allowed again. The current value is not changed unless the entered value is within limits.

## 4.0 SETUP CONFIGURATION

Press <SETUP> key, enter the password at the prompt and access to SETUP main screen. The default factory set password is 2000. **Press <SETUP> key any time to return to SETUP main screen.**

```
***** SETUP *****
1-Zone/Device Setup
2-Device Setup
3-CAP Set 4-more
```

### 4.1 Zone / Sensor Setup

The following is factory defaulted for “One Range” software. Therefore, there is only one range of sensors per zone (e.g. Zone 1: Node# 1-10). If an additional phase of parking is added to a zone at a later date or user may requires the same zone # on two different wire runs then “Two Range” software is required (consult factory for this feature).

Following steps are for both “One Range” and “Two Range” software:

From SETUP main screen, Press <1> key for Zone / Sensor setup.

1. Enter the total number of devices in the network (**note:** Include both phase of sensors if two range software is ordered) on the network followed by the ENTER key. Note: this value includes devices in all zones. The 4300-PG unit assumes sequential addresses starting from 1 to the last address number of device entered. i.e. if 14 is entered then addresses 1 to 14 are considered active devices. Up to 99 devices are available.
2. Next, at the prompt, enter the number of zones require (maximum is 16). There are 6 wire runs available from the 4300-PG to allow greater flexibility in wiring the devices. User must specify which zone(s) and range of devices node addresses are wired in each wire run.

Following step is for “One Range” software:

3. At the prompt for each zone, enter Wire run number first, then enter the first and last device network addresses for each zone. See note 1 below.

Following step is for “Two Range” software:

4. At the prompt of 1<sup>st</sup> range, enter zone number, wire run number and enter the first & last device network addresses respectively of the 1<sup>st</sup> range. Now at the prompt of 2<sup>nd</sup> range, enter wire run number, then enter the first and last device network addresses of the 2<sup>nd</sup> range. For example: Zone 1: Device 1 – 5 may use wire run#1 while a second range of devices may be added at a later date. Therefore, second range of devices for zone 1 may be Zone 1, Wire Run 1: 50-60 devices.

#### **NOTE 1:**

A maximum of 99 devices may be selected for a zone as long as they have sequential network addresses (***Factory recommendation is to wire only maximum 50 sensors per wire run***). Also, the end address must always be greater than the start address. For example, zone 1 addresses 1-5; zone 2 addresses 6-14 and so on.

```

Setup Zone 1
Wire Run # 1
First Device # 1
Last Device # 5

```

In this example, devices with node address 1-5 must be physically mounted within this zone.

## 4.2 Remote Device Setup

From SETUP main screen, Press <2> key for RemoteDevice Setup.

```

Sensor ID: Zone01-01
1-Select Device ID
2-Device Type
3-Device Values/Stat

```

The first line shows current Zone number and Device network address (ID). Press <1> goes to the Select Device ID screen.

### 4.2.1 Select Device Network Address (ID)

```

REMOTE DEVICE SELECT
Address #: 1

```

Enter desired device network address and press <ENTER> goes back to Remote Device Setup screen (4.2)

### 4.2.2 Remote Device Type Setup

Press <2> from Remote Device Setup screen (4.2) goes to Remote Device Type Setup screen.

```

Z01-01
Current device type:
EC-Gold Device
0-Exit    1-Change

```

The 1<sup>st</sup> line shows Zone number and Device network address. The 2<sup>nd</sup> line shows current device type. All remote devices are factory default to EC-Gold Device. Press <0> will back to Remote Device Setup screen (4.2). Press <ENTER> go to the next Device if there are available remote devices or go back to Remote Device Setup Screen. Press <1> to change the Device Type as the following screen:

```

Z01-01
1-EC-Gold:
2-EC-Gold Dual
3-3rd party device

```

Press number key to change the device type as required. For example, press <2> to change the device to EC-Gold Dual type and following screen shows up.

```
Z01-01 EC-Gold Dual
1-1sensor 2-2sensors:
3-3 sensors
4-4 sensors
```

Select the sensors number on EC-Gold Dual and screen will go back to Remote Device Type Setup screen (4.2.2)

#### 4.2.2 Remote Device Values/Statue

Press <2> from Remote Device Setup (4.2) to view the Remote Device Values and Status.

```
Zone01: 01 STATUS
CO : 0ppm 18mV
```

Press <Enter> button to view the next sequential sensor.



### 4.3 4300-PG Setup

From SETUP main screen (4.0), Press <3> key for CAP setup

```
CAP CONFIGURATION
1-CAP ID  2-CAP Info
3-Date/Time Setup
4-Password
```

The 4300-PG may be accessed via an RS-485 link using the Modbus protocol. The BMCS acts as a modbus master. The 4300-PG must be given a unique address so it can specifically be accessed by the BMCS.

1. Press <1> for CAP ID number. Enter the desired number. This value is typically already set at 1.

```
CAP NET ADDRESS
Enter new address:
1
```

2. Press <2> to review CAP information such as Software Revision, Hardware Revision and Serial Number.

```
*CAP INFORMATION*
SW Rev: X.X
HW Rev: X.X
S/N: XXXXXX
```

3. Press <3> to setup current Year, Month and Day (yyyy/mm/dd) and Time (hh:mm:ss).

```
Date & Time Setup
2015/01/12  12:18:42
1-Change Date
2-Change Time
```

4. Press <4> to setup customer own password.

```
SETUP: Password
Old Password: 2000
Enter new password:
```

Customer can enter their own 4-digit password.

## 4.4 More Options (mA Output and Latency test)

From Setup Main screen press <4> (more). This will allow for setup of mA outputs .

```
Current= 4-20mA Output
0 = change to 0-20mA
1 = mA out setup
2 = Latency test
```

\*shown if required for local jurisdiction.

Top line shows if mA output is 4-20 or 0-20 output. Press <0> key to change desired output.

### 4.4.1 mA Output Setup

From 4-More screen, press <1> key for mA Out setup.

```
mA1=DIS      1=Enable
mA2=DIS      3=Enable
RAB mA=DIS   5=Enable
Enter=continue
```

There are two 4-20 mA output channels on 4300-PG and two 4-20mA outputs per 4300-RAB that can be enabled or disabled. Unless mentioned at time of order, this is factory disabled for faster software efficiency. These two mA output channels on the 4300-PG control module can be set to link any two zones.

There are two 4-20 mA output channels on each RAB board (AOUT1 & AOUT2). These two mA output channels can be set to link any two zones.

mA1 = DIS: mA channel 1 is currently disabled. Press <1> to enable mA channel 1 output.

mA 2 = DIS: mA channel 2 is currently disabled. Press <3> to enable mA channel 2 output.

RAB mA = DIS: RAB mA outputs are currently disabled. Press <5> to enable RAB mA outputs.

When mA output are enabled, press <ENTER> to setup

4300-PG mA outputs to a desired zone mA output, or display RAB mA outputs.

```
mA1 Out - Enabled
mA2 Out - Enabled
RAB mA - Enabled
1-mA1 2-mA2 3-RAB mA
```

Press <1> to set up 4300-PG mA Out #1:

```
mA Output Setup
Total 5 zones
mA Output #1: z 1
Enter new Zone #:
```

4300-PG mA Output #1 is currently linked to zone1 mA output. Enter new zone number will set mA output #1 link to the new zone mA output. The main screen will automatically switch to mA Output #2. Enter the desired zone for mA #2.

Press <3> to change RAB mA output:

```
#1 mA SETUP
TOTAL 5 ZONES
mA OUT #1: Z2
Enter new zone#:
```

Line 3 will show the existing zone that mA#1 is linked to. Enter new zone number if required and Press <ENTER>. mA #2 for RAB#1 will then show. Enter new zone number if required and Press <ENTER>.

Press <ENTER> to get back to SETUP main screen. If more than one RAB is used then the menu will automatically display the 2<sup>nd</sup> RAB (e.g. Node 101).

