k-con®

KS8-RDU REMOTE CONTROL DISPLAY UNIT

Installation Manual

Instructions for :-

KS8-RDU Remote Control Display Unit

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

Manufactured on behalf of
MITSUBISHI ELECTRIC UK

MITSUBISHI ELECTRIC

Contents

Safety precautions

Before installation and electric work

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

Symbols used in the text

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

⚠ Caution: Describes precautions that should be observed to prevent damage to the unit.

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

⚠ Warning:

- Ask the dealer or an authorised technician to install the unit.
  Improper installation by the user may result in water leakage, electric shock, or fire.

- Use the specified cables for wiring. Make the connections securely so that any outside forces acting on the cables are not applied to the terminals. Inadequate connection and fastening may generate heat and cause a fire.

- Never repair the unit. If the controller must be repaired, consult the dealer.
  If the unit is repaired improperly, electric shock, or fire may result.

- When handling this product, always wear protective equipment. EG: Gloves, full arm protection namely boiler suit, and safety glasses.
  Improper handling may result in injury.

- If refrigerant gas leaks during installation work, ventilate the room.
  If the refrigerant gas comes into contact with a flame, poisonous gases will be released.

- Install the controller according to this Installation Manual.
  If the unit is installed improperly, electric shock, or fire may result.
  Have all electric work done by a licensed electrician according to "Electric Facility Engineering Standard", "Interior Wire Regulations" and the instructions given in this manual and always use a special circuit.

- If the power source capacity is inadequate or electric work is performed im-properly, electric shock and fire may result.
  Keep the electric parts away from any water - washing water etc…
  Contact may result in electric shock, fire or smoke.

- After completing installation work, make sure that refrigerant gas is not leaking.
  If the refrigerant gas leaks and is exposed to a fan heater, stove, oven, or other heat source, it may generate noxious gases.

- Do not reconstruct or change the settings of the protection devices.
  If the pressure switch, thermal switch, or other protection device is shorted or operated forcibly, or parts other than those specified by Mitsubishi Electric are used, fire or explosion may result.

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

Precautions for devices that use R410A refrigerant

⚠ Caution:

- Do not use the existing refrigerant piping.
  The old refrigerant and refrigerator oil in the existing piping contains a large amount of chlorine which may cause the refrigerator oil of the new unit to deteriorate. Use refrigerant piping made of C1220 (CU-DHP) phosphorus deoxidized copper as specified in the JIS H3300" Copper and copper alloy seamless pipes and tubes". In addition, be sure that the inner and outer surfaces of the pipes are clean and free of hazardous sulphur, oxides, dust/dirt, shav-ing particles, oils, moisture, or any other contaminant.
  Contaminants on the inside of the refrigerant piping may cause the refriger-ant residual oil to deteriorate.

- Store the piping to be used during installation indoors and keep both ends of the piping sealed until just before brazing. (Store elbows and other joints in a plastic bag.) If dust, dirt, or water enters the refrigerant cycle, deterioration of the oil and compressor problems may result.

- Use ester oil, ether oil or alkylbenzene (small amount) as the refrigerator oil to coat flares and flange connections.
  The refrigerator oil will degrade if it is mixed with a large amount of mineral oil.

- Use liquid refrigerant to fill the system.
  If gas refrigerant is used to seal the system, the composition of the refrigerant in the cylinder will change and performance may drop.

- Do not use a refrigerant other than R410A.
  If another refrigerant (R22, etc.) is used, the chlorine in the refrigerant may cause the refrigerator oil to deteriorate.

- Use a vacuum pump with a reverse flow check valve.
  The vacuum pump oil may flow back into the refrigerant cycle and cause the refrigerator oil to deteriorate.
  Do not use the following tools that are used with conventional refrigerants. (Gauge manifold, charge hose, gas leak detector, reverse flow check valve, refrigerant charge base, vacuum gauge, refrigerant recovery equipment.)

