CaterSense *the Intelligent answer*

CaterSense -04

GAS SUPPLY CONTROL with MULTI FUNCTION SOLUTIONS

INSTALLATION and COMMISSIONING INSTRUCTIONS

CaterSense *the Intelligent answer*

Product Overview

The CaterSense system is based on a range of products and ancillary equipment design to meet the ever changing requirements of the catering industry and associated regulations.

The system comes in four basic modes, you have selected

CaterSense -04   intelligent controller *with Multi function solutions*

The controller has a unique "self-set" system which makes for easy system commissioning.
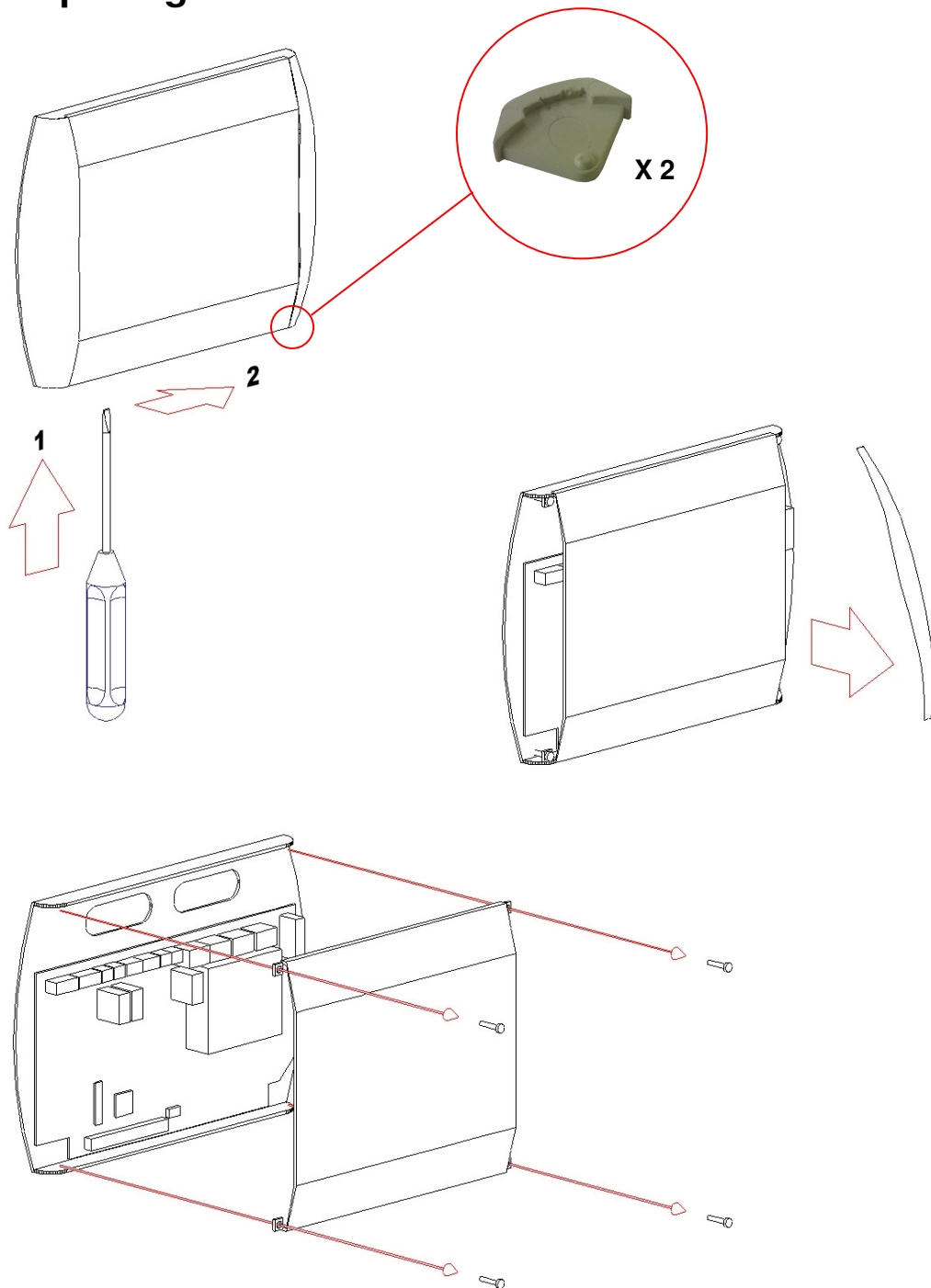
Contents

1.0 General Information

1.01 Opening the unit

X 2

1)   To open the enclosure, first remove the snap-in clips at the bottom of the two side panels: using a flat bladed screwdriver push the clip from below away from each side panel.

2)   Press the release pad on each side at the bottom of the enclosure and lift off each side panel in turn by first pulling the bottom towards you. This will reveal the four facia plate fixing screws.

CaterSense *the Intelligent answer*

3) Unscrew these four screws and lift the facia plate from the back box **(3)**, ensuring that the ribbon cable between the two PCBs has been unplugged at the main PCB end.

Place the screws, snap-in clips, side panels and facia plate in a safe place until the back box has been fixed, wired and is ready for reassembly and set-up

1.02 Fixing details

The CaterSense unit has six (6) mounting holes which can be used *(as shown below)*

Note: Ensure that the enclosure is mounted on a clean and level surface away from the direct cooking area or wet surfaces.
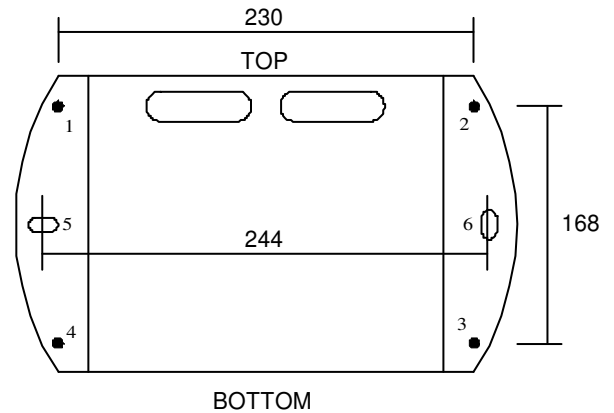
1.03 Cable entry

The CaterSense unit has two knock-out slots in the back of the enclosure *(located at the top)* to enable back entry. The enclosure has an area 190 x 25 mm which can be drilled for conduit entry on the top edge of the enclosure.

DETAIL OF SLOT KNOCK-OUTS
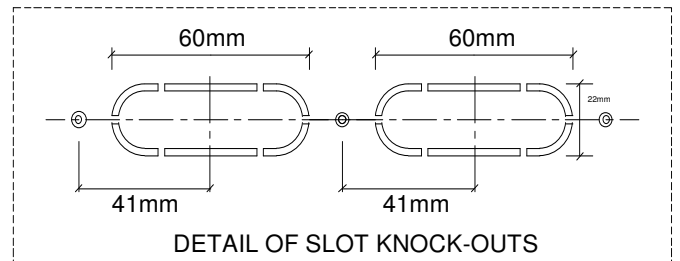
## 1.04 Electrical connections

The CaterSense system has two sets of terminals all mounted along the top edge of the main PCB circuit board.

Terminals 1 to 22   are the smaller terminals (1.5 mm² cable) and are used for the sensors, inter-locking devices, remote speed and on/off control. (Screened cable must be used)

Terminals 29 to 34   are the larger terminals (4 mm² cable) and are for the power connections for the fans, gas valve and power supply to the unit.

The terminals are of the rising clamp type protection.

All cabling should be kept to the top of the unit within the designated area. No cables should be placed or laid across the PCBs as they may cause damage.
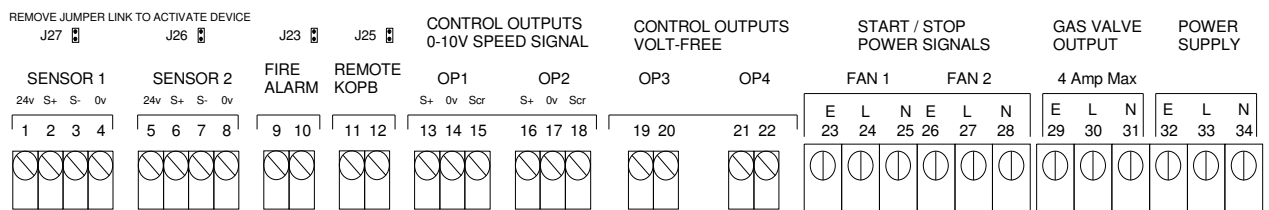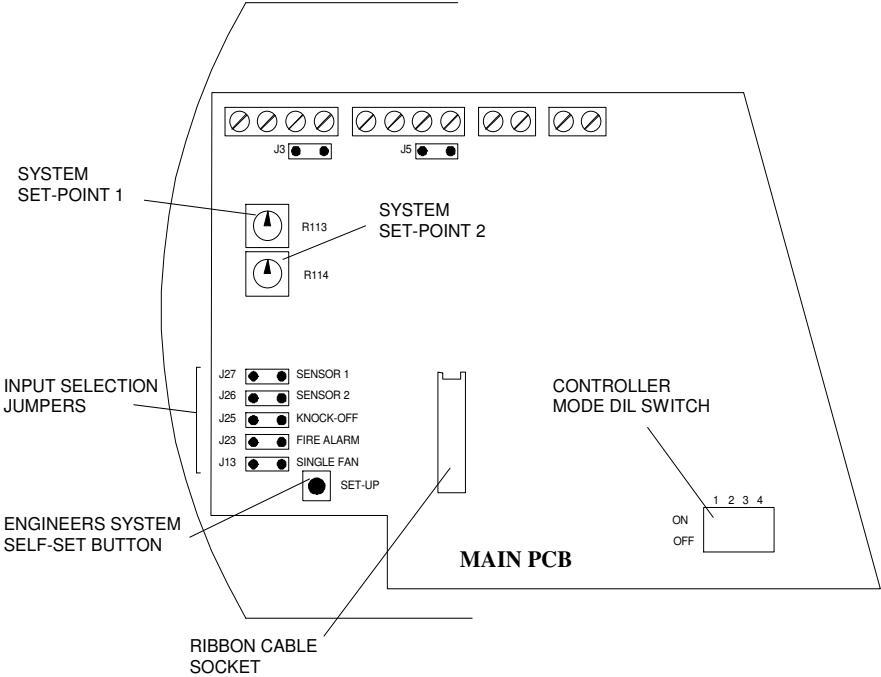
CaterSense *the Intelligent answer*

1.05 System mode and set-up

The CaterSense unit is a number of intelligent control solutions in one controller. Each of the solution types has a "Mode Code" which is set via a DIL switch mounted on the main PCB circuit board. The CaterSense also has a unique "Self-set" system commissioning tool which makes for easy system commissioning.

