

IFAXNetwork

Multi IFAX 'Two-Unit' Networking Handbook

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DO NOT ATTEMPT TO INSTALL COMMISSION OR OPERATE AN *IFAXNetwork* BEFORE CAREFULLY READING ALL INFORMATION CONTAINED IN THIS HANDBOOK

The information contained in this document is subject to change without notification at the discretion of the Company

PRODUCTS DESCRIPTION

• OVERVIEW

IFAXNetwork allows two independent *Multi/IFAX* Control Units to be integrated as a network that is ideal for both building complexes and small campus style environments.

Each *Multi/IFAX* retains fully autonomous operation, while the entire network functions as if the two individual Control Units were extensively a single system.

Designed to satisfy the prime objective of maximum integrity for the safety of life, the distributed system form of the *IFAXNetwork* offers the advantage of a higher level of redundancy than can be available with a single central system.

Fully detailed Alarm, Fault and Disabled event information from either *Multi/IFAX* is reported to the other and system control can be undertaken from either location.

• STANDARD FEATURES

<p>◆ True peer-to-peer network that does not require a host or master controller.</p>	<p>Each <i>Multi/IFAX</i> Control Unit sends and receives event information to the other via the network to enable fully flexible distribution and co-ordination of system control.</p>
<p>◆ 2,016 Addressable Points, 96 Fire Zone capacity.</p>	<p>Expandable to 4,024 Points and 510 Fire Zones.</p>
<p>◆ High Integrity Communication.</p>	<ul style="list-style-type: none"> ➤ The <i>IFAXNetwork</i> 'Two-Unit Network' provides an excellent level of system integrity that allows safety critical events to be passed from one <i>Multi/IFAX</i> Control Unit to the other via standard 2-core fire resistant cables (i.e. MICC, or other suitable type to BS6387). ➤ The communication protocol has been specifically designed to ensure that the receiving Station acknowledges each event message passed across the network in the fastest possible time.
<p>◆ <i>IFAXNetwork</i> Information Exchange and Control.</p>	<ul style="list-style-type: none"> ➤ Each <i>Multi/IFAX</i> Control Unit always retains full stand-alone and autonomous operation, but additionally functions as part of the larger system. ➤ <i>IFAXNetwork</i> provides the following facilities. <ol style="list-style-type: none"> 1. Event Exchange <i>Multi/IFAX</i> unit sends and receives event (change of state) information across the network to the other to allow distribution and co-ordination of system control. 2. Event Display Each <i>Multi/IFAX</i> unit provides fully detailed displays of all Alarm, Fault, Warning and Disabled events (to individual addressable point level) received from the other. A typical Alarm event display message takes the form:

	<div style="border: 1px solid black; background-color: #f0f0f0; padding: 5px; margin-bottom: 10px;"> <p>FIRE Smoke</p> <p>Station Name.....</p> <p>Zone Name Sensor Name.....</p> <p>Station 1 Zone 6 Loop 2 Sensor 34</p> </div> <p>The Station Name is the <i>IFAXNetwork</i> Station textual description for the <i>Multi/IFAX</i> originating the event.</p> <p>The Zone Name and Sensor Name are the Stations Zone and Sensor textual location description for the device in Alarm condition.</p> <p>The 1, 6, 2, 34, and Smoke, are respectively the <i>IFAXNetwork</i> Station Number, <i>Multi/IFAX</i> Zone, Loop number, Point address, and type of the device in Alarm.</p> <p>3. Event Action</p> <p>In addition to their stand-alone / autonomous operation, the alarm outputs of each <i>Multi/IFAX</i> can be set to activate as required from any Zonal Alarm condition received from the other Control Unit on the <i>IFAXNetwork</i>.</p> <p>4. Control Operations</p> <p>From either <i>Multi/IFAX</i> location, interrogation and control operations can be completed of the other Control Unit on the <i>IFAXNetwork</i> as follows.</p> <ul style="list-style-type: none"> ➤ Disabling / Re-Enabling any individual Zone. ➤ Disabling / Re-Enabling any individual addressable sensor. ➤ Disabling / Re-Enabling any Loop circuit. ➤ Disabling / Re-Enabling <i>Multi/IFAX</i> Alarm Sounders. ➤ Disabling / Re-Enabling <i>Multi/IFAX</i> Auxiliary Relay outputs ➤ Disabling / Re-Enabling individual <i>Multi/IFAX</i> Alarm outputs. ➤ Network-wide 'Alarm Silence & Re-Sound' commands. ➤ Operation of network-wide 'System Reset' command. ➤ Full Analysis of Loop circuits. ➤ Full Analysis of any addressable sensor <p>Some, or all of the control facilities above may be limited to authorised operators by access code levels within the configuration data of the individual <i>Multi/IFAX</i> Control Unit.</p>
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● **NETWORK ARRANGEMENTS**

▪ **General**

When a *Multi/IFAX* is connected to an *IFAXNetwork*, the Control Unit, (together with any *IFAXRepeater* Repeater/Control Panels that are associated with it), is described as a 'Station'.

▪ ***IFAXNetwork* Interconnection Cabling**

IFAXNetwork supports interconnections completed with a range of alternative cable types.

The link between the two *Multi/IFAX* Control Units requires two cable-pairs, (one for 'transmit' and one for 'receive').

The interconnection may be completed with:

- Standard 2-core MICC or other fire-resistant cables complying with BS6387.
- Shielded twisted-pair cables.

If the link can be adequately protected it is possible to complete this with a 4-core (2x twisted-pairs + screen) cable.

The maximum interconnection distance is 1200 metres, dependent on cable specification.

Where safety critical events are to be signalled across the *IFAXNetwork* and the communication link is required to provide prolonged operation in the event of a fire; it must be protected and installed to ensure adequate fire resistance, or otherwise be completed via two 2-core fire-resistant cables.

● NETWORKED *Multi/IFAX* CONTROL UNIT OPERATIONS

Operational procedures for each networked *Multi/IFAX* Control Unit are extensively the same as stand-alone panels.

Various commands entered via the keypad will automatically prompt the operator to confirm additional information to identify the individual *IFAXNetwork* Station that is to be affected by a command.

(The fully-context sensitive *Multi/IFAX* operational menu system guides users through this process to ensure that all operations are straightforward and clear).

Messages displayed at each *Multi/IFAX* Control Unit relating to Alarm, Fault and Disabled conditions throughout