- If the conventional refrigerant and refrigerator oil are mixed in the R410A, the refrigerant may deteriorate.
  If water is mixed in the R410A, the refrigerator oil may deteriorate.
  Since R410A does not contain any chlorine, gas leak detectors for conventional refrigerants will not react to it.

- Do not use a charging cylinder. Using a charging cylinder may cause the refrigerant to deteriorate.
  Be especially careful when managing the tools.

- If dust, dirt, or water gets in the refrigerant cycle, the refrigerant may deteriorate.

Safety precautions

Before installation

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

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

Before starting the test run

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

Disclaimer

Warranty:

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

⚠ Warning:

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

Installation Instructions

- Local User Interface

The RD (Remote Display) operating software includes variables that must be configured by the user in order for the RD to correctly communicate with any KS8-RDU units (6 Max). The software is configured using the user interface keypad and LCD on the front of the RD. It is also possible to view live sample information from the KS8-RDU units using the user interface.
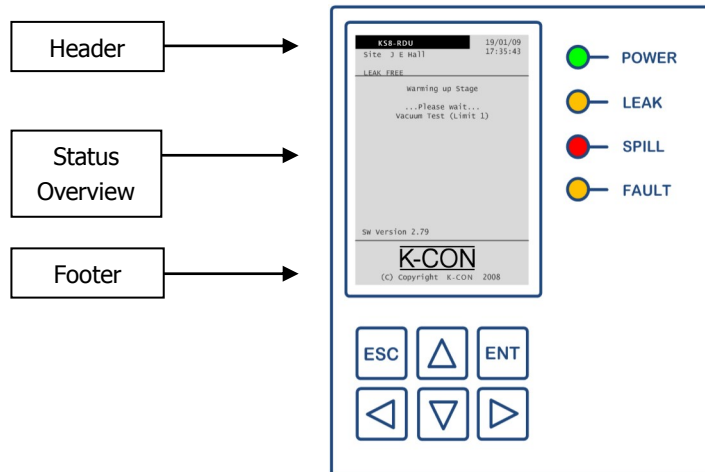

Fig 3.0 Local user interface

1.1 - Basic User Interface Operation

The Overview screen can be divided into three sections (Fig3.0) the header, footer and status overview screen.

The page header displays the alarm status, fault status, site name, date and time.

The page footer is an action guide for navigating through the screens and menus; this is made simple by the use of arrow keys.

The 'ENT' key is used to enter menus and confirm options, and the 'ESC' key is used to exit menus. The RD presents information such as live values, set-points and data logs on the LCD.

1.1.1 - Entering Alphanumeric Variables

The keypad buttons are also used to enter passwords or change variables on the RD; these may be numeric or alphanumeric. If a user is prompted to enter an alphanumeric variable (such as a zone name) the user must select one character at a time, using the ' △ ' and ' ▽ ' buttons to select the character required. When the character required is displayed, pressing the ' ▷ ' button will move the cursor to the next character to be entered. When all the characters have been entered, press the 'ENT' key to complete the process.

The characters available are:

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z 0 1 2 3 4 5 6 7 8 9 - . : / <space>

NOTE: Lower case characters are only available via an IP connection.

Installation Instructions

1.1.2 - Inactivity Timeout

If the RD detects no button presses for 5 minutes, the display will automatically revert to the status overview screen.

1.2 - System Screen Layout

The user interface system screens are divided into sections, allowing the user to quickly navigate through information and configuration variables. Figure 3.1 shows a diagram of all the system screens available.

NOTE: In order to access certain screens shown in this section, the user may first be prompted to enter a password. Pressing the 'ESC' key at any time will return to the previous screen.