These devices are located on the left hand side of the main PCB, under the side cover, as detailed below.

Follow the instructions in the next section for your model of CaterSense.
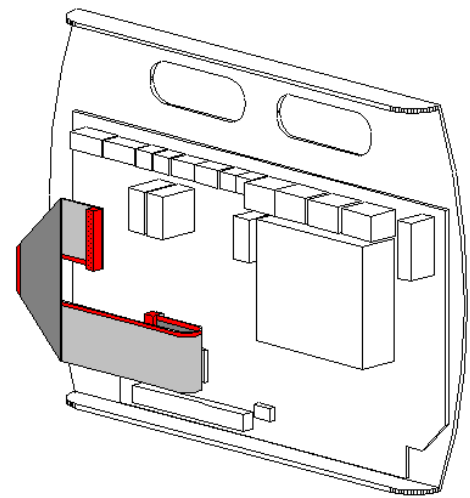
CaterSense *the Intelligent answer*

2.0 Set-up and Commissioning

The set-up and commissioning of your CaterSense system is in two parts, **Initial** and **Mode.**

2.01 Initial Set-up

Once all of the wiring has been completed and tested and the system is ready to be set-up and commissioned, the following sequence **MUST** be followed to ensure the CaterSense and system operate correctly.

a) **DIL Mode switch,** Ensure the correct system code has been selected on the DIL switch. This code is detailed on the System Mode page for your installation.

b) **Input Jumpers,** Ensure that the correct input jumpers have been removed as detailed on the System Mode page for your installation and jumper J13 is fitted if a single fan is being used.

c) **Sensor Links,** If you are using four wire sensors in place of three wire type, remove Link **J3 & J5** as detailed on the System Mode page for your installation.

d) Ensure that fire alarm and knock-off switches (if fitted) are all in the operational position.

e) Refit the CaterSense facia plate by plugging in the ribbon cable and fixing the four screws. **NOTE:** Ensure the ribbon cable is plugged in correctly with the key pin at the top *(see: ribbon diagram for further information).*
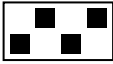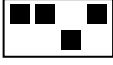
CaterSense *the Intelligent answer*

2.02 Mode Set-up – CaterSense 4

Once the above has been carried out, the system is now ready to be powered up.

The CaterSense unit is an intelligent unit with a self-set system and multi function LED indication. Within the next sequence of set-up instructions the CaterSense unit will give you feedback on the system and set-up via audible "beeps" and colour change / constant and flashing LEDs in a step by step sequence.

CaterSense 4

CaterSense 4 is a multi function controller with seven (7) pre-programmed controller models in one unit. These seven controllers are selected via the **DIL Mode** switch via a dedicated **Mode Code**.

Mode Code	DIL mode	Description
04-01		SINGLE EXTRACT CANOPY with FAN START / STOP - FPM (Optional SUPPLY FAN)
04-02		SINGLE EXTRACT CANOPY with FAN START / STOP - FPM (Optional SUPPLY FAN) and GAS PRESSURE PROVING
04-03		FOR FUTURE USE
04-04		GAS PRESSURE PROVING with PILOT VALVE (stand alone)
04-05		SINGLE EXTRACT CANOPY with FAN START / STOP - FPM (Optional SUPPLY FAN) and GAS PRESSURE PROVING with PILOT VALVE
04-06		REMOTE FAN CONTROL / AIR FLOW MONITORING STATION with GAS VALVE INTERLOCK
04-07		SINGLE EXTRACT FAN CANOPY - GAS PRESSURE PROVING with TEMPERED SUPPLY AIR CONTROL & FPM (Optional SUPPLY FAN)

CaterSense *the Intelligent answer*

CaterSense – 04   **Single Extract Fan Canopy with Fan Power Monitoring** *(Optional Supply Fan)*

Mode Code 04-01   Set-up and commissioning

Self-Set sequence

The sequence detailed below MUST be followed to enable the CaterSense unit to program its parameters. During the balancing phase of the set-up (1 & 2), ensure that the system is allowed to settle and become stable before moving on to the next stage. DO NOT RUSH.

1)	PRESS	● (box)	☀	SYSTEM CONDITION
	(Hold for 3 secs)		● red	GAS VALVE
			○ yellow	FAN 1, FAN 2
			● green	All other LEDs

Ensure the fans are running at the speed at which they draw least current. THIS IS NOT NECESSARILY THE LOWEST SPEED. IMPORTANT – allow system to run and settle.

2)	PRESS	● (box)	☀	SYSTEM CONDITION
			● red	GAS VALVE
			☀	FAN 1, FAN 2
			● green	All other LEDs

The system will produce a short beep. Change the speed of the fans to the speed at which they draw maximum current. THIS IS NOT NECESSARILY THE HIGHEST SPEED. IMPORTANT – allow system to run and settle.
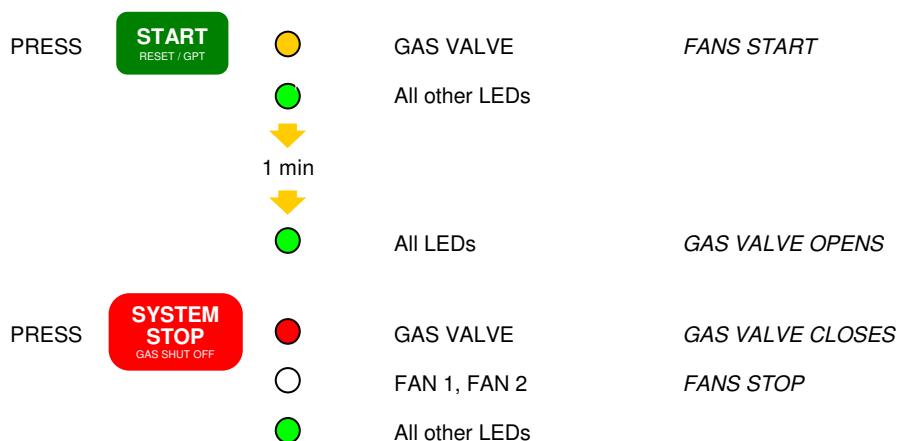
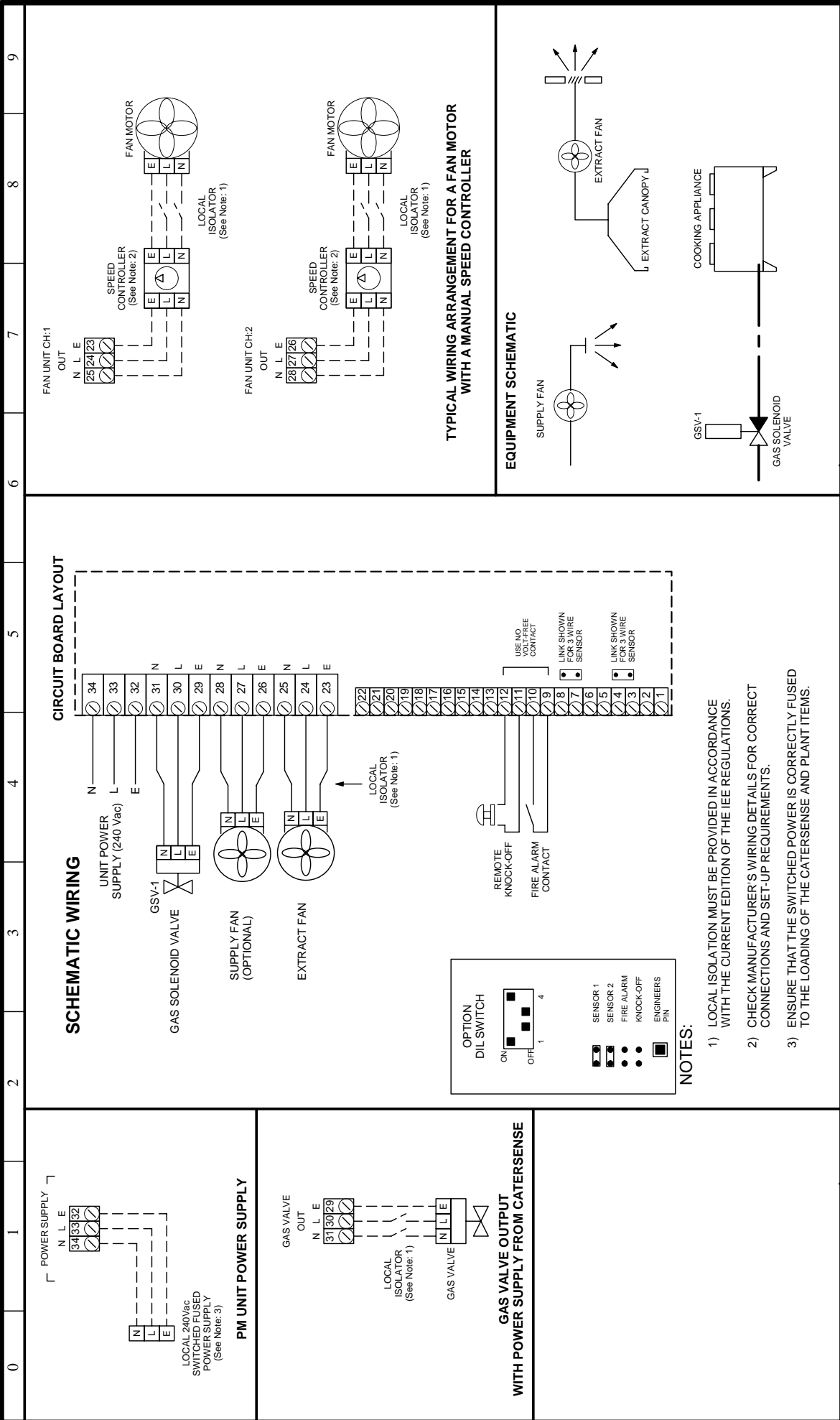|				
3)	PRESS	● (box)	● red	GAS VALVE
			○	FAN 1, FAN 2
			● green	All other LEDs

The system will stop the fans. The set-up is now complete and the system is ready to run.

Note: Please refer to section 2.03 (System Checking) before starting the CaterSense unit to ensure that it has been successfully commissioned.