#### 4.4.2 Latency Test

From 4-More screen, press <2> key for Latency test.

```
Total Node No.:xx
1=Change Node No.
2=Start Latency test
```

The 1<sup>st</sup> line shows there are total number of network devices (Node Number). Press <1> to change the total number of devices in the network.

```
Enter node numbers:
Xx

E=Contine
```

Enter the desired total number of devices in the network, press <ENTER> back to Latency test screen (4.4.2). Press <2> to start Latency test. It will show the following Latency test result:

```
Latency test done.
4 nodes: 0.9 sec
All nodes are good! Or 1 nodes: no response
Enter= Exit test
```

The 1<sup>st</sup> line shows Latency test done.

The 2<sup>nd</sup> line shows total number devices on the network tested and total seconds used.

The 3<sup>rd</sup> line show devices status. All nodes are good and number of nodes no response.

Press <ENTER> to exit Latency test.

## 4.5 Fire input Code

The following feature is used to hook up to the fire alarm panel.

- In case of fire all relays for fan will control be locked out. The following message would be displayed
- Connect dry contact from fire alarm panel to terminal 3 & 4 of TB6.

FIRE ALARM  No Action on all Relays
---

## 5.0 CONTROL CONFIGURATION

Press <CONTROL> key, enter the password at the prompt and access to CONTROL main screen. The default factory set password is 2000.

CAP CONTROL SETUP  
 1-Gas alarms/mA Span  
 2-Alarm Delay  
 3-Tools 4-More

### 5.1 Set Gas Alarm Values / mA Span

From CONTROL main screen, Press <1> for Gas Alarms / mA Span.

1. Select a number (1-4) to select a gas with which to associate alarm differentials. For example in a system with CO and NO<sub>2</sub> devices, Gas#1 is set for CO and Gas#2 for NO<sub>2</sub>. Gases #3 and 4 are set to **Not Used** (code 23).
2. After pressing a Gas number, select the gas type by pressing a 2 digit gas code from 0 to 23 followed by the ENTER key. For each code entered, the corresponding gas is selected, with a prompt to press 1 to accept the selection or 2 to select another gas. The supported gases and their corresponding codes are shown below in the table:

GAS NAME	CODE
Carbon Monoxide: CO (ppm)	00
Nitrogen Dioxide: NO <sub>2</sub> (ppm)	01
Methane: CH <sub>4</sub> (%LEL)	02
Propane: C <sub>2</sub> H <sub>5</sub> (%LEL)	03
Hydrogen Sulfide: H <sub>2</sub> S (ppm)	04
Ammonia: NH <sub>3</sub> (ppm)	05
Chlorine: Cl (ppm)	06
Oxygen: O <sub>2</sub> (%)	07
Gasoline (%)	08
Hydrogen: H <sub>2</sub> (ppm)	09
Toxic (ppm) – generic name	10
Combustible (%LEL) – generic name	11
BRH (Broad Range Hydro Carbon) (ppm)	12
Carbon Dioxide: CO <sub>2</sub> (ppm)	13
Acetylene (ppm)	14
Sulfur Dioxide: SO <sub>2</sub> (ppm)	15
ClO <sub>2</sub> (ppm)	16
Hydrogen Chloride: HCl (ppm)	17
Hydrogen Cyanide: HCN (ppm)	18
Ozone: O <sub>3</sub> (ppm)	19
Nitric Oxide: NO (ppm)	20
Temperature in deg. C	21
Temperature in deg. F	22
Refrigerant R134A (ppm)	23

Refrigerant R123 (ppm)	24
Refrigerant R22 (ppm)	25
Refrigerant R11 (ppm)	26
Refrigerant R410 (ppm)	27
Refrigerant R404 (ppm)	28
Refrigerant R407 (ppm)	29
Refrigerant R717 (ppm)	30
NOT USED	31

- After selecting the desired gas by pressing 1 in step above, enter the high and low differential ppm level for the Low Alarm. The gas concentration must rise above the high differential to set the Low Alarm and must fall below the low differential to clear the Low Alarm.
- After setting the Low Alarm differential level, the system automatically prompts for the High, High/High1 and High/High2 alarms differential levels.
- Enter the value for ppm of CO for 4mA and 20mA. This is typically 0ppm = 4mA and 200ppm = 20mA. User may set the 4mA for another value such as 25ppm when using mA output for VFD exhaust fans. Therefore, the fans will not start until 25ppm level is reached.

## 5.2 Alarm Delay

From CONTROL main screen, Press <2> for Alarm Delay

ALARM DELAY SETUP 1-Set Alarm Delay 2-Override Delays  Current = Delay mode.
--

- Press <1> to Set Alarm Delay. Set Low Alarm Delay On and Delay Off value in minutes, the system automatically prompts for the High, High/High1 and High/High2 alarm delay on and delay off time in minutes.

ON delay is the amount of time required to activate an alarm after a sensor has reached that preset ppm value.

OFF delay is the amount of time required to de-activate an alarm after a sensor has dropped below that preset ppm value.

The system will automatically return to the control main screen after all values have been entered.

- Press <2> for Override Delays. Press <1> to temporarily override the Delays On and Off values. This allows the user to test the system without having to wait for any preset time delay.
- Press <2> to **restore** relay delays on and off value. The relay on and off values will be restore automatically after 60 minutes.

Press Control button to exit this screen.

## 5.3 Tools

From the Control main screen, press <3> for tools.

```
1-Fan Cycle Setup
2-Force 20mA
3-Force Zone Alarms
4-Fan Data logging
```

### 5.3.1 Fan Cycle

This feature operates the fans during peak time periods.

Press <1> for Fan Cycle setup.

There are two Fan Cycle features (morning and afternoon). Both fan cycles features can be enabled or disabled. The first and third line shows the present status.

```
AM Fan Cycle OFF
1- AM Cycle ON
2- PM Fan Cycle OFF
3- PM Cycle ON
```

Press <1> to Enable OR Disable AM Fan cycle and Press <3> to Enable OR Disable PM Fan cycle. If the function is enabled then the following will be displayed:

```
2-Cyc Set for AM
4-Cyc Set for PM.
```

Press either function in order to set the desired ON and OFF time between 1 to 12 o'clock. Note when entering AM times it is set in international or military time (e.g. 14 = 2 o'clock).

### 5.3.2 Force 20mA Output

Press <2> to force the 4-20 mA. This function is used to force a 20mA output in order to verify external devices.

Press <2> again to release this feature and get back to main display.

### 5.3.3 Force Zone Alarms

Press <3> to force zone alarms. This function is to test each zone alarm condition in order to verify proper relay mapping and fan operation.

Press the desired zone that you want to test. Each alarm level will show for that particular zone. Press appropriate alarm level for selected zone. After testing has been performed, Press <0> to release this function.

### 5.3.4 Fan Data Logging

This feature is used to record total fan run time from start date. This data can be used for energy saving rebates. These values will update at 1AM & 1PM.

Press <4> to Fan Run Time function and then Press 1 to 4 to record for desired internal relays.

```
Fan Run Time Setup
Internal Relays:
1-R1 2-R2 3-R3 4-R4
5- Remote RAB relays
```

```
Int. R1 Start Record
On: 2013/08 (m) /01 (d)
    XXXX Days XX Hours XX Mins
1 - Reset Fan Run Time
```

Record the date from line 2 and the total fan run time from line 3. Press <1> to reset if required.

Press <5> to record RAB relays. Enter the desired RAB node address and then the desired relay within that RAB.

```
RAB Fan Run Time
Remote RAB Node: 100
RAB Relay No.: 1
```

```
RAB1 R1 Start Record
On: 2013/08 (m) /01 (d)
    XXXX Days XX Hours XX Mins
1 - Reset Fan Run Time
```

Record the date from line 2 and the total fan run time from line 3. Press <1> to reset if required.

## 5.4 More Setup

From the Control main screen, press <4> for More setup. 4300-PG has 4 internal relays, and each RAB ordered has 8 relays and miniRAB has 3 relays.

```
RELAY MAP SETUP
1-Internal Relays
2-Ext. RAB Relays 3- miniRAB
```

### 5.4.1 4300-PG Internal Relay Setup

(Note: Relay mapping should be done after all zone / sensors setup (Section 4.1) has been performed. Refer to Section 7.3.1 if mapping has been performed at time of shipment.