1.3 - Main Screen

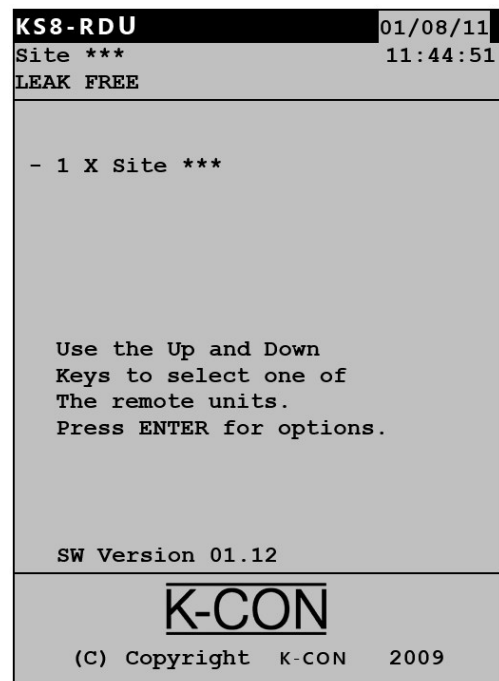After power-up for the first time, the following options will be presented on the overview screen:

1   X Site ***

The KS8-RDU Remote Display will need to be configured before it can communicate with any KS8-RDU units on site. Up to 6 KS8-RDU's can be connected and then accessed via the 'Site ***' menu options on the main overview screen.

NOTE: Only 1 'Site ***' menu option will be available until the other 5 are configured – see X.XX for details.

To access a menu, press the ' △ ' and ' ▽ ' keys to highlight the desired KS8-RDU menu and then press the 'ENT' key to enter its Main Options menu.
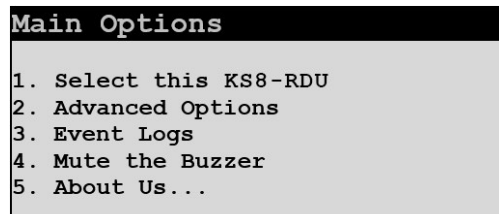
NOTE: Both the KS8-RDU and RD unit needs to be rebooted after any IP address changes have been made.

```
KS8-RDU                      01/08/11
Site ***                     11:44:51
LEAK FREE


 - 1 X Site ***




     Use the Up and Down
     Keys to select one of
     The remote units.
     Press ENTER for options.



     SW Version 01.12

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```

1.4 - Main Options

The Main Options screen is accessed by highlighting a 'Site ***' menu and pressing the 'ENT' key. From here, 5 further menus can be selected by pressing the ' △ ' and ' ▽ ' keys to highlight the desired menu and then pressing the 'ENT' key.

```
Main Options

1. Select this KS8-RDU
2. Advanced Options
3. Event Logs
4. Mute the Buzzer
5. About Us...
```

Select this KS8-RDU: Enables the user to select an KS8-RDU Overview screen.
                            (See section 1.4.1).
2. Advanced Options: Allows access to local RD and selected KS8-RDU setup options.
                            (See section 1.4.2). (PIN required).
3. Event Logs: Enables the user to view the local unit event logs.
                            (See section 1.4.3).
4. Mute the Buzzer: Enables the user to mute the local RD buzzer.
                            (See section 1.4.4). (PIN required).
5. About Us…:   Displays basic RD details and contact information for CPC UK.
                            (See section 1.4.5).

Installation Instructions

1.4.1 - Select This KS8-RDU

This option is used to view a mimic of the selected KS8-RDU's status overview screen, presented in normal operation. It can display up to 16 sampled zones with the current or previous gas concentration and zone status. An asterisk will flash next to the zone that is currently being sampled by the KS8-RDU. In this case Zone 5.

The Alarm Status condition is displayed in the header. The status displayed at any one time is as follows:

- **LEAK FREE**: Indicating normal operation.
- **LEAK**: KS8-RDU has detected a low level leak alarm.
- **SPILL**: KS8-RDU has detected a high level spill alarm.

NOTE: The menus in the footer section are just mimics of the selected KS8-RDU screen, and cannot be used to view the standard menus of the selected KS8-RDU.