Functional Operation

The operation of the CaterSense unit and system in this Mode is as follows:

PRESS	**START** RESET / GPT	○ yellow	GAS VALVE	*FANS START*
		● green	All other LEDs	
		⬇ 1 min ⬇		
		● green	All LEDs	*GAS VALVE OPENS*
PRESS	**SYSTEM STOP** GAS SHUT OFF	● red	GAS VALVE	*GAS VALVE CLOSES*
		○	FAN 1, FAN 2	*FANS STOP*
		● green	All other LEDs	

SCHEMATIC WIRING

FAN UNIT CH:1 OUT — N L E — 25 24 23
SPEED CONTROLLER (See Note: 2)
LOCAL ISOLATOR (See Note: 1)
FAN MOTOR — E L N

FAN UNIT CH:2 OUT — N L E — 28 27 26
SPEED CONTROLLER (See Note: 2)
LOCAL ISOLATOR (See Note: 1)
FAN MOTOR — E L N

TYPICAL WIRING ARRANGEMENT FOR A FAN MOTOR WITH A MANUAL SPEED CONTROLLER

EQUIPMENT SCHEMATIC

SUPPLY FAN
EXTRACT FAN
EXTRACT CANOPY
COOKING APPLIANCE
GSV-1
GAS SOLENOID VALVE

CIRCUIT BOARD LAYOUT

N 34 L 33 E 32 N 31 L 30 E 29 N 28 L 27 E 26 N 25 L 24 E 23
22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

UNIT POWER SUPPLY (240 Vac)
GSV-1 — GAS SOLENOID VALVE
SUPPLY FAN (OPTIONAL) — N L E
EXTRACT FAN — N L E
LOCAL ISOLATOR (See Note: 1)

USE NO VOLT-FREE CONTACT
LINK SHOWN FOR 3 WIRE SENSOR
LINK SHOWN FOR 3 WIRE SENSOR

REMOTE KNOCK-OFF
FIRE ALARM CONTACT

OPTION DIL SWITCH
ON / OFF — 1 4
SENSOR 1
SENSOR 2
FIRE ALARM
KNOCK-OFF
ENGINEERS PIN

NOTES:

1) LOCAL ISOLATION MUST BE PROVIDED IN ACCORDANCE WITH THE CURRENT EDITION OF THE IEE REGULATIONS.

2) CHECK MANUFACTURER'S WIRING DETAILS FOR CORRECT CONNECTIONS AND SET-UP REQUIREMENTS.

3) ENSURE THAT THE SWITCHED POWER IS CORRECTLY FUSED TO THE LOADING OF THE CATERSENSE AND PLANT ITEMS.

PM UNIT POWER SUPPLY

POWER SUPPLY — N L E — 34 33 32
LOCAL 240Vac SWITCHED FUSED POWER SUPPLY (See Note: 3) — N L E

GAS VALVE OUTPUT WITH POWER SUPPLY FROM CATERSENSE

GAS VALVE OUT — N L E — 31 30 29
LOCAL ISOLATOR (See Note: 1)
GAS VALVE — N L E

IF IN DOUBT, ASK

TRENT
PRODUCTS
Tel: 01782 - 844688   Fax: 01782 - 844772

DATE:	DRAWING №:	DRAWN BY
05/01/06	CATERSENSE - 4 WD-04-01	MAE

CATERSENSE -4 (04-01) WIRING & CONNECTION DIAGRAM

CaterSense *the Intelligent answer*

CaterSense – 04   **Single Extract Fan Canopy with Fan Power Monitoring and Gas Pressure Proving *(Optional Supply Fan)***

Mode Code 04-02   **Set-up and commissioning**

Self-Set sequence

The sequence detailed below MUST be followed to enable the CaterSense unit to program its parameters. During the balancing phase of the set-up (4 & 5), ensure that the system is allowed to settle and become stable before moving on to the next stage. DO NOT RUSH.

1) PRESS ▣ ☀ SYSTEM CONDITION

(Hold for 3 secs) ● GAS VALVE

○ FAN 1, FAN 2

● All other LEDs

2) PRESS **START** RESET / GPT ☀ GAS VALVE

The gas valve will open for a maximum of 5 minutes to allow for system checking.

3) PRESS **START** RESET / GPT ○ GAS VALVE

⬇

10 sec

⬇

● GAS VALVE

⬇

30 sec

⬇

☀ SYSTEM CONDITION

4) PRESS ▣ ☀ SYSTEM CONDITION

● GAS VALVE

○ FAN 1, FAN 2

● All other LEDs

Ensure the fans are running at the speed at which they draw least current. THIS IS NOT NECESSARILY THE LOWEST SPEED. IMPORTANT – allow system to run and settle.

5) PRESS ▣ ☀ SYSTEM CONDITION

● GAS VALVE

☀ FAN 1, FAN 2

● All other LEDs

CaterSense *the Intelligent answer*

The system will produce a short beep. Change the speed of the fans to the speed at which they draw maximum current. THIS IS NOT NECESSARILY THE HIGHEST SPEED. IMPORTANT – allow system to run and settle.

6) PRESS ▣ 🔴 GAS VALVE

⚪ FAN 1, FAN 2

🟢 All other LEDs

The system will stop the fans. The set-up is now complete and the system is ready to run.

Note: Please refer to section 2.03 (System Checking) before starting the CaterSense unit to ensure that it has been successfully commissioned.

Functional Operation

The operation of the CaterSense unit and system in this Mode is as follows:

PRESS **START** RESET / GPT 🟡 GAS VALVE *GAS VALVE OPENS*

🟢 All other LEDs *FANS START*

⬇

10 sec

⬇

🔴 GAS VALVE *GAS VALVE CLOSES*

⬇

30 sec

⬇

✴ SYSTEM CONDITION

🟡 GAS VALVE

⬇

1 min

⬇

🟢 All LEDs *GAS VALVE OPENS*

PRESS **SYSTEM STOP** GAS SHUT OFF 🔴 GAS VALVE *GAS VALVE CLOSES*

⚪ FAN 1, FAN 2 *FANS STOP*

🟢 All other LEDs

SCHEMATIC WIRING

CIRCUIT BOARD LAYOUT

Terminals: 34 33 32 | 31 30 29 | 28 27 26 | 25 24 23 | 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

- 34 N, 33 L, 32 E — UNIT POWER SUPPLY (240 Vac)
- GSV-1 — GAS SOLENOID VALVE (N L E)
- SUPPLY FAN (OPTIONAL) (N L E)
- EXTRACT FAN (N L E) — LOCAL ISOLATOR (See Note: 1)
- REMOTE KNOCK-OFF
- FIRE ALARM CONTACT
- USE N/O VOLT-FREE CONTACT
- LINK SHOWN FOR 3 WIRE SENSOR
- LINK SHOWN FOR 3 WIRE SENSOR
- GPS-1 (0v, SIG, 24v) — GAS PRESSURE SENSOR

OPTION DIL SWITCH
ON / OFF 1 ... 4

- SENSOR 1
- SENSOR 2
- FIRE ALARM
- KNOCK-OFF
- ENGINEERS PIN

NOTES:

1) LOCAL ISOLATION MUST BE PROVIDED IN ACCORDANCE WITH THE CURRENT EDITION OF THE IEE REGULATIONS.

2) CHECK MANUFACTURER'S WIRING DETAILS FOR CORRECT CONNECTIONS AND SET-UP REQUIREMENTS.

3) ENSURE THAT THE SWITCHED POWER IS CORRECTLY FUSED TO THE LOADING OF THE CATERSENSE AND PLANT ITEMS.

PM UNIT POWER SUPPLY

POWER SUPPLY — N L E — 34 33 32
LOCAL 240Vac SWITCHED FUSED POWER SUPPLY (See Note: 3) (N L E)

GAS VALVE OUTPUT WITH POWER SUPPLY FROM CATERSENSE

GAS VALVE OUT — N L E — 31 30 29
LOCAL ISOLATOR (See Note: 1)
GAS VALVE (N L E)

GAS VALVE OUTPUT WITH POWER SUPPLY FROM CATERSENSE VIA CS-GVJB-01

CS-GVJB-01 — 1 4 2 E
PRESSURE SENSOR GPS-1
RED / BLACK / WHITE
29 30 31
GAS VALVE (N L E)

TYPICAL WIRING ARRANGEMENT FOR A FAN MOTOR WITH A MANUAL SPEED CONTROLLER

FAN UNIT CH:1 OUT — N L E — 25 24 23
SPEED CONTROLLER (See Note: 2) (E L N)
LOCAL ISOLATOR (See Note: 1) (E L N)
FAN MOTOR (E L N)

FAN UNIT CH:2 OUT — N L E — 28 27 26
SPEED CONTROLLER (See Note: 2) (E L N)
LOCAL ISOLATOR (See Note: 1) (E L N)
FAN MOTOR (E L N)

EQUIPMENT SCHEMATIC

- SUPPLY FAN
- EXTRACT FAN
- EXTRACT CANOPY
- COOKING APPLIANCE
- GSV-1 — GAS SOLENOID VALVE
- GPS-1 — GAS PRESSURE SENSOR

TRENT
PRODUCTS

Tel: 01782 - 844688   Fax: 01782 - 844772

IF IN DOUBT, ASK

CATERSENSE -4 (04-02)
WIRING & CONNECTION DIAGRAM

DATE:	DRAWING No:	DRAWN BY
05/01/06	CATERSENSE - 4 WD-04-02	MAE

CaterSense *the Intelligent answer*

CaterSense – 04   Gas Pressure Proving System with Pilot Valve

Mode Code 04-04   Set-up and commissioning

Self-Set sequence

The sequence detailed below MUST be followed to enable the CaterSense unit to program its parameters.

1)	PRESS	⬛	🌟 (yellow)	SYSTEM CONDITION
	(Hold for 3 secs)		🔴	GAS VALVE
			⚪	FAN 1, FAN 2
			🟢	All other LEDs

2)	PRESS	**START** RESET / GPT	🌟 (red)	GAS VALVE

The main gas valve will open for a maximum of 5 minutes to allow for system checking.

3)	PRESS	**START** RESET / GPT	🟡	GAS VALVE
			⬇	
			10 sec	
			⬇	
			🔴	GAS VALVE
			⬇	
			30 sec	
			⬇	
			🌟 (green)	SYSTEM CONDITION

During the gas pressure proving test sequence, only the pilot valve will operate.