1. Press <1> for 4300-PG internal relay setup. The internal relay 1 (R1) can be set as a System Fault alarm or as a set point alarm relay.

```
R1: Fault
0-Fault 9-Non Fault
Mapping Relays:
2-R2 3-R3 4-R4
```

2. The first line displays the current relay 1 (R1) setting. Press <0> to set R1 as Fault relay OR press <9> to set R1 as a setpoint relay.
3. Press <2> to map relay 2 (R2). Press <ENTER> key after reading the description screen. A screen similar to the following is displayed. The map shown is an example only. The actual values will vary. This screen shows the map for Integral Relays 2 (R2). If the Integral Relay1 has been set for System Fault, then it is excluded from other alarms. The column



headings are for the Low (L), High (H), High/High1 (1) and High/High2 (2) alarms for each zone (z1 to z4). Enter the mapping as follows:

```
Internal Relay: R2
Z1 Z2 Z3Z4
LH12 LH12 LH12 LH12
YNNN YNNN YNNN YNNN
```

4. The cursor starts at the Low alarm column for zone 1. Press 1 to establish a link: press 0, to clear the link. If there are more than 4 zones then complete the entries for the first 4 zones for each relay and the remaining zones are automatically displayed. Unused zones are not displayed. To advance the cursor to the next column with no change: press the ENTER key. To advance to the next screen: press any other numeric key. Note: changes are made as soon as the '1' or '0' key is pressed. If a mistake is made, you will need to exit the menu, and then re-enter to change the value.
5. After completing the maps for relays 1 and 2, the system automatically prompts with the maps for all remaining relays.

### 5.4.2 Relay Analog Board (4300-RAB) Setup

From the Control main screen, press <4> for relay setup. Each RAB has 8 relays.

1. Press <2> for External RAB relay setup.

```
SET # OF RAB MODULES
Enter how many RAB
3
```

2. Enter how many RAB(s) used and Press <ENTER> key. After reading the description screen. PRESS Enter to continue. A screen similar to the following is displayed. Only selected RAB(s) will be displayed.

```
1-RAB #1    2-RAB #2
3-RAB #3    4-RAB #4
5-RAB #5    6-RAB #6
```

3. Press<1> for RAB #1 relay mapping. Enter the wire run # for the 4300-RAB was wired at the main controller. Press <ENTER> to continue, and the similar screen will be displayed. If there is no communication to this particular RAB then "ERR: Can't access RAB" will display. Troubleshooting will be required.

```
RAB #1, Relay: #1
Wire Run #: 6
```

```
RAB #1, Relay: #1
Z1    Z2    Z3    Z4
LH12 LH12 LH12 LH12
YNNN YNNN YNNN YNNN
```

- The cursor starts at the Low alarm column for zone 1. Press 0 to establish a link, Press 0 to clear the link. If there are more than 4 zones then complete the entries for the first 4 zones for each relay and the remaining zones are automatically displayed. Unused zones are not displayed. To advance the cursor to the next column with no change: press the ENTER key. To advance to the next screen: press any other numeric key. Note: changes are made as soon as the '1' or '0' key is pressed. If a mistake is made, you will need to exit the menu, and then re-enter to change the value.
- After completing the maps for relays 1, the system automatically prompts with the maps for relay 2 of this RAB.

### 5.4.3 Mini Relay Analog Board (miniRAB) Setup

From the Control main screen, press <4> for relay setup. Each miniRAB has 3 relays.

- Press <3> for miniRAB relay setup.

```

SET miniRAB Relay
Enter No. of miniRAB
3
  
```

- Enter how many miniRAB's used and Press <ENTER> key. After reading the description screen. PRESS Enter to continue. A screen similar to the following is displayed. Only selected miniRAB(s) will be displayed.

```

1-miniR.1      2-miniR.2
3-miniR.3
  
```

- Press<1> for miniRAB.1 relay mapping. Enter the wire run # for the miniRAB was wired at the main controller. Press <ENTER> to continue. Enter the network node address of this miniRAB being used and then press <ENTER>. If there is no communication to this particular miniRAB then "ERR: Can't access RAB" will display. Troubleshooting will be required.

```

miniRAB: #1, Relay: #1
Wire Run #: 6
  
```

```

miniRAB: #1, Relay: #1
Network ID: 20
  
```

```

miniRAB #1, Relay: #1
Z1      Z2      Z3      Z4
LH12   LH12   LH12   LH12
YNNN   YNNN   YNNN   YNNN
  
```

- The cursor starts at the Low alarm column for zone 1. Press 1 to establish a link, Press 0 to clear the link. If there are more than 4 zones then complete the entries for the first 4 zones for each relay and the remaining zones are automatically displayed. Unused zones are not

displayed. To advance the cursor to the next column with no change: press the ENTER key. To advance to the next screen: press any other numeric key. Note: changes are made as soon as the '1' or '0' key is pressed. If a mistake is made, you will need to exit the menu, then re-enter to change the value.

After completing the maps for relays 1, the system automatically prompts with the maps for relay 2 of this miniRAB.

**THIS CONCLUDES THE 4300-PG SETUP. FOR THE CALIBRATION OF INDIVIDUAL EC-GOLD DEVICES REFER TO THE NEXT SECTION.**

## 6.0 CALIBRATION SETUP

The 4300-PG acts as a user interface to the remote EC-Gold **only** being calibrated. The resulting setup and calibration values reside in the EC-Gold and not in the 4300-PG.

### 6.1 Calibration

**The EC-Gold is pre-calibrated at the factory, but field verification with a known concentration of test gas should be performed to ensure proper operation of the system. Manufacturer recommendation is Field Calibrations should be scheduled every 6 months as part of a regular maintenance program. Local jurisdiction may require different calibration frequency.**

The EC-Gold may be calibrated using the 4300-PG or at the EC-Gold itself using the convenient single point pushbutton procedure. Calibration involves exposing the sensor of the EC-Gold with a calibration gas. As such, calibration at the EC-Gold is quickest.

Calibration via the 4300-PG is practical if there are 2 people equipped with 2 way radios calibrating the EC-Gold (one at the 4300-PG and the other gassing the sensors). A handheld calibrator may also be purchased for easy calibration.

### 6.2 Calibration using EC-Gold Pushbutton

To calibrate the EC-Gold using the integral calibration pushbutton, refer to the EC-Gold manual for the latest calibration procedure information.

### 6.3 Calibration from the 4300-PG

The following procedure describes how to individually calibrate any remote EC-Gold transmitter from the 4300-PG unit. As mentioned earlier, this method is most convenient if performed by 2 people communicating via radio transceivers. This method is also preferred if the calibration gas can be selectively applied to the EC-Gold via tubing from a centrally located calibration gas canister. In this scenario, one person can conveniently perform calibration.

The following procedure describes calibrating from the 4300-PG panel.

1. Press the <CALIB> key, then enter the password at the prompt to access Calibration main screen. The factory set password is 2000.

EC-Gold CALIBRATION
1-Calibration
2-Alarms      3-mA Set
4-Record Calibration

2. Press 1 for Calibration from the Calibration menu.
3. Select the desired Network ID of EC-Gold to be calibrated and then Press <Enter>.
4. The calibration menu offers 3 types of calibration: Auto cal, Manual cal and direct entry of the slope and offset.

### 6.3.1 Auto Calibration

Auto calibration is the most common form of calibration. In this procedure, the gas sensor is exposed to 2 different gas concentrations in turn – one of which can be clean air (0 ppm CO). The concentration value is entered for each. The EC-Gold is automatically instructed to calculate the required calibration parameters:

1. From the Calibration menu press 1 for Auto calibration.
2. Gas the EC-Gold sensor being calibrated with the first gas. Ambient air can be used as 0 ppm ONLY if it is certain that there is no CO in the air. Enter the concentration of the first gas in ppm for this first point then Press <Enter>. The bottom line displays the raw sensor reading in mV and is displayed to give an indication when the reading has settled. This typically takes about 1 minute. Press Enter to confirm the first calibration point.
3. This display now prompts for the second calibration point. Remove the first calibration gas and let the sensor settle in air until the reading returns to clean air levels.
4. Repeat step 2 with the second gas concentration. (This is typically 100ppm CO Carbon Monoxide or 10ppm NO<sub>2</sub>)
5. In the event of calibration errors such as low sensor sensitivity, or “No change in sensor”, an error message is flashed for about 2 seconds after the <ENTER> key has been pressed. Calibration will have to be performed again after troubleshooting the problem (e.g. bad sensor).