```
KS8-RDU                    01/08/11
Site ***                   11:44:51
LEAK FREE

Sample Zone          ppm    Status
Zone 1              00000 NO LEAK

Zone 2              00000 NO LEAK

Zone 3              00000 NO LEAK

Zone 4              00000 NO LEAK

Zone 5             *00000 NO LEAK

Zone 6              00000 NO LEAK

Zone 7              00000 NO LEAK

Zone 8              00000 NO LEAK


              ENT=Menu
<<More        ESC=Back        More>>
```

NOTE: If an un-configured KS8-RDU unit is selected, the RD will inform the user '*This unit is disabled.*'
The user has the option to enable the unit now, by pressing the 'ENT' key, or to cancel by pressing the 'ESC' key.

```
REMOTE KS8-RDU SELECTION

This unit is disabled.
Press ENTER to enable it
now, or ESC to cancel.
```

NOTE: If the selected KS8-RDU unit is not connected, its IP is not configured, or the IP link is lost, the RD buzzer will sound to indicate a communication fault with the selected KS8-RDU. (See section 1.4.2.1 about removing unwanted units)

```
REMOTE KS8-RDU BREAK

Comms have been lost!
Press ENTER to retry or
CANCEL to select another.
```

1.4.2 - Advanced Options

When advanced options are selected you will be prompted to enter a valid user PIN, unless previously entered (contact CPC(UK) if high level user password needed).

To input the PIN, use the ' ◁ ' and ' ▷ ' keys to highlight the number, and the ' △ ' and ' ▽ ' keys to change the value.

The available options are as follows;

```
AUTHORISATION REQUIRED

To proceed please enter
your allocated passcode.
000000
```

1. **KS8-RDU Count Select** – Set number of KS8-RDU's on site
2. **KS8-RDU System Setup** – Access to the selected KS8-RDU
3. **RD System Setup** – Access to Remote Display menus.
4. **Buzzer Setup** – Access to RD local buzzer menus.

The 4 options within this menu can be selected by pressing the

' △ ' and ' ▽ ' keys to highlight the desired menu and then pressing the 'ENT' key.

```
Advanced Options
1. KS8-RDU Count Select
2. KS8-RDU System Setup
3. RD System Setup
4. Buzzer Setup
```

Installation Instructions

1.4.2.1 - KS8-RDU Count Select

This menu is used to set the number of KS8-RDU's that are to be connected to the RD, which in turn, will enable the correct number of 'Site ***' menu options on the Main Screen.
The available option is as follows;

```
Number of KS8-RDU Units
-Count:      >1        2
                3        4
                5        6
```

- **Count**: Select number of KS8-RDU's (1 to 6).

The current value is highlighted. Press 'ENT' to activate the '>'

cursor, and the ' △ ' and ' ▽ ' keys to move the cursor. Press

'ENT' to highlight the new value.

1.4.2.2 - KS8-RDU System Setup

This menu is used to configure IP settings for the selected KS8-RDU. There are 4 options within this menu. Each is selected by pressing the ' △ ' and ' ▽ ' keys to highlight the desired option and then pressing the 'ENT' key to change value. The available options are as follows;

```
KS8-RDU System Setup
-IP            10.10.64.70
-HTTP Port  0080
-Enabled      No    Yes
```

- **IP**: Enter the selected KS8-RDU units IP address.
- **HTTP Port**: Enter the selected KS8-RDU units' port number.
- **Enabled:** Confirm selected KS8-RDU unit is enabled for use.
- **NOTE:** This needs to be set to 'No' for any units that are
- not configured, or to remove unwanted units.

To input the data, use the ' ◁ ' and ' ▷ ' keys to highlight the

number, and the ' △ ' and ' ▽ ' keys to change the value.

1.4.2.3 - RD System Setup

This menu is used to configure IP settings for the Remote Display. There are 7 options within this menu. Each is selected by pressing the ' △ ' and ' ▽ ' keys to highlight the desired option and then pressing the 'ENT' key to change value. The available options are as follows;