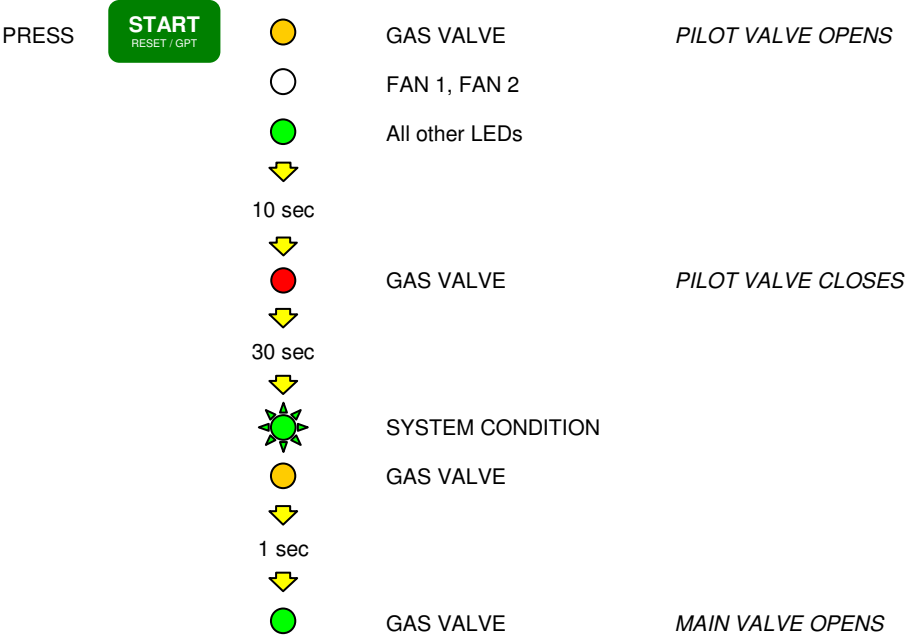|				
4)	PRESS	⬛	🔴	GAS VALVE
			⚪	FAN 1, FAN 2
			🟢	All other LEDs

The set-up is now complete and the system is ready to run.

Note: Please refer to section 2.03 (System Checking) before starting the CaterSense unit to ensure that it has been successfully commissioned.
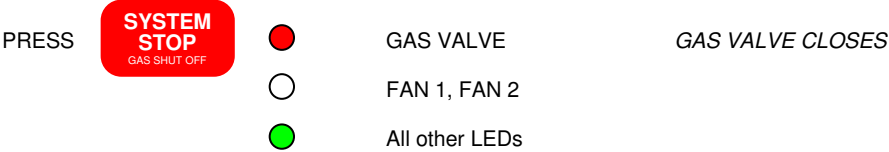
CaterSense *the Intelligent answer*
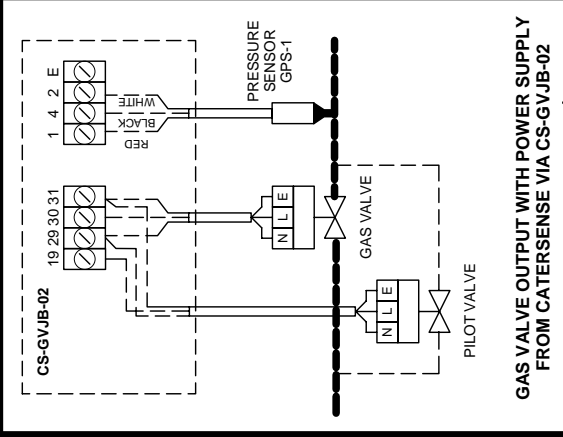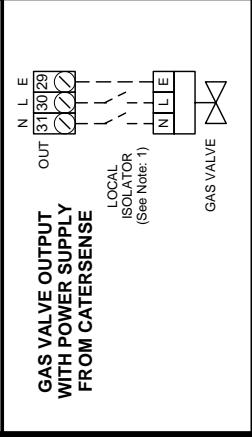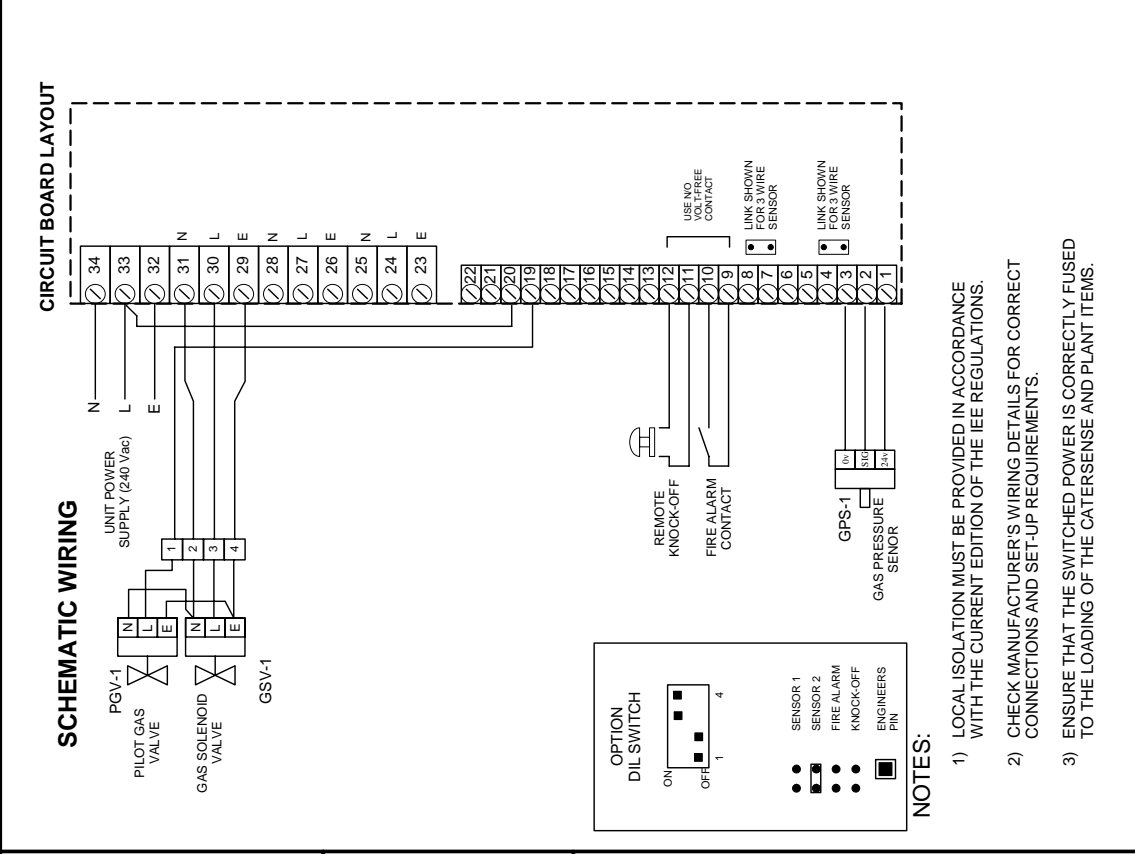
Functional Operation

The operation of the CaterSense unit and system in this Mode is as follows:

PRESS	**START** RESET / GPT	🟡	GAS VALVE	*PILOT VALVE OPENS*
		⚪	FAN 1, FAN 2	
		🟢	All other LEDs	
		⬇		
		10 sec		
		⬇		
		🔴	GAS VALVE	*PILOT VALVE CLOSES*
		⬇		
		30 sec		
		⬇		
		🟢	SYSTEM CONDITION	
		🟡	GAS VALVE	
		⬇		
		1 sec		
		⬇		
		🟢	GAS VALVE	*MAIN VALVE OPENS*

During the gas pressure proving test, only the pilot valve will operate. The main gas valve will open at the end of a successful gas pressure proving test.

PRESS	**SYSTEM STOP** GAS SHUT OFF	🔴	GAS VALVE	*GAS VALVE CLOSES*
		⚪	FAN 1, FAN 2	
		🟢	All other LEDs	

The gas valve will close.

SCHEMATIC WIRING

CIRCUIT BOARD LAYOUT

UNIT POWER SUPPLY (240 Vac)

N
L
E

34 33 32 31 30 29 28 27 26 25 24 23 | 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

PGV-1
PILOT GAS VALVE

GAS SOLENOID VALVE
GSV-1

1 2 3 4

N L E
N L E

REMOTE KNOCK-OFF

FIRE ALARM CONTACT

USE NO VOLT-FREE CONTACT

LINK SHOWN FOR 3 WIRE SENSOR

LINK SHOWN FOR 3 WIRE SENSOR

GPS-1
GAS PRESSURE SENOR

0v
SIG
24v

OPTION DIL SWITCH

ON
OFF

1   4

SENSOR 1
SENSOR 2
FIRE ALARM
KNOCK-OFF
ENGINEERS PIN

NOTES:

1) LOCAL ISOLATION MUST BE PROVIDED IN ACCORDANCE WITH THE CURRENT EDITION OF THE IEE REGULATIONS.

2) CHECK MANUFACTURER'S WIRING DETAILS FOR CORRECT CONNECTIONS AND SET-UP REQUIREMENTS.

3) ENSURE THAT THE SWITCHED POWER IS CORRECTLY FUSED TO THE LOADING OF THE CATERSENSE AND PLANT ITEMS.

POWER SUPPLY

N L E
34 33 32

LOCAL 240Vac SWITCHED FUSED POWER SUPPLY
(See Note: 3)

PM UNIT POWER SUPPLY

GAS VALVE OUTPUT WITH POWER SUPPLY FROM CATERSENSE

N L E
31 30 29
OUT

LOCAL ISOLATOR
(See Note: 1)

N L E

GAS VALVE

CS-GVJB-02

1 4 2 E

RED
BLACK
WHITE

PRESSURE SENSOR GPS-1

19 29 30 31

N L E

GAS VALVE

N L E

PILOT VALVE

GAS VALVE OUTPUT WITH POWER SUPPLY FROM CATERSENSE VIA CS-GVJB-02

EQUIPMENT SCHEMATIC

COOKING APPLIANCE

GPS-1
GAS PRESSURE SENSOR

GSV-1

GAS SOLENOID VALVE

PGV-1
PILOT GAS VALVE

TRENT

PRODUCTS

Tel: 01782 - 844688   Fax: 01782 - 844772

IF IN DOUBT, ASK

CATERSENSE -4 (04-04)
WIRING & CONNECTION DIAGRAM

DATE: 05/01/06

DRAWING No: CATERSENSE - 4
WD-04-04

DRAWN BY: MAE

CaterSense *the Intelligent answer*

CaterSense – 04   **Single Extract Fan Canopy with Fan Power Monitoring and Gas Pressure Proving with Pilot Valve *(Optional Supply Fan)***

Mode Code 04-05   Set-up and commissioning

Self-Set sequence

The sequence detailed below MUST be followed to enable the CaterSense unit to program its parameters. During the balancing phase of the set-up (4 & 5), ensure that the system is allowed to settle and become stable before moving on to the next stage. DO NOT RUSH.