### 6.3.2 Manual Calibration Methods

There are 2 other methods. Both require a prior successful auto calibration. The first method allows manual entry of 4 values: the concentration and raw sensor values for each of 2 calibration points. The EC-Gold is then instructed to calculate the required calibration parameters.

The final calibration method is to directly enter the calibration values i.e. the SLOPE (sensitivity) and the OFFSET (or raw value in 0 ppm CO).

### 6.4 Change Remote EC-Gold Alarm Information

This feature allows the user to change the alarm values at each EC-Gold. This will not override the 4300-PG alarm values. This is strictly for LED indication at EC-Gold only.

1. Press <2> for Alarms in Calibration main screen.
2. Enter desired Network ID number.
3. Change remote EC-Gold alarm values if needed.

### 6.5 Change Remote EC-Gold mA Output

The mA output from each EC-Gold is typically not used in 4300-PG panels. Therefore, this feature may not need to be accessed.

1. Press <3> for mA Out in Calibration main screen.
2. Enter desired Network ID number.
3. Change remote EC-Gold mA output span, or trim mA output.

## 6.6 Record Calibration Date

This feature is used to display a calibration warning after a preset time period. The warning "CAL REMINDER" or "CAL" will show up on the right hand side of main display after the preset calibration time has past. A buzzer (if ordered) will beep every minute to warn that calibration is needed.

1. Press <4> to record calibration date under Calibration main screen

Record Calibration  
1-Record Cal Date  
Cal Date: 2013/06/30  
2-Cal Period Setup

2. Press <1> to record current date as the calibration date.
3. Press <2> to setup calibration period days. The default is 180 days. The calibration reminder will display if the operating days (current date minus last recorded calibration date) are more than the calibration period days.

Current CAL period 180 days  
1 - Enter New Period  
2 - Exit

## 7.0 SETTING SHEET

Checked by	
Model Number	
Serial Number	
Hardware Revision	
Software Revision	

The factory settings column below lists the typical default settings. The user may change these values. If changed, please fill in the USER SETTING column for future reference.

### 7.1 Gas Alarm Setup

Gas alarms may be set for up to 4 gases. Alarms are checked based on the gas type setting in EC-Gold Devices.

For example, in a system with EC-Gold devices for CO and NO2, enter separate alarm values for CO (Gas #1) and for NO2 (Gas #2). Gases #3 and #4 are set to UNUSED.

Low Alarm high differential	Concentration of any EC-Gold devices in the zone must exceed this value for at least the the Low Alarm delay to ON period to activate the Low Alarm.
Low Alarm low differential	Concentration of all EC-Gold devices in the zone must fall below this value for at least the Low Alarm delay to OFF period to de-activate the Low Alarm.
High Alarm high differential	As per Low Alarm differentials description.
High Alarm low differential	As per Low Alarm differentials description
HiHi1 Alarm high differential	As per Low Alarm differentials description.
HiHi1 Alarm low differential	As per Low Alarm differentials description.
HiHi2 Alarm high differential	As per Low Alarm differentials description.
HiHi2 Alarm low differential	As per Low Alarm differentials description.

**Note:** See Table on page 17 for gas code number description.

PARAMETER	DESCRIPTION	FACTORY SETTING	USER SETTING
<b>GAS #1 ALARM</b>	<i>Code</i>	0 = CO	
	Low Alarm high differential (ppm)		
	Low Alarm low differential (ppm)		
	High Alarm high differential (ppm)		
	High Alarm low differential (ppm)		
	HiHi1 Alarm high differential (ppm)		
	HiHi1 Alarm low differential (ppm)		
	HiHi2 Alarm high differential (ppm)		
	HiHi2 Alarm low differential (ppm)		
	0mA <b>or</b> 4mA (ppm)		
	20mA [Span (ppm)]		

PARAMETER	DESCRIPTION	FACTORY SETTING	USER SETTING
<b>GAS #2 ALARM</b>	<i>Code</i>	0 = CO	
	Low Alarm high differential (ppm)		
	Low Alarm low differential (ppm)		
	High Alarm high differential (ppm)		
	High Alarm low differential (ppm)		
	HiHi1 Alarm high differential (ppm)		
	HiHi1 Alarm low differential (ppm)		
	HiHi2 Alarm high differential (ppm)		
	HiHi2 Alarm low differential (ppm)		
	0mA <u>or</u> 4mA (ppm)		
	20mA [Span (ppm)]		
PARAMETER	DESCRIPTION	FACTORY SETTING	USER SETTING
<b>GAS #3 ALARM</b>	<i>Code</i>	0 = CO	
	Low Alarm high differential (ppm)		
	Low Alarm low differential (ppm)		
	High Alarm high differential (ppm)		
	High Alarm low differential (ppm)		
	HiHi1 Alarm high differential (ppm)		
	HiHi1 Alarm low differential (ppm)		
	HiHi2 Alarm high differential (ppm)		
	HiHi2 Alarm low differential (ppm)		
	0mA <u>or</u> 4mA (ppm)		
	20mA [Span (ppm)]		
PARAMETER	DESCRIPTION	FACTORY SETTING	USER SETTING
<b>GAS #4 ALARM</b>	<i>Code</i>	0 = CO	
	Low Alarm high differential (ppm)		
	Low Alarm low differential (ppm)		
	High Alarm high differential (ppm)		
	High Alarm low differential (ppm)		
	HiHi1 Alarm high differential (ppm)		
	HiHi1 Alarm low differential (ppm)		
	HiHi2 Alarm high differential (ppm)		
	HiHi2 Alarm low differential (ppm)		
	0mA <u>or</u> 4mA (ppm)		
	20Ma [Span (ppm)]		



## 7.2 Zone Parameter Setup

PARAMETER	DESCRIPTION	FACTORY SETTING	USER SETTING
Number of Sensors	Total number of sensors in the system		
Number of Zones	Total number of zones		
Low alarm delay on (min)			
Low alarm delay off (min)			
High alarm delay on (min)			
High alarm delay off (min)			
HiHi1 alarm delay on (min)			
HiHi1 alarm delay off (min)			
HiHi2 alarm delay on (min)			
HiHi2 alarm delay off (min)			

PARAMETER	DESCRIPTION	FACTORY SETTING	USER SETTING
Zone 1 Configuration	Zone wire run #:		
	First Sensor #:		
	Last Sensor #:		
Zone 2 Configuration	Zone wire run #:		
	First Sensor #:		
	Last Sensor #:		
Zone 3 Configuration	Zone wire run #:		
	First Sensor #:		
	Last Sensor #:		
Zone 4 Configuration	Zone wire run #:		
	First Sensor #:		
	Last Sensor #:		
Zone 5 Configuration	Zone wire run #:		
	First Sensor #:		
	Last Sensor #:		
Zone 6 Configuration	Zone wire run #:		
	First Sensor #:		
	Last Sensor #:		
Zone 7 Configuration	Zone wire run #:		
	First Sensor #:		
	Last Sensor #:		
Zone 8 Configuration	Zone wire run #:		
	First Sensor #:		
	Last Sensor #:		
Zone 9 Configuration	Zone wire run #:		
	First Sensor #:		
	Last Sensor #:		
Zone 10 Configuration	Zone wire run #:		
	First Sensor #:		
	Last Sensor #:		
Zone 11 Configuration	Zone wire run #:		
	First Sensor #:		
	Last Sensor #:		
Zone 12 Configuration	Zone wire run #:		
	First Sensor #:		
	Last Sensor #:		
Zone 13 Configuration	Zone wire run #:		
	First Sensor #:		
	Last Sensor #:		
Zone 14 Configuration	Zone wire run #:		
	First Sensor #:		
	Last Sensor #:		
Zone 15 Configuration	Zone wire run #:		
	First Sensor #:		
	Last Sensor #:		
Zone 16 Configuration	Zone wire run #:		
	First Sensor #:		
	Last Sensor #:		

## 7.3 Relay Mapping

Relay mapping (Circles specify the factory setting of "YES" (Y) as per job specification).