```
RD System Setup
- I P       10.10.64.70
- Mask      255.255.255.0
- Gateway   10.10.64.1
- Server    10.10.64.1
- DHCP      No    Yes
- Time          01/08/11
- Date          11:44:51
```

- **IP**: Enter the Remote Display unit IP address.
- **Mask**: To identify which parts within an IP address correspond to the network address. The type of subnet mask to be used is normally 255.255.255.0

- **Gateway:** The device allowing data to transfer between networks. The IP address of the networks default gateway is specified here.

- **Server:** The computer which provides services to other computers on its network which is not currently in use on the KS8-RDU.
- **DHCP, Dynamic Host Configuration Protocol**: This allows the RD unit to be assigned a new network IP address automatically.
- **Time**: Allows the time to be specified as a 24 hour clock.
- **Date**: Allows the date to be specified as DD/MM/YY.

Installation Instructions

1.4.2.4 - Buzzer Setup

This menu is used to configure the alarm conditions that will activate the RD buzzer. There are 5 options within this menu.

Each is selected by pressing the '△' and '▽' keys to highlight the desired option and then pressing the 'ENT' key to change value. The options are;

```
Buzzer Setup

   Break Time (M)            05

 - On Comms Brk    No        Yes
   On Leak/Zone    No        Yes
   On New Spill    No        Yes
   On New Fault    No        Yes
```

- **Break Time**: IP network fault alarm delay (in minutes).
- **On Comms Brk**: Enable RD buzzer for IP network fault.
- **On Leak/Zone**: Enable RD buzzer for leak/zone alarms.
- **On New Spill**: Enable RD buzzer for spill alarms.
- **On New Fault**: Enable RD buzzer for fault alarm.

1.4.3 - Event Logs

The event log screen shows a summary of RD operations, listed in order of date and time. Pages can be scrolled using the '◁' and '▷' keys, as indicated in the footer.

```
  Event Logs          20/08/09
Site ***              11:44:51
LEAK FREE


Time Stamp          Description
19/08/09  19:00     PCode-Admin
19/08/09  18:34     Power up
19/08/09  18:33     Power down
19/08/09  13:09     Connected-2
19/08/09  13:09     Break-2

Page 1 of 1
_____
<<Next        ESC=back   Previous>>
```

- **Power up / Power down:** When the panel has been turned on or off.
- **Connected / Break:** Whenever an KS8-RDU connects to or breaks from the RD communication IP network.
- **Pass Code Access:** Whenever a security PIN number has been entered correctly.

1.4.4 - Mute The Buzzer

When highlighted, press 'ENT' to mute the RD buzzer.

NOTE: This function only mutes the local RD buzzer – a user will still need to enter their password into the remote KS8-RDU unit to acknowledge any alarms.

1.4.5 - About Us

This section includes basic navigation instructions, contact details for CPC (UK) and current software version.

```
About K-CON
Use the arrow keys to move
to an option. To select it,
press ENTER. To exit press
ESC key. For more details
refer to the User Guide.

To contact K-CON:
  Unit 13, Wheel Forge Way
  Trafford PArk
  Manchester
  M17 1EH


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web: http://www.k-con.co.uk
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        K-CON