1)	PRESS	■	☀ (yellow)	SYSTEM CONDITION
	(Hold for 3 secs)		● (red)	GAS VALVE
			○ (white)	FAN 1, FAN 2
			● (green)	All other LEDs
2)	PRESS	**START** RESET / GPT	☀ (red)	GAS VALVE

The main gas valve will open for a maximum of 5 minutes to allow for system checking.

3)	PRESS	**START** RESET / GPT	◯ (yellow)	GAS VALVE
			⬇ 10 sec ⬇	
			● (red)	GAS VALVE
			⬇ 30 sec ⬇	
			☀ (green)	SYSTEM CONDITION

During the gas pressure proving test sequence, only the pilot valve will operate.

4)	PRESS	■	☀ (green)	SYSTEM CONDITION
			● (red)	GAS VALVE
			◯ (yellow)	FAN 1, FAN 2
			● (green)	All other LEDs

Ensure the fans are running at the speed at which they draw least current. THIS IS NOT NECESSARILY THE LOWEST SPEED. IMPORTANT – allow system to run and settle.

CaterSense *the Intelligent answer*

5)	PRESS	⬛	🟢	SYSTEM CONDITION
			🔴	GAS VALVE
			🟠	FAN 1, FAN 2
			🟢	All other LEDs

The system will produce a short beep. Change the speed of the fans to the speed at which they draw maximum current. THIS IS NOT NECESSARILY THE HIGHEST SPEED. IMPORTANT – allow system to run and settle.

6)	PRESS	⬛	🔴	GAS VALVE
			⚪	FAN 1, FAN 2
			🟢	All other LEDs

The system will stop the fans. The set-up is now complete and the system is ready to run.

Note: Please refer to section 2.03 (System Checking) before starting the CaterSense unit to ensure that it has been successfully commissioned.

Functional Operation

The operation of the CaterSense unit and system in this Mode is as follows:

PRESS	**START** RESET / GPT	🟠	GAS VALVE	*PILOT VALVE OPENS*
		🟢	All other LEDs	*FANS START*
		⬇		
		10 sec		
		⬇		
		🔴	GAS VALVE	*PILOT VALVE CLOSES*
		⬇		
		30 sec		
		⬇		
		🟢	SYSTEM CONDITION	
		🟠	GAS VALVE	
		⬇		
		1 min		
		⬇		
		🟢	All LEDs	*MAIN VALVE OPENS*
PRESS	**SYSTEM STOP** GAS SHUT OFF	🔴	GAS VALVE	*GAS VALVE CLOSES*
		⚪	FAN 1, FAN 2	*FANS STOP*
		🟢	All other LEDs	

SCHEMATIC WIRING

CIRCUIT BOARD LAYOUT

N L E — UNIT POWER SUPPLY (240 Vac)

PGV-1 — PILOT GAS VALVE
GSV-1 — GAS SOLENOID VALVE

SUPPLY FAN (OPTIONAL) — N L E

EXTRACT FAN — N L E — LOCAL ISOLATOR (See Note: 1)

REMOTE KNOCK-OFF

FIRE ALARM CONTACT

GPS-1 — 0v SIG 24v — GAS PRESSURE SENOR — USE NO VOLT-FREE CONTACT — LINK SHOWN FOR 3 WIRE SENSOR — LINK SHOWN FOR 3 WIRE SENSOR

OPTION DIL SWITCH
ON / OFF — 1 ... 4
SENSOR 1
SENSOR 2
FIRE ALARM
KNOCK-OFF
ENGINEERS PIN

NOTES:
1) LOCAL ISOLATION MUST BE PROVIDED IN ACCORDANCE WITH THE CURRENT EDITION OF THE IEE REGULATIONS.
2) CHECK MANUFACTURER'S WIRING DETAILS FOR CORRECT CONNECTIONS AND SET-UP REQUIREMENTS.
3) ENSURE THAT THE SWITCHED POWER IS CORRECTLY FUSED TO THE LOADING OF THE CATERSENSE AND PLANT ITEMS.

POWER SUPPLY
34 33 32 — N L E
LOCAL 240Vac SWITCHED FUSED POWER SUPPLY (See Note: 3)
N L E

PM UNIT POWER SUPPLY
GAS VALVE OUTPUT WITH POWER SUPPLY FROM CATERSENSE
OUT — 31 30 29 — N L E
LOCAL ISOLATOR (See Note: 1)
N L E — GAS VALVE

GAS VALVE OUTPUT WITH POWER SUPPLY FROM CATERSENSE VIA CS-GVJB-02

CS-GVJB-02
19 29 30 31
1 4 2 E
RED / BLACK / WHITE
PRESSURE SENSOR GPS-1
N L E — GAS VALVE
N L E — PILOT VALVE

FAN UNIT CH:1 OUT — N L E — 25 24 23
SPEED CONTROLLER (See Note: 2) — E L N
LOCAL ISOLATOR (See Note: 1) — E L N
FAN MOTOR — E L N

FAN UNIT CH:2 OUT — N L E — 28 27 26
SPEED CONTROLLER (See Note: 2) — E L N
LOCAL ISOLATOR (See Note: 1) — E L N
FAN MOTOR — E L N

TYPICAL WIRING ARRANGEMENT FOR A FAN MOTOR WITH A MANUAL SPEED CONTROLLER

EQUIPMENT SCHEMATIC

SUPPLY FAN
EXTRACT FAN
EXTRACT CANOPY
COOKING APPLIANCE
GPS-1 — GAS PRESSURE SENSOR
GSV-1 — GAS SOLENOID VALVE
PGV-1 — PILOT GAS VALVE

TRENT
PRODUCTS
Tel: 01782 - 844688   Fax: 01782 - 844772

IF IN DOUBT, ASK

CATERSENSE -4 (04-05)
WIRING & CONNECTION DIAGRAM

DATE: 05/01/06

DRAWING No: CATERSENSE - 4 WD-04-05

DRAWN BY: MAE

CaterSense *the Intelligent answer*

CaterSense – 04   Remote fan control / air flow monitoring station with gas valve interlock

Mode Code 04-06   Set-up and commissioning

Self-Set sequence

The sequence detailed below MUST be followed to enable the CaterSense unit to program its parameters. During the balancing phase of the set-up (1), ensure that the system is allowed to settle and become stable before moving on to the next stage. DO NOT RUSH.

1)	PRESS	⬛	☀	SYSTEM CONDITION
	(Hold for 3 secs)		🔴	GAS VALVE
			🟡	FAN 1, FAN 2
			🟢	All other LEDs

Ensure the fan is running at the speed which provides minimum design air flow rate. IMPORTANT – allow system to run and settle.

2)	PRESS	⬛	🔴	GAS VALVE
			⚪	FAN 1, FAN 2
			🟢	All other LEDs

The set-up is now complete and the system is ready to run.

Note: Please refer to section 2.03 (System Checking) before starting the CaterSense unit to ensure that it has been successfully commissioned.

Functional Operation

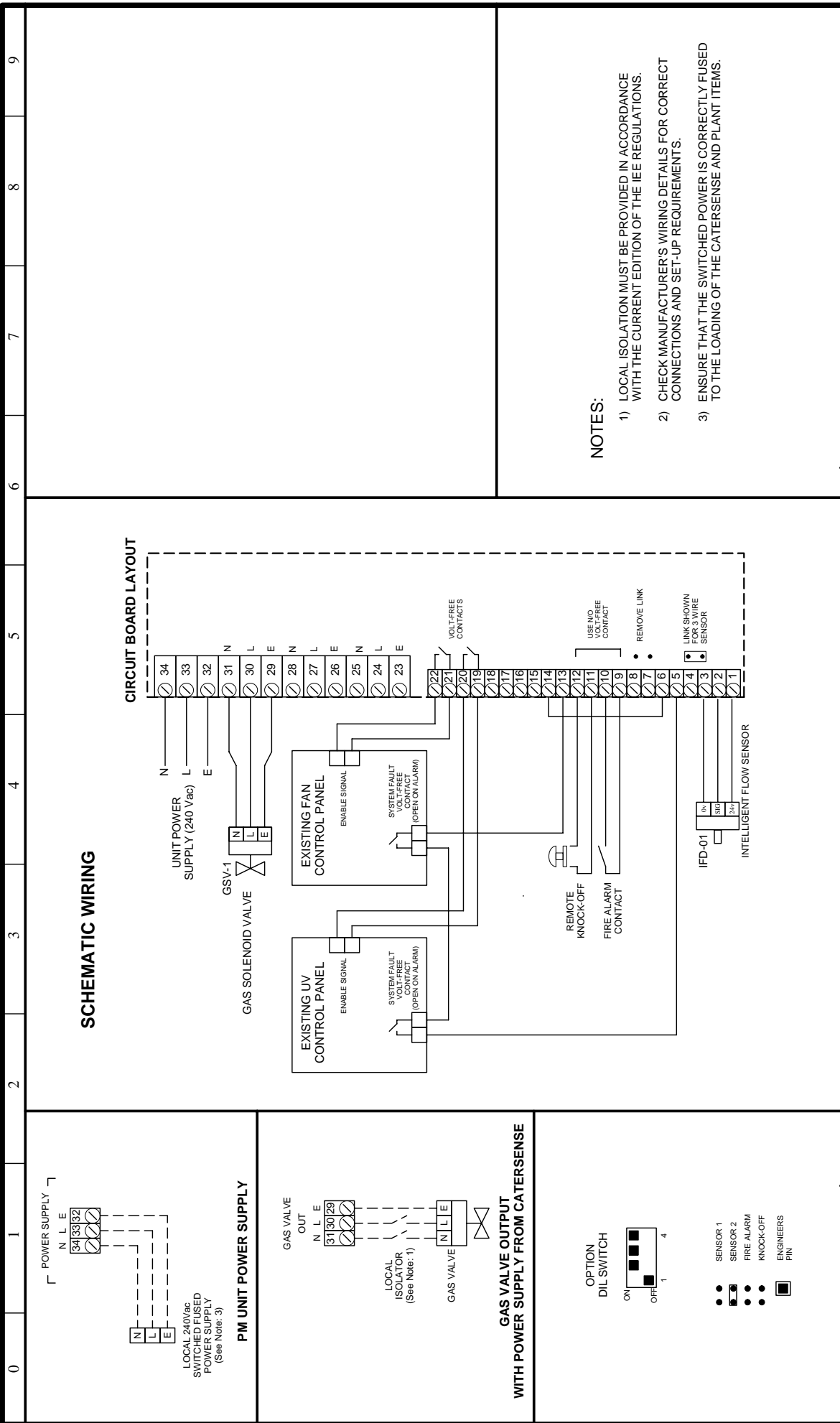The operation of the CaterSense unit and system in this Mode is as follows:

PRESS	**START** RESET / GPT	🟡	GAS VALVE	*REMOTE FAN START*
		🟢	All other LEDs	
		⬇		
		30 sec		
		⬇		
		🟢	All LEDs	*GAS VALVE OPENS*

During operation, the system constantly monitors the airflow sensor, and displays the status with the "FAN 1" LED.