- Relay Mapping is set in #4 of Control main screen (See section 5.4)
- L: Low alarm
- H: High alarm
- 1: High/High1 alarm
- 2: High/High2 alarm
- Zone: z"X" where "X" = zone designation
- Internal relay: R"X" where "X" = relay designation of internal 4300-PG relay.

### 7.3.1 4300-PG Internal Relay Mapping

Internal relay mapping: **Zone 1 – Zone 8**

Relay		Zone 1 LH12	Zone 2 LH12	Zone 3 LH12	Zone 4 LH12	Zone 5 LH12	Zone 6 LH12	Zone 7 LH12	Zone 8 LH12
R1 SET FOR FAULT YES / NO	R1	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R2	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R3	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R4	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN

Internal relay mapping: **Zone 9 – Zone 16**

Relay		Zone 9 LH12	Zone 10 LH12	Zone 11 LH12	Zone 12 LH12	Zone 13 LH12	Zone 14 LH12	Zone 15 LH12	Zone 16 LH12
R1 SET FOR FAULT YES / NO	R1	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R2	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R3	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R4	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN

### 7.3.2 Relay Analog Board (4300-RAB) Relay Mapping

Press <Control> button then <4> Relay Set. Press <2> Ext RAB, Enter # of RABS ordered.  
Select <1> RAB#1.

RAB 1 relay mapping: **Zone 1 – Zone 8**

Relay		Zone 1 LH12	Zone 2 LH12	Zone 3 LH12	Zone 4 LH12	Zone 5 LH12	Zone 6 LH12	Zone 7 LH12	Zone 8 LH12
RAB 1	R1	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R2	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R3	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R4	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R5	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R6	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R7	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R8	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN

RAB 1 relay mapping: **Zone 9 – Zone 16**

Relay		Zone 9 LH12	Zone 10 LH12	Zone 11 LH12	Zone 12 LH12	Zone 13 LH12	Zone 14 LH12	Zone 15 LH12	Zone 16 LH12
RAB 1	R1	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R2	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R3	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R4	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R5	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R6	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R7	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R8	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN

RAB 2 relay mapping: **Zone 1 – Zone 8**

Relay		Zone 1 LH12	Zone 2 LH12	Zone 3 LH12	Zone 4 LH12	Zone 5 LH12	Zone 6 LH12	Zone 7 LH12	Zone 8 LH12
RAB 2	R1	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R2	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R3	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R4	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R5	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R6	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R7	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R8	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN

RAB 2 relay mapping: **Zone 9 – Zone 16**

Relay		Zone 9 LH12	Zone 10 LH12	Zone 11 LH12	Zone 12 LH12	Zone 13 LH12	Zone 14 LH12	Zone 15 LH12	Zone 16 LH12
RAB 2	R1	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R2	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R3	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R4	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R5	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R6	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R7	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R8	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN

RAB 3 relay mapping: **Zone 1 – Zone 8**

Relay		Zone 1 LH12	Zone 2 LH12	Zone 3 LH12	Zone 4 LH12	Zone 5 LH12	Zone 6 LH12	Zone 7 LH12	Zone 8 LH12
RAB 3	R1	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R2	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R3	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R4	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R5	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R6	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R7	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R8	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN

RAB 3 relay mapping: **Zone 9 – Zone 16**

Relay		Zone 9 LH12	Zone 10 LH12	Zone 11 LH12	Zone 12 LH12	Zone 13 LH12	Zone 14 LH12	Zone 15 LH12	Zone 16 LH12
RAB 3	R1	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R2	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R3	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R4	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R5	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R6	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R7	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R8	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN

RAB 4 relay mapping: **Zone 1 – Zone 8**

Relay		Zone 1 LH12	Zone 2 LH12	Zone 3 LH12	Zone 4 LH12	Zone 5 LH12	Zone 6 LH12	Zone 7 LH12	Zone 8 LH12
RAB 4	R1	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R2	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R3	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R4	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R5	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R6	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R7	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R8	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN

RAB 4 relay mapping: **Zone 9 – Zone 16**

Relay		Zone 9 LH12	Zone 10 LH12	Zone 11 LH12	Zone 12 LH12	Zone 13 LH12	Zone 14 LH12	Zone 15 LH12	Zone 16 LH12
RAB 4	R1	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R2	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R3	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R4	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R5	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R6	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R7	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R8	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN

RAB 5 relay mapping: **Zone 1 – Zone 8**

Relay		Zone 1 LH12	Zone 2 LH12	Zone 3 LH12	Zone 4 LH12	Zone 5 LH12	Zone 6 LH12	Zone 7 LH12	Zone 8 LH12
RAB 5	R1	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R2	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R3	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R4	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R5	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R6	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R7	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R8	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN

RAB 5 relay mapping: **Zone 9 – Zone 16**

Relay		Zone 9 LH12	Zone 10 LH12	Zone 11 LH12	Zone 12 LH12	Zone 13 LH12	Zone 14 LH12	Zone 15 LH12	Zone 16 LH12
RAB 5	R1	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R2	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R3	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R4	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R5	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R6	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R7	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R8	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN

RAB 6 relay mapping: **Zone 1 – Zone 8**

Relay		Zone 1 LH12	Zone 2 LH12	Zone 3 LH12	Zone 4 LH12	Zone 5 LH12	Zone 6 LH12	Zone 7 LH12	Zone 8 LH12
RAB 6	R1	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R2	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R3	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R4	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R5	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R6	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R7	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R8	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN

RAB 6 relay mapping: **Zone 9 – Zone 16**

Relay		Zone 9 LH12	Zone 10 LH12	Zone 11 LH12	Zone 12 LH12	Zone 13 LH12	Zone 14 LH12	Zone 15 LH12	Zone 16 LH12
RAB 6	R1	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R2	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R3	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R4	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R5	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R6	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R7	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R8	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN

RAB 7 relay mapping: **Zone 1 – Zone 8**

Relay		Zone 1 LH12	Zone 2 LH12	Zone 3 LH12	Zone 4 LH12	Zone 5 LH12	Zone 6 LH12	Zone 7 LH12	Zone 8 LH12
RAB 7	R1	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R2	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R3	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R4	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R5	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R6	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R7	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R8	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN

RAB 7 relay mapping: **Zone 9 – Zone 16**

Relay		Zone 9 LH12	Zone 10 LH12	Zone 11 LH12	Zone 12 LH12	Zone 13 LH12	Zone 14 LH12	Zone 15 LH12	Zone 16 LH12
RAB 7	R1	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R2	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R3	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R4	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R5	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R6	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R7	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R8	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN

RAB 8 relay mapping: **Zone 1 – Zone 8**

Relay		Zone 1 LH12	Zone 2 LH12	Zone 3 LH12	Zone 4 LH12	Zone 5 LH12	Zone 6 LH12	Zone 7 LH12	Zone 8 LH12
RAB 3	R1	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R2	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R3	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R4	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R5	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R6	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R7	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R8	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN

RAB 8 relay mapping: **Zone 9 – Zone 16**

Relay		Zone 9 LH12	Zone 10 LH12	Zone 11 LH12	Zone 12 LH12	Zone 13 LH12	Zone 14 LH12	Zone 15 LH12	Zone 16 LH12
RAB 3	R1	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R2	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R3	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R4	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R5	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R6	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R7	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
	R8	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN



## 8.0 TROUBLE SHOOTING

Symptom	DO THIS
1. Display shows NR or No Response	<p><b>Cause: No Device Communication (RS485)</b></p> <ul style="list-style-type: none"> <li>- Each device is given a different Node address</li> <li>- Verify that device has proper Node address.</li> <li>- Node # label is mounted on circuit board and outside of sensor housing.</li> <li>- Determine that all devices programmed in setup menu are wired to 4300-PG.</li> <li>- Make sure proper Node address is located in correct zone and wire run.</li> <li>- Make sure the "+" polarity of RS485 is connected to terminal 4 and "-" connected to terminal 5 of EC-Gold.</li> <li>- Make sure there is 24VDC power to device and there is a green status light on.</li> <li>- Replace communication chip on device (Consult Factory).</li> <li>- Verify if there is any water damage from power washing or coming in from Conduit entry.</li> </ul>
2. Display shows CAL or Calibration	<p><b>Cause: Device Calibration Reminder</b></p> <ul style="list-style-type: none"> <li>- Verify that real time clock is accurate and that last calibration was performed 6 months or 1 year ago.</li> <li>- In calibration menu Press 4 for record calibration then 1 for record new calibration date.</li> </ul>
3. Display shows ERR or Sensor Fault	<p><b>Cause: Device Fault</b></p> <ul style="list-style-type: none"> <li>- Indicates that one of the device is in fault.</li> <li>- Check zone status (see section 3.3.6) to see which device is in error (ERR).</li> <li>- Check device status in setup menu to see which fault.</li> </ul>

## **9.0 DETAILED ELECTRICAL AND DIMENSIONAL DRAWINGS**

Drawings that are included in this section are specific to your order.