SW Version 02.82
```

Installation Instructions

2.0 - Alarm Conditions

The KS8-RDU generates various alarms, which are then shown in the RD overview screen header. All alarms are recorded in the appropriate KS8-RDU log (not viewable via the RD). The Remote Display mimics these alarms, but cannot be used to acknowledge them (only the RD buzzer). There are 5 different alarm conditions. The first 3 are categories of gas leak alarm, the fourth is for hardware/software faults and the fifth is for IP Network communication breaks:

- **Leak Alarm:**   Low level gas leak.   Amber *LEAK/ZONE* LED.
- **Zone Alarm**:   Intermediate gas alarm.   No Warning Light.
- **Spill Alarm**:   High level gas alarm.   Red *SPILL* LED.
- **Fault Alarm**:   Various triggers possible.   Amber *FAULT* LED.
- **Break Alarm**:   Network connection lost.   Amber *FAULT* LED.

The KS8-RDU can be programmed to latch an alarm as soon as a fault or gas leak is detected (requiring a user acknowledgement to reset the KS8-RDU alarm LED and buzzer) or automatically reset as soon as the fault or gas leak clears. However, these settings do not affect the RD's own buzzer settings, which must be acknowledged if enabled to do so.

There are also multiple system faults which may occur that can trigger a Fault Alarm, or problems with IP networks that can trigger a Break Alarm.

2.1 - Leak Alarm

A leak alarm will be generated when a sample zone reading has exceeded the leak threshold for the appropriate number of consecutive cycles.

When a LEAK alarm is detected the following occurs:

- The LEAK LED will be illuminated.

- The buzzer will be initiated (if configured).

- The KS8-RDU will record the alarm in its alarm log.

- LEAK will be displayed at the top of the LCD screen and next to the appropriate zone.
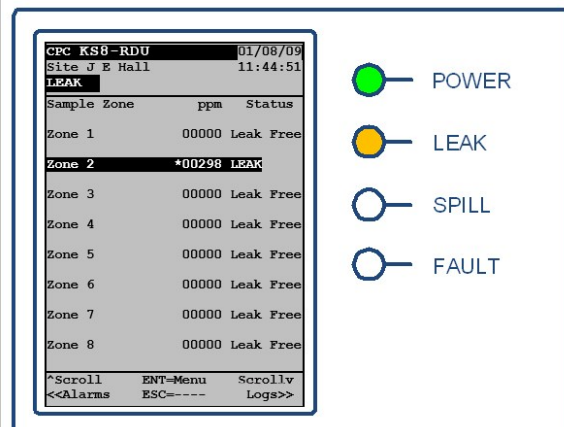

2.2 - Zone Alarm

A Zone alarm will be generated when a sample zone reading has exceeded the zone threshold for the appropriate number of consecutive cycles. The zone alarm threshold can only be set between (or equal) the leak and spill thresholds.

When a ZONE alarm is detected the following occurs:

- No LED will be illuminated.

- The buzzer will be initiated (if configured).

- The KS8-RDU will record the alarm in its alarm log.

- ZONE will be displayed at the top of the LCD screen and next to the appropriate zone.
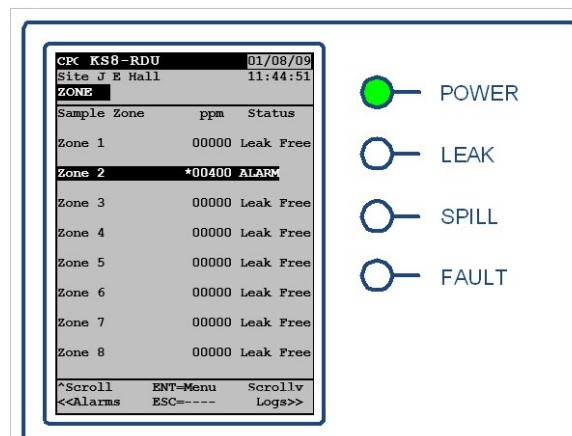
Installation Instructions

2.3 - Spill Alarm

A spill alarm will be generated immediately when a sample zone reading has exceeded the spill threshold variable.

When a SPILL alarm is detected the following occurs:

- The red SPILL LED will be illuminated.
- The buzzer will be initiated (if configured).
- The KS8-RDU will record the alarm in its alarm log.