🟢	Airflow HEALTHY
🟡	Airflow LOW
🔴	Airflow CRITICAL

If the airflow falls to the "CRITICAL" level for more than 30s or the remote control panel sends a "FAULT" signal, the system will alarm and the gas valve will close.

PRESS	**SYSTEM STOP** GAS SHUT OFF	🔴	GAS VALVE	*GAS VALVE CLOSES*
		⚪	FAN 1, FAN 2	*REMOTE FAN STOPS*
		🟢	All other LEDs	

SCHEMATIC WIRING

CIRCUIT BOARD LAYOUT

Terminals: 34, 33, 32, 31 (N), 30 (L), 29 (E), 28 (N), 27 (L), 26 (E), 25 (N), 24 (L), 23 (E)

UNIT POWER SUPPLY (240 Vac) — N, L, E

GSV-1
GAS SOLENOID VALVE — N, L, E

EXISTING FAN CONTROL PANEL
- ENABLE SIGNAL
- SYSTEM FAULT VOLT-FREE CONTACT (OPEN ON ALARM)

EXISTING UV CONTROL PANEL
- ENABLE SIGNAL
- SYSTEM FAULT VOLT-FREE CONTACT (OPEN ON ALARM)

Terminals: 22, 21, 20, 19, 18, 17, 16, 15, 14, 13, 12, 11, 10, 9, 8, 7, 6, 5, 4, 3, 2, 1

VOLT-FREE CONTACTS

USE N/O VOLT-FREE CONTACT
REMOVE LINK
LINK SHOWN FOR 3 WIRE SENSOR

REMOTE KNOCK-OFF
FIRE ALARM CONTACT

IFD-01 — 0v, SIG, 24v
INTELLIGENT FLOW SENSOR

POWER SUPPLY
N, L, E — 34 33 32

LOCAL 240Vac SWITCHED FUSED POWER SUPPLY (See Note: 3)

PM UNIT POWER SUPPLY

GAS VALVE OUT
N, L, E — 31 30 29

LOCAL ISOLATOR (See Note: 1)
GAS VALVE — N, L, E

GAS VALVE OUTPUT WITH POWER SUPPLY FROM CATERSENSE

OPTION DIL SWITCH
ON / OFF — 1 ... 4

SENSOR 1
SENSOR 2
FIRE ALARM
KNOCK-OFF
ENGINEERS PIN

NOTES:

1) LOCAL ISOLATION MUST BE PROVIDED IN ACCORDANCE WITH THE CURRENT EDITION OF THE IEE REGULATIONS.

2) CHECK MANUFACTURER'S WIRING DETAILS FOR CORRECT CONNECTIONS AND SET-UP REQUIREMENTS.

3) ENSURE THAT THE SWITCHED POWER IS CORRECTLY FUSED TO THE LOADING OF THE CATERSENSE AND PLANT ITEMS.

TRENT
PRODUCTS
Tel: 01782 - 844688   Fax: 01782 - 844772

IF IN DOUBT, ASK

DATE:	DRAWING No:	DRAWN BY
12/12/06	CATERSENSE - 4 WD-04-06	RR

CATERSENSE -4 (04-06) WIRING & CONNECTION DIAGRAM

CaterSense *the Intelligent answer*

CaterSense – 04   Single Extract Fan Canopy with Fan Power Monitoring, Gas Pressure Proving, and Tempered Supply Air Control

Mode Code 04-07   Set-up and commissioning

Self-Set sequence

The sequence detailed below MUST be followed to enable the CaterSense unit to program its parameters. During the balancing phase of the set-up (4 & 5), ensure that the system is allowed to settle and become stable before moving on to the next stage. DO NOT RUSH.

1)   PRESS   [●]   ☀   SYSTEM CONDITION

     (Hold for 3 secs)   ●   GAS VALVE

                               ○   FAN 1, FAN 2

                               ●   All other LEDs

2)   PRESS   **START** RESET / GPT   ☀   GAS VALVE

The gas valve will open for a maximum of 5 minutes to allow for system checking.

3)   PRESS   **START** RESET / GPT   ◯   GAS VALVE

                               ⬇

                               10 sec

                               ⬇

                               ●   GAS VALVE

                               ⬇

                               30 sec

                               ⬇

                               ☀   SYSTEM CONDITION

4)   PRESS   [●]   ☀   SYSTEM CONDITION

                               ●   GAS VALVE

                               ◯   FAN 1, FAN 2

                               ●   All other LEDs

Ensure the fans are running at the speed at which they draw least current. THIS IS NOT NECESSARILY THE LOWEST SPEED. IMPORTANT – allow system to run and settle.

5)   PRESS   [●]   ☀   SYSTEM CONDITION

                               ●   GAS VALVE

                               ☀   FAN 1, FAN 2

                               ●   All other LEDs

The system will produce a short beep. Change the speed of the fans to the speed at which they draw maximum current. THIS IS NOT NECESSARILY THE HIGHEST SPEED. IMPORTANT – allow system to run and settle.

6)   PRESS   [●]   ● GAS VALVE

○ FAN 1

✴ FAN 2

● All other LEDs

The system will stop fan 1. Fan 2 has a built in run-on timer for heat dissipation, so this will run for 15 minutes. The setpoint for the tempered air control can be adjusted from 18℃ ± 3℃ using pot R114 on the main PCB.
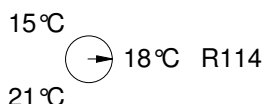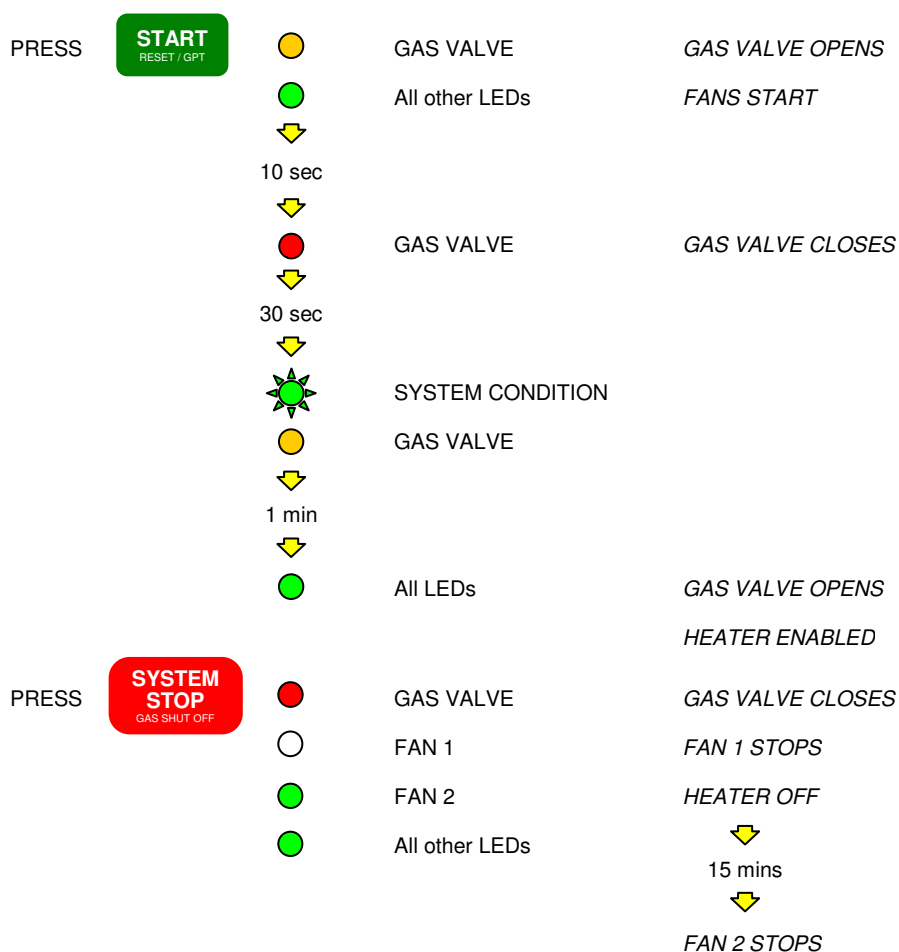
15℃