If drawings are not included here, record the serial number on the left outside wall of the main panel and contact:

**ARJAY ENGINEERING TECHNICAL SUPPORT**

**(800) 387-9487**

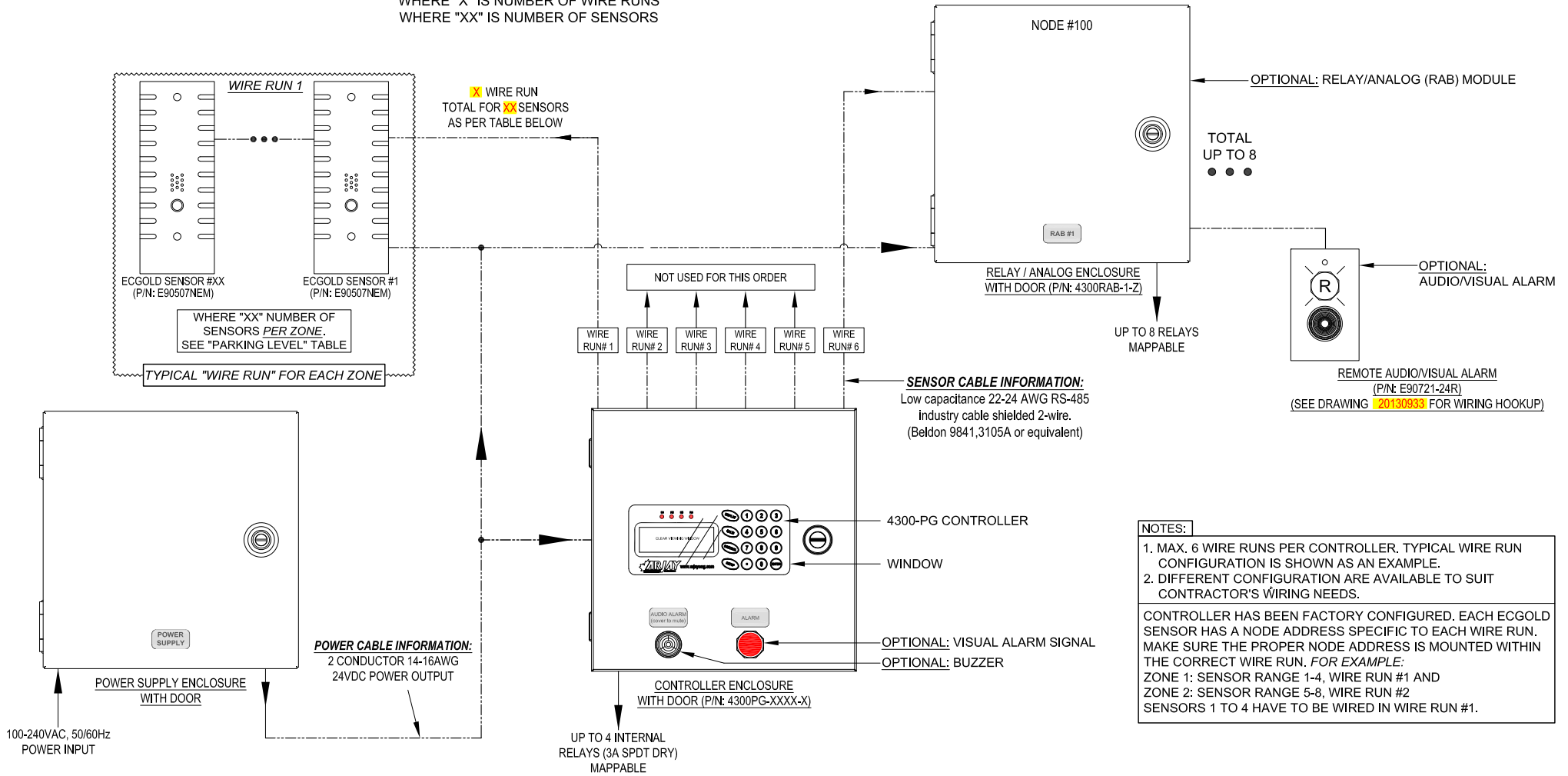
**+1 (905) 829-2418**

**[www.arjayeng.com](http://www.arjayeng.com)**



**CAUTION!!**  
DAISY CHAIN ONLY (**NO** T-TAPS)  
ON EACH COMMUNICATION  
WIRE RUN (CHANNEL).

WHERE "X" IS NUMBER OF WIRE RUNS  
WHERE "XX" IS NUMBER OF SENSORS



**NOTES:**

- MAX. 6 WIRE RUNS PER CONTROLLER. TYPICAL WIRE RUN CONFIGURATION IS SHOWN AS AN EXAMPLE.
- DIFFERENT CONFIGURATION ARE AVAILABLE TO SUIT CONTRACTOR'S WIRING NEEDS.

CONTROLLER HAS BEEN FACTORY CONFIGURED. EACH EC-GOLD SENSOR HAS A NODE ADDRESS SPECIFIC TO EACH WIRE RUN. MAKE SURE THE PROPER NODE ADDRESS IS MOUNTED WITHIN THE CORRECT WIRE RUN. *FOR EXAMPLE:*  
ZONE 1: SENSOR RANGE 1-4, WIRE RUN #1 AND  
ZONE 2: SENSOR RANGE 5-8, WIRE RUN #2  
SENSORS 1 TO 4 HAVE TO BE WIRED IN WIRE RUN #1.

**GENERAL NOTES:**

- DIMENSIONS ARE IN mm [inches].
- TOLERANCE +1mm (0.04 inches).
- CONTROLLER ENCLOSURE:
  - MATERIAL: NEMA 1 STEEL ENCLOSURE WITH POLYESTER POWDER BLUE (RAL5015) PAINT.
  - MODEL: EXM 1100 W101004.
  - OUTSIDE DIMENSIONS: 254 X 254 X 101.6D (10 X 10 X 4D).
  - MOUNTING DIMENSIONS: 215.9 X 215.9 (8.5 X 8.5).
- POWER SUPPLY & RELAY/ANALOG ENCLOSURE:
  - MATERIAL: NEMA 1 STEEL ENCLOSURE WITH POLYESTER POWDER GRAY (ANSI 61) PAINT.
  - MODEL: HAMMOND CHKO101004.
  - OUTSIDE DIMENSIONS: 254 X 254 X 101.6D (10 X 10 X 4D).
  - MOUNTING DIMENSIONS: 177.8 X 228.6 (7 X 9).