- SPILL will be displayed at the top of the LCD.
- screen and next to the appropriate zone.
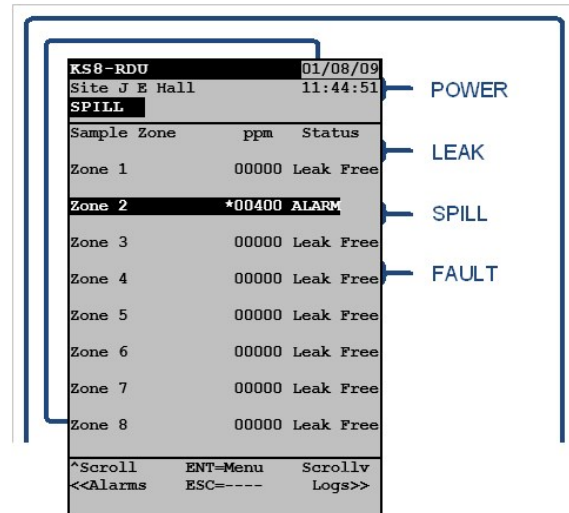
2.4 - Fault Alarms

A fault alarm can be generated in several ways, either through hardware or software. An example of a hardware fault is a zone blockage. A zone blockage alarm will be generated if the flow of air to the KS8-RDU is restricted, either by a blocked tube or the water trap plunger being in the closed position. A software fault could be caused by a faulty PCB. Regardless of cause, the following will occur:

- The amber FAULT LED will be energized.
- The buzzer will be initiated (if configured).
- The KS8-RDU will record the fault in its fault log.
- The LCD screen will display the fault message at the top of the screen.
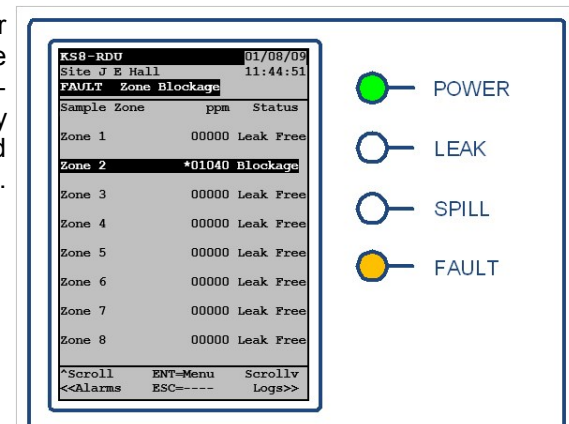
2.4.1 – RD Break Alarm

A break alarm will be generated if any configured KS8-RDU units are disconnected from the RD, or a selected KS8-RDU units' IP is not configured. No fault message will be displayed on the KS8-RDU screen or in its fault log.

When a BREAK alarm is detected the following occurs:

- The amber FAULT LED will be energized.
- The buzzer will be initiated (if configured).
- The LCD screen will display the fault message in a new window over the top of the current display.
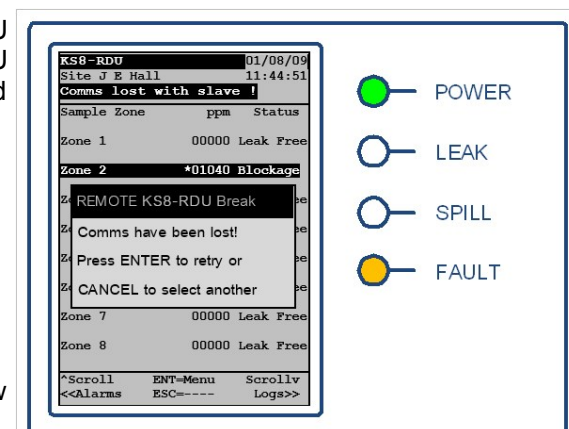
NOTE: If configured, the buzzer cannot be silenced by the 'Mute the Buzzer' option until the communication link has been restored between the RD and KS8-RDU.

Installation Instructions

2.4.2 – KS8-RDU Fault

TEXT DISPLAYED in RD Header	DESCRIPTION OF FAULT	SEVERITY OF FAULT	ACTION
Bench Comms Fail	Communication with infra red bench failure.	KS8-RDU unable to detect gas leaks	Ensure communication and power connection to infrared bench are made. Contact KOOLTECH for further assistance.
Total Blockage	Gauge pressure is below the lower limit threshold. Pipe blockage present in all zones. Possibly water trap triggered.	KS8-RDU unable to detect gas leaks	Check water trap for presence of water and empty if appropriate. Check float on water trap is in correct position.
Bench H. Press	Pressure difference between absolute and Ref pressure is below the Overflow limit. Pipe leakage present in all zones. Excessive pressure in bench whilst sampling zone.	KS8-RDU unable to detect gas leaks	Check internal flow meter is reading between 0.2 to 2 litres/min. Check exhaust line is not blocked or restricted.
Bench Low Flow	Airflow level measured in the bench is below the minimum threshold, indicating a restricted airflow through bench.	KS8-RDU impaired performance	Check internal flow meter which should indicate flow rate between 0.2 and 2 litres/minute. Check for kinked pipe work close to bench or any obstruction to airflow after pump. Check pump is operating.