→ 18℃   R114

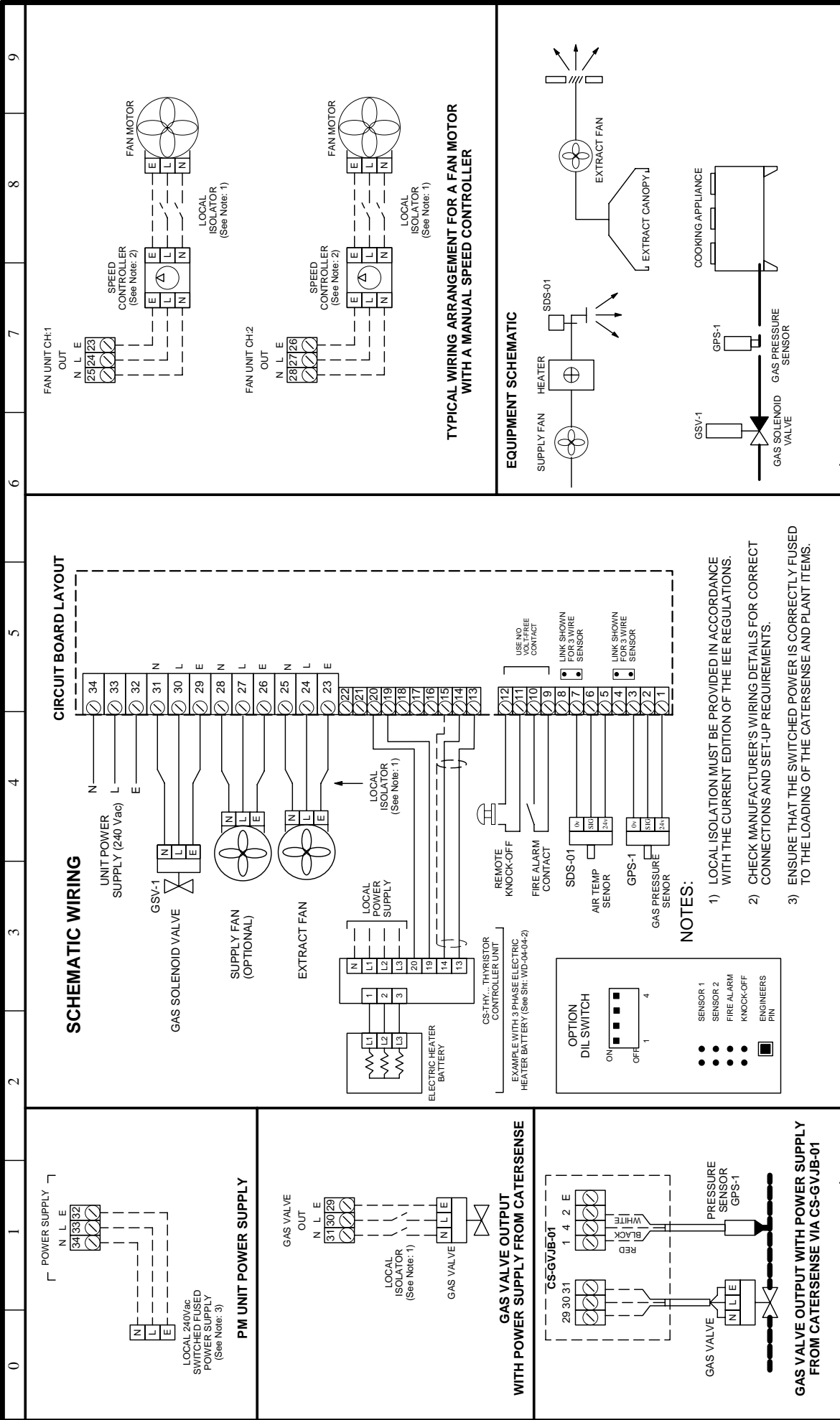21℃

The set-up is now complete and the system is ready to run.

Note: Please refer to section 2.03 (System Checking) before starting the CaterSense unit to ensure that it has been successfully commissioned.

Functional Operation

The operation of the CaterSense unit and system in this Mode is as follows:

PRESS   **START** RESET / GPT   ○ GAS VALVE   *GAS VALVE OPENS*

● All other LEDs   *FANS START*

⬇

10 sec

⬇

● GAS VALVE   *GAS VALVE CLOSES*

⬇

30 sec

⬇

✴ SYSTEM CONDITION

○ GAS VALVE

⬇

1 min

⬇

● All LEDs   *GAS VALVE OPENS*

HEATER ENABLED

PRESS   **SYSTEM STOP** GAS SHUT OFF   ● GAS VALVE   *GAS VALVE CLOSES*

○ FAN 1   *FAN 1 STOPS*

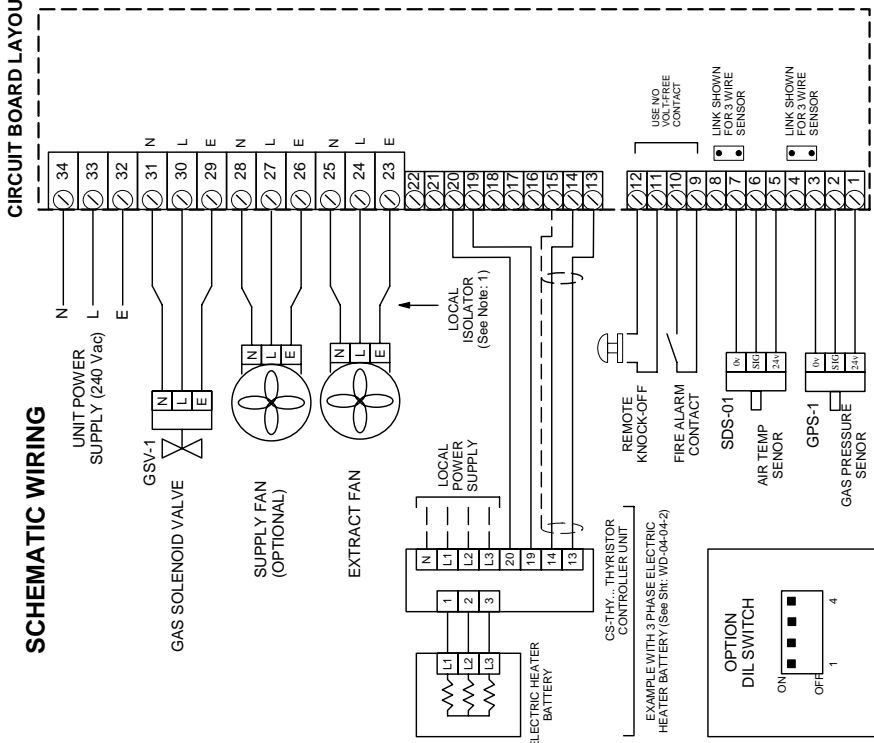● FAN 2   *HEATER OFF*

● All other LEDs   ⬇

15 mins

⬇

FAN 2 STOPS

A modulating signal will be sent to the heater battery to maintain the temperature of the supply air above the setpoint selected during set-up.
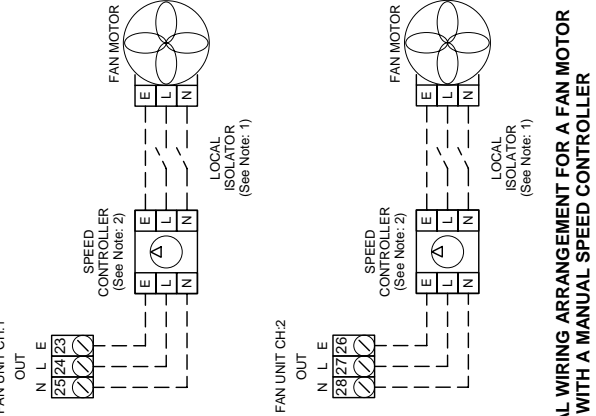
SCHEMATIC WIRING

CIRCUIT BOARD LAYOUT

FAN MOTOR

LOCAL ISOLATOR (See Note: 1)

SPEED CONTROLLER (See Note: 2)

FAN UNIT CH:1
OUT
N L E
25 24 23

FAN MOTOR

LOCAL ISOLATOR (See Note: 1)

SPEED CONTROLLER (See Note: 2)

FAN UNIT CH:2
OUT
N L E
28 27 26

TYPICAL WIRING ARRANGEMENT FOR A FAN MOTOR WITH A MANUAL SPEED CONTROLLER

EQUIPMENT SCHEMATIC

EXTRACT FAN
EXTRACT CANOPY
COOKING APPLIANCE
HEATER
SDS-01
SUPPLY FAN
GSV-1
GPS-1   GAS PRESSURE SENSOR
GAS SOLENOID VALVE

Terminals: 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

UNIT POWER SUPPLY (240 Vac)   N L E
GSV-1   N L E
GAS SOLENOID VALVE
SUPPLY FAN (OPTIONAL)   N L E
EXTRACT FAN   N L E
LOCAL ISOLATOR (See Note: 1)

LOCAL POWER SUPPLY

CS-THY... THYRISTOR CONTROLLER UNIT
EXAMPLE WITH 3 PHASE ELECTRIC HEATER BATTERY (See Sht: WD-04-04-2)
N L1 L2 L3 20 19 14 13
1 2 3
L1 L2 L3
ELECTRIC HEATER BATTERY

REMOTE KNOCK-OFF
FIRE ALARM CONTACT

USE NO VOLT-FREE CONTACT
LINK SHOWN FOR 3 WIRE SENSOR
LINK SHOWN FOR 3 WIRE SENSOR

SDS-01   0v SIG 24v   AIR TEMP SENSOR
GPS-1   0v SIG 24v   GAS PRESSURE SENSOR

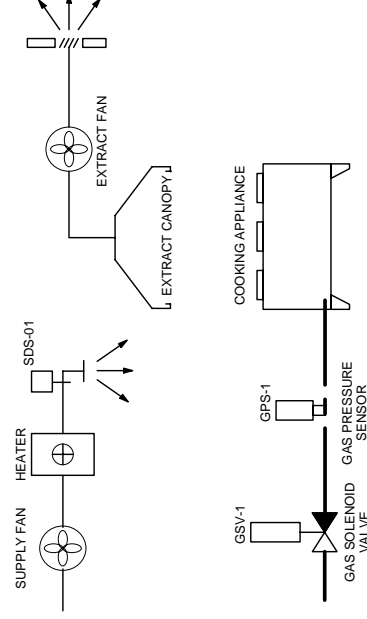### NOTES:

1) LOCAL ISOLATION MUST BE PROVIDED IN ACCORDANCE WITH THE CURRENT EDITION OF THE IEE REGULATIONS.

2) CHECK MANUFACTURER'S WIRING DETAILS FOR CORRECT CONNECTIONS AND SET-UP REQUIREMENTS.

3) ENSURE THAT THE SWITCHED POWER IS CORRECTLY FUSED TO THE LOADING OF THE CATERSENSE AND PLANT ITEMS.