**PARKING LEVEL:**

WHERE "XX" IS NUMBER OF SENSORS

Total **XX** EC-Gold Sensors

ZONE #	PARKING LEVEL	WIRE RUN #	SENSOR RANGE	ZONE #	PARKING LEVEL	WIRE RUN #	SENSOR RANGE
1	-	-	-	9	-	-	-
2	-	-	-	10	-	-	-
3	-	-	-	11	-	-	-
4	-	-	-	12	-	-	-
5	-	-	-	13	-	-	-
6	-	-	-	14	-	-	-
7	-	-	-	15	-	-	-
8	-	-	-	16	-	-	-

REV	DATE	DESCRIPTION	CHKD	APPD
3	05/08/21	UPDATED		
2	07/03/18	UPDATED		
1	19/02/15	UPDATED		

**REVISIONS**

PROJECT: STANDARD DRAWING

**ARJAY ENGINEERING**

TITLE: 4300-PG GAS MONITOR PART# 4300-PG-1XXX-X SYSTEM OVERVIEW DRAWING

DWG. STATUS	BY	DATE	TITLE
DRAWN	F.H.	30/09/13	4300-PG GAS MONITOR PART# 4300-PG-1XXX-X SYSTEM OVERVIEW DRAWING
CHECKED			
APPROVED			
SCALE	REF. DWGS.	DWG. NO.	PART NO.
N.T.S.		20130930	

SHT. 1 REV. 3

TYPICAL "WIRE RUN" FOR EACH ZONE

SEE NOTE A

**CAUTION!!**  
DAISY CHAIN ONLY (**NO** T-TAPS)  
ON EACH COMMUNICATION  
WIRE RUN (CHANNEL).

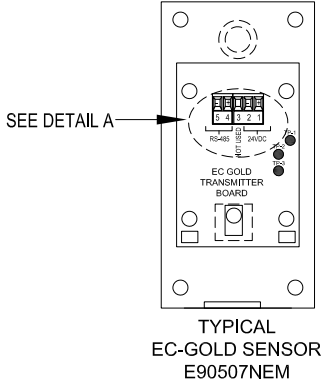
WIRE RUNS  
TOTAL FOR XX SENSORS  
AS PER TABLE IN DWG 20130930.

**SENSOR CABLE INFORMATION:**  
Low capacitance 22-24 AWG RS-485  
industry cable shielded 2-wire.  
(Beldon 9841.3105A or equivalent)

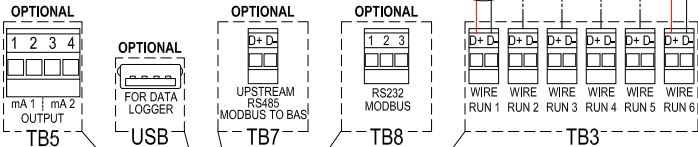
1 - RS485  
2 + NTKW  
3 - 24VDC  
PWR  
4 + INPUT

DETAIL B (SEE DWG 20130932)  
RAB BOARD # 1 (OPTIONAL)  
4300RAB-1-Z  
NODE #100

TOTAL  
UP TO 8

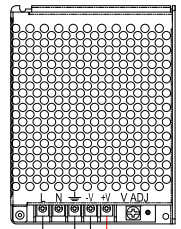


WHERE "XX" NUMBER OF  
SENSORS PER ZONE.  
SEE TABLE "PARKING LEVEL"  
IN DWG 20130930.



OTHER SIZE POWER SUPPLY  
AVAILABLE (DEPEND ON  
NUMBER OF SENSOR AND  
RAB BOARD ORDERED)

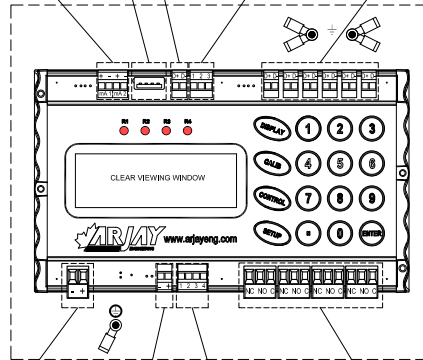
3.2A  
POWER SUPPLY  
(P/N: E90680)



POWER SUPPLY  
ENCLOSURE

**POWER CABLE INFORMATION:**  
2 CONDUCTOR 14-16AWG  
24VDC POWER OUTPUT

100-240VAC, 50/60Hz  
POWER INPUT



\* SHIELD MUST BE GROUNDED  
TO EARTH GROUND AT  
MAIN CONTROL PANEL  
TYPICAL FOR ALL SENSOR CABLE

CONTROLLER  
SUB PLATE

**NOTES:**

- MAX. 6 WIRE RUNS PER CONTROLLER. TYPICAL WIRE RUN CONFIGURATION IS SHOWN AS AN EXAMPLE.
- DIFFERENT CONFIGURATION ARE AVAILABLE TO SUIT CONTRACTOR'S WIRING NEEDS.

CONTROLLER HAS BEEN FACTORY CONFIGURED. EACH ECGOLD SENSOR HAS A NODE ADDRESS SPECIFIC TO EACH WIRE RUN. MAKE SURE THE PROPER NODE ADDRESS IS MOUNTED WITHIN THE CORRECT WIRE RUN. FOR EXAMPLE:  
ZONE 1: SENSOR RANGE 1-4, WIRE RUN #1 AND  
ZONE 2: SENSOR RANGE 5-8, WIRE RUN #2  
SENSORS 1 TO 4 HAVE TO BE WIRED IN WIRE RUN #1.

**NOTE A**

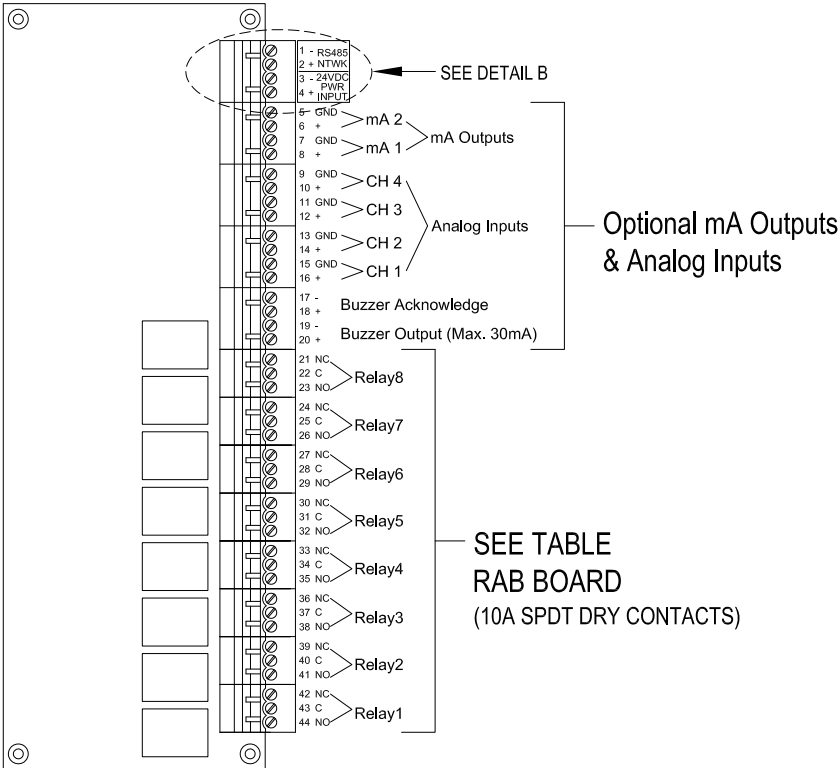
RS485 SHIELD MUST BE WIRED TOGETHER AT ALL SENSORS AS WELL AS IN ANY SPLITTER BOXES USED.

REV	DATE	DESCRIPTION	CHKD	APPD
3	05/08/21	UPDATED		
2	07/03/18	UPDATED		
1	19/02/15	UPDATED		

REVISIONS				
DWG. STATUS		BY	DATE	TITLE
DRAWN		F.H.	30/09/13	4300-PG GAS MONITOR PART# 4300-PG-1XXX-X ELECTRICAL OVERVIEW DRAWING
CHECKED				
APPROVED				
SCALE	REF. DWGS.	DWG. NO.	PART NO.	SHT. REV.
N.T.S.		20130931		1 3

RAB BOARD #1 (NODE # 100) - WIRE RUN # 6				
RELAY#	FACTORY SETTING			
	ZONE \ LEVEL	ALARM LEVEL	PPM LEVEL	TIME DELAY
8				
7				
6				
5				
4				
3				
2				
1				

SPECIFY INFORMATION AT THE TIME OF ORDER



**NOTE**  
RAB IS FACTORY CONFIGURED FOR WIRE RUN 6. RABS CAN BE RE-WIRED ON ANY "WIRE RUN" BUT MUST BE CONFIGURED AT 4300-PG CONTROLLER. MAXIMUM 8 RAB BOARDS PER SYSTEM.