Input Overflow	Airflow level measured in the bench is above the maximum threshold.	KS8-RDU performance potentially impaired	Check the internal flow meter is reading less than 4 litres/minute. Check tube is not kinked or blocked in bench by-pass.
Vac. Test Lim1	Gauge pressure is greater than the vacuum test high pressure limit. Pump failed to achieve sufficient vacuum during self test	KS8-RDU performance potentially impaired	Check pump for failure or poor performance. Check for any vacuum leak from water trap. Check for any leak at the solenoids. Check internal pipe prior to pump for any leaks.
Vac. Test Lim2	Gauge pressure difference is greater than the vacuum test high pressure limit. Pneumatic circuit failed to sustain a vacuum in self test	KS8-RDU performance potentially impaired	Check pump for failure or poor performance. Check for any vacuum leak from water trap. Check for any leak at the solenoids. Check internal pipe prior to pump for any leaks.
Fault 10		KS8-RDU unable to detect gas leaks	Contact KOOLTECH for assistance

Installation Instructions

2.4.2 – KS8-RDU Fault

Fault	Meaning	Action
F/Ware Error	KS8-RDU unable to detect gas leaks	Contact KOOLTECH for assistance.
Fault 12	KS8-RDU unable to detect gas leaks	Contact KOOLTECH for assistance.
Fault 11	KS8-RDU unable to detect gas leaks	Contact KOOLTECH for assistance.
Fault 13	KS8-RDU unable to detect gas leaks	Contact KOOLTECH for assistance.
Fault 14	Contact KOOLTECH	Contact KOOLTECH for assistance.
Fault 15	Contact KOOLTECH	Contact KOOLTECH for assistance.
Blocked Zone *	Blocked sampling tube. Zone channel: Gauge pressure < Lo Limit — Unable to detect refrigerant leak in a specific zone	Check for any block in pipe between end of line filter and solenoid valve.
Pipe Leakage in Zone *	Zone channel: Abs pressure difference with respect to Reference < Upper Limit — Performance potentially impaired on this channel leaking.	Check for any damage to pipe work that may cause leaking.
Leak Alarm in Zone *	Low level refrigerant leak	Refrigerant gas leak to be pinpointed and repaired.
Zone Alarm in Zone *	Intermediate level refrigerant leak	Refrigerant gas leak to be pinpointed and repaired.
Spill Alarm in Zone *	High level refrigerant leak	Refrigerant gas leak to be pinpointed and repaired.
Slave Comms Lost!	IP network break detected	Check IP connections of all configured KS8-RDU's. Check IP the RD is configured, or that no un-configured KS8-RDU units have been selected.

Zone * - Indicates the user defined Zone name.

Notes

Notes

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

MITSUBISHI ELECTRIC UK

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