OPTION DIL SWITCH
ON / OFF   1 4
SENSOR 1
SENSOR 2
FIRE ALARM
KNOCK-OFF
ENGINEERS PIN

PM UNIT POWER SUPPLY

POWER SUPPLY
N L E
34 33 32
LOCAL 240Vac SWITCHED FUSED POWER SUPPLY (See Note: 3)
N L E

GAS VALVE OUTPUT WITH POWER SUPPLY FROM CATERSENSE

GAS VALVE OUT
N L E
31 30 29
LOCAL ISOLATOR (See Note: 1)
GAS VALVE   N L E

GAS VALVE OUTPUT WITH POWER SUPPLY FROM CATERSENSE VIA CS-GVJB-01

CS-GVJB-01
1 4 2 E
RED BLACK WHITE
PRESSURE SENSOR GPS-1
29 30 31
N L E
GAS VALVE

IF IN DOUBT, ASK

CATERSENSE -4 (04-07)
WIRING & CONNECTION DIAGRAM

DATE: 05/01/06

DRAWING No: CATERSENSE - 4 WD-04-07

DRAWN BY: MAE

SCHEMATIC WIRING

CIRCUIT BOARD LAYOUT

ELECTRIC HEATER BATTERY THREE PHASE

Terminals: 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 | 12 11 10 9 8 7 6 5 4 3 2 1

N L E — UNIT POWER SUPPLY (240 Vac)

N L E — GSV-1 GAS SOLENOID VALVE

N L E — SUPPLY FAN

N L E — EXTRACT FAN

LOCAL ISOLATOR (See Note: 1)

LOCAL POWER SUPPLY

REMOTE KNOCK-OFF

FIRE ALARM CONTACT

USE N/O VOLT-FREE CONTACT

LINK SHOWN FOR 3 WIRE SENSOR

LINK SHOWN FOR 3 WIRE SENSOR

SDS-01 AIR TEMP SENOR — 0v SIG 24v

GPS-1 GAS PRESSURE SENOR — 0v SIG 24v

CS-THY... THYRISTOR CONTROLLER UNIT

N L1 L2 L3 — 20 19 14 13 | 1 2 3

ELECTRIC HEATER BATTERY — L1 L2 L3

EXAMPLE WITH 3 PHASE ELECTRIC HEATER BATTERY (See Sht: WD-04-04-2)

NOTES:

1) LOCAL ISOLATION MUST BE PROVIDED IN ACCORDANCE WITH THE CURRENT EDITION OF THE IEE REGULATIONS.

2) CHECK MANUFACTURER'S WIRING DETAILS FOR CORRECT CONNECTIONS AND SET-UP REQUIREMENTS.

3) ENSURE THAT THE SWITCHED POWER IS CORRECTLY FUSED TO THE LOADING OF THE CATERSENSE AND PLANT ITEMS.

ELECTRIC HEATER BATTERY SINGLE PHASE + N

LOCAL POWER SUPPLY

CATERSENSE TERMINALS: 20 19 15 14 13

CS-THY... THYRISTOR CONTROLLER UNIT

N L1 — 20 19 14 13 | 1 3

ELECTRIC HEATER BATTERY — L1 N

EXAMPLE WITH SINGLE PHASE + N ELECTRIC HEATER BATTERY (See Sht: WD-04-04-2)

3 PORT LPHW HEATER BATTERY MIXING VALVE

CATERSENSE TERMINALS: 28 27 26

T1

SUPPLY FAN — N L E

LOCAL ISOLATOR (See Note: 1)

FAN HOLD-OFF THERMOSTAT (Capillary type mounted on leaving face of coil)
1 2 4

CATERSENSE TERMINALS: 15 14 13 5

0v SIG 24v

EXAMPLE WITH A LPHW HEATER BATTERY COIL

SDS-01

T1

HEATER

R F

SUPPLY FAN

TRENT PRODUCTS

Tel: 01782 - 844688   Fax: 01782 - 844772

IF IN DOUBT, ASK

CATERSENSE -4 (04-07) WIRING & CONNECTION DIAGRAM

DATE: 05/01/06

DRAWING No: CATERSENSE - 4 WD-04-07-2

DRAWN BY: MAE

2.03 System Checking

As an aid to system commissioning, CaterSense has a diagnostic tool which can be used to quickly check that the stored settings are suitable for correct operation.

To access this tool,

PRESS	⬛	🔴	GAS VALVE
		🟡	SYSTEM CONDITION
		🟢	All other LEDs
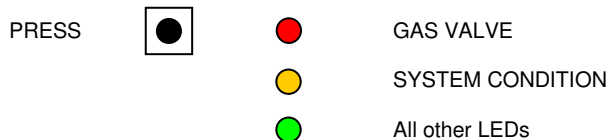
In this mode, the FAN 1 and FAN 2 LEDs will instantly react to the current being drawn by the attached motors. By slowly adjusting the speed control for the motors and observing the LEDs, the parameters can be quickly checked and problems identified.

FAN 1 or FAN 2 LED:	🔴	LOW current fault
	🟡	LOW current warning
	🟢	NORMAL
	🌟	HIGH current warning
	🔴	HIGH current fault
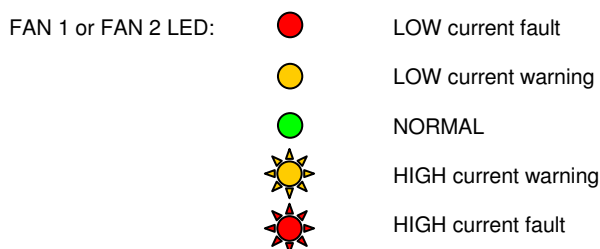
If the current is at a "fault" level for longer than 30s, a system fault would occur during normal operation. It is normal for current draw to fall outside normal levels for a few seconds whilst changing speeds. Allow fan to settle at each speed. IF IN DOUBT, ASK.

Diagnostic mode also allows the manual opening of the gas valve for testing purposes, for a maximum of 5 minutes.

PRESS	**START** RESET / GPT	🟢	GAS VALVE	*GAS VALVE OPENS*
		⬇		
		5 mins		
		⬇		
		🔴	GAS VALVE	*GAS VALVE CLOSES*
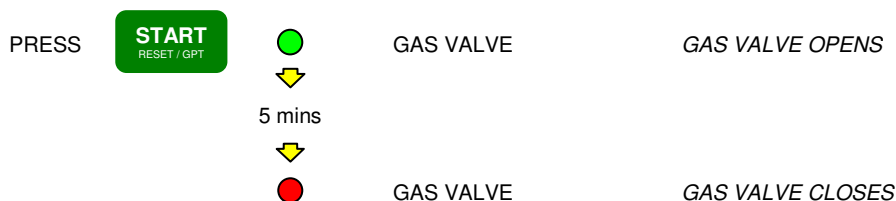
To leave diagnostic mode, press **SYSTEM STOP** GAS SHUT OFF .

2.04 Troubleshooting

2.04.1 - SYSTEM STOPPED

🟢 POWER ON   🔴 GAS VALVE

🟢 SYSTEM CONDITION

🟢 REMOTE KNOCK OFF   ⚪ FAN 1

🟢 FIRE ALARM   ⚪ FAN 2

Cause: -   The system has been stopped
Solution: -   Press "Start" key to begin startup sequence

2.04.2 - FIRE ALARM

🟢 POWER ON   🔴 GAS VALVE

🔴 SYSTEM CONDITION

🟢 REMOTE KNOCK OFF   ⚪ FAN 1

🔆 FIRE ALARM   ⚪ FAN 2

Cause: -   The link between terminals 9 and 10 has been broken (fire
alarm activated). The fan and gas valve outputs will be deactivated.
Solution: -   Ensure fire alarm is not activated. Check wiring to fire alarm
Interface panel. The system must be reset by pressing "STOP" before it can
be restarted.

2.04.3 - KNOCK OFF BUTTON

🟢 POWER ON   🔴 GAS VALVE

🔴 SYSTEM CONDITION

🔆 REMOTE KNOCK OFF   🟢 FAN 1

🟢 FIRE ALARM   🟢 FAN 2

Cause: -   The link between terminals 11 and 12 has been broken (knock off pressed).
The gas valve output will be deactivated.
Solution: -   Ensure remote knock off button has been released. Check wiring to
remote knock-off button. The system must be reset by pressing
"STOP" before it can be restarted.

2.04.4 - FAN UNDERCURRENT

🟢 POWER ON   🔴 GAS VALVE

🔴 SYSTEM CONDITION

🟢 REMOTE KNOCK OFF   🔴 FAN 1 *or* FAN 2

🟢 FIRE ALARM

Cause: -   The indicated fan is drawing less current than the minimum current
established during commissioning.
Solution: -   Ensure fan is working correctly. Check running current with an ammeter.
Use the diagnosis mode to establish any problems with set-up. The system
must be reset by pressing "STOP" before it can be restarted.

2.04.5 - FAN OVERCURRENT

🟢 POWER ON   🔴 GAS VALVE

🔴 SYSTEM CONDITION

🟢 REMOTE KNOCK OFF   🔆 FAN 1 *or* FAN 2

🟢 FIRE ALARM

Cause: -   The indicated fan is drawing more current than the maximum current established during commissioning.

Solution: -   Ensure fan is working correctly. Check running current with an ammeter. Check filters are clean. Use the diagnosis mode to establish any problems with set-up. The system must be reset by pressing "STOP" before it can be restarted.

2.04.6 - GAS PRESSURE FAULT 1

🟢 POWER ON   🔴 GAS VALVE

🔴 SYSTEM CONDITION

🟢 REMOTE KNOCK OFF   🟢 FAN 1

🟢 FIRE ALARM   🟢 FAN 2

Cause: -   The system has failed its initial gas pressure test.

Solution: -   Ensure all gas appliances are off. Check wiring to gas pressure sensor. Check gas pressure. The system must be reset by pressing "STOP" before it can be restarted.

2.04.7 - GAS PRESSURE FAULT 2

🟢 POWER ON   🔆 GAS VALVE

🔴 SYSTEM CONDITION

🟢 REMOTE KNOCK OFF   🟢 FAN 1

🟢 FIRE ALARM   🟢 FAN 2

Cause: -   The gas pressure has dropped below 12mbar during normal running.

Solution: -   See above.

2.04.8 - MEMORY ERROR

🟢 POWER ON   🔴 GAS VALVE

🟡 SYSTEM CONDITION

🟢 REMOTE KNOCK OFF   ⚪ FAN 1

🟢 FIRE ALARM   ⚪ FAN 2

Cause: -   The system has failed the test of its internal memory (tested at power on).

Solution: -   The system must be recommissioned to store new values into the memory. Please contact a competent person and consult your installation manual.

If the above does not solve your problem, contact Trent Products.

* Only on modes with gas pressure proving

CaterSense *the Intelligent answer*

FOR FURTHER TECHNICAL ASSISTANCE, PLEASE CONTACT US BY

Phone: 01782 844688

Fax: 01782 844772

E-mail: info@trentproducts.com

Web site: www.trentproducts.com

Note: i)   Ensure that the electrical installation has been installed in accordance with the current edition of the IEE regulations.

          ii)   Ensure that the gas installation has been installed in accordance with the current gas regulations and GAS SAFE guide-lines.

          iii)   Ensure that the ventilation and extract system has been set to the correct air flow design levels in accordance with the current regulations.

          iv)   If in doubt, ask! (contact us on or by any of the above).

          v)   Ensure that the client has been shown how to operate the system and that they have been handed the users guide.

TRENT PRODUCTS
Trent House
Dewsbury Road
Fenton
Stoke-on-Trent
Tel: 01782 844688 Fax: 01782 844772