**NOTE:**  
RELAYS ARE ENERGIZED (FAILSAFE) UNDER NORMAL CONDITIONS.

RELAY/ANALOG RAB  
4300RAB-1-Z

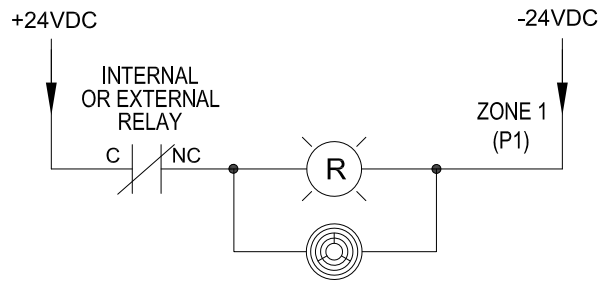
REV	DATE	DESCRIPTION	CHKD	APPD
3	05/08/21	UPDATED		
2	07/03/18	UPDATED		
1	19/02/15	UPDATED		

REVISIONS				
		PROJECT		
		STANDARD DRAWING		
DWG. STATUS		BY	DATE	TITLE
DRAWN		F.H.	30/09/13	4300-PG GAS MONITOR PART# 4300RAB-1-Z RELAY HOOKUP DRAWING
CHECKED				
APPROVED				
SCALE	REF. DWGS.	DWG. NO.	PART NO.	SHT. REV.
N.T.S.		20130932		1 3

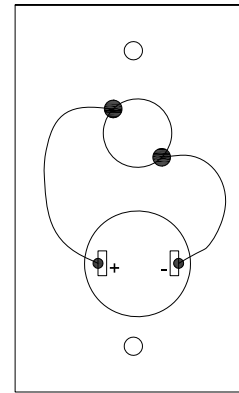
**NOTE**

ALL REMOTE AUDIO/VISUAL SWITCHPLATES ARE HOOKED UP ON INTERNAL CONTROLLER RELAYS or IT CAN BE HOOKED UP ON EXTERNAL RAB RELAY

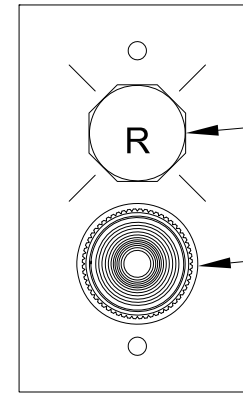
**TYPICAL WIRING FOR EACH PHASE**



QTY= 1  
E90721-24R  
(One for each parking level)



AUDIO / VISUAL  
E90721-24R  
(BACK VIEW)



AUDIO / VISUAL  
E90721-24R  
(FRONT VIEW)

SWITCH PLATE  
EL402 1FB

RED LED LIGHT

BUZZER  
COVER TO MUTE

REV	DATE	DESCRIPTION	CHK'D	APP'D
3	05/08/21	UPDATED		
2	07/03/18	UPDATED		
1	19/02/15	UPDATED		

REVISIONS

		PROJECT		STANDARD DRAWING	
		TITLE		4300-PG GAS MONITOR PART# E90721-24R AUDIO / VISUAL HOOKUP DRAWING	
DWG. STATUS	BY	DATE		SCALE	REF. DWGS.
DRAWN	F.H.	30/09/13		N.T.S.	
CHECKED				DWG. NO.	PART NO.
APPROVED				20130933	
				SHT.	REV.
				1	3



# WARRANTY & GUARANTEE STATEMENT

With options for:           Extended Warranty by Purchase  
                                  Extended Warranty by Start-Up Service  
                                  New Home Warranty Act

**Seller's Express Warranty.** Seller warrants the Purchased Items to be free from defects in materials and workmanship under normal use and service for a period of one year from time of purchase. Seller further warrants that it will perform the Services in a professional and workmanlike manner. Buyer agrees that it has the sole responsibility for the proper selection, application, installation, and/or use of the Purchased Items and for instructions to ultimate users, if any, concerning use, application, periodic maintenance, and cautions regarding the Purchased Items. Buyer agrees that the warranties provided herein shall not apply to any Purchased Item which: (1) has been repaired or altered outside of Seller's factory in any way so as, in Seller's judgment, to affect such Purchased Item's reliability; (2) has been subject to misuse, negligence, or accident; (3) has been operated other than in accordance with the applicable printed instructions provided by Seller; or (4) has been subject to wear of wetted or reactive parts caused by Buyer's application of the Purchased Items.

**Seller's Exclusive Obligations Under Warranty.** Seller may, at its option, repair or replace, or refund the purchase price of Purchased Items which shall be returned to Seller, no later than one month after the expiration of the applicable warranty period in the manner set forth in this clause, and which Seller's examination shall disclose to Seller's satisfaction to be defective as specified in the warranty clause hereof.

All such Purchased Items shall be returned to Seller at Oakville, Canada; freight, duty and brokerage prepaid, accompanied, or preceded by a particularized statement of the claimed defect. Under such circumstances and if confirmed warranty applicable by Seller, Seller shall bear the cost of repair or replacement and the risk of loss while the Purchased Items are in Seller's possession at Seller's plant. Seller will return warranty product to Buyer prepaid by a freight method of Seller's discretion. SELLER'S OPTION TO REPAIR, REPLACE, OR REFUND THE PURCHASE PRICE FOR PURCHASED ITEMS IS BUYER'S EXCLUSIVE REMEDY AGAINST SELLER WITH RESPECT TO THE PURCHASED ITEMS. SELLER SHALL NOT BE LIABLE TO BUYER, ITS AGENTS, EMPLOYEES, OFFICERS, OR DIRECTORS, FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES, LOSS OF REVENUE OR PROFIT, OR ANY OTHER INDIRECT DAMAGES RELATED TO THE PURCHASED ITEMS OR SERVICES.

**Fee based extension:**

For an additional fee, the standard factory warranty can be extended. To initiate this process please contact an Arjay Representative to determine price and time allotment.

**Start-up Services extension:**

The basic factory warranty of one year will be extended if the Arjay Start-up services are purchased along with the instruments on the original order. An additional one year of warranty will apply in addition to the standard one year warranty supplied. Carbon Monoxide sensors cells are included in this extended warranty. All other consumable gas sensor cells are excluded from this additional warranty.

**New Home Warranty Act extension:**

If the Arjay Start-up services are purchased along with the instruments on the original order and the instrument is further maintained and calibrated a minimum of once per year during the warranty period by an Arjay Authorized Service company, an additional two years of warranty will apply in addition to the standard one year warranty supplied. This warranty extends to Arjay supplied equipment and includes carbon monoxide sensing cells. All other consumable gas sensor cells are excluded from this additional warranty.

admin/forms/administration/warranty-guarantee June 2 2020

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**Arjay Engineering**

2851 Brighton Road, Oakville, Ontario, Canada L6H 6C9

Telephone: +1 (905)-829-2418 | Telefax: +1 (905)-829-4701 | N. America Toll (800)-387-9487

Website: [www.arjayeng.com](http://www.arjayeng.com) | E-Mail: [arjay@arjayeng.com](mailto:arjay@arjayeng.com)





## Gas Detection Calibration Services

- single visit calibration and repair
- multi-visit contracts with discounts on multi-year
- on-site or in-shop (Oakville, Ontario) services

### **We provide:**

- ✓ fully trained technicians
- ✓ WSIB Certificates
- ✓ full insurance (2 million liability)
- ✓ Calibration Certificates
- ✓ Stock parts in vehicles and Oakville facility
- ✓ Calibration gas certified to NIST Standards

### **Our Technicians have:**

- ✓ Dangerous Goods Handling Certification
- ✓ St. Johns First Aid Training
- ✓ Fall Arrest Training
- ✓ Confined Space Training (special request)
- ✓ WHMIS Training

### **Call for a no obligation quote**

Gas Detection division of Arjay Engineering Ltd.

2851 Brighton Road Oakville, Ontario Canada L6H 6C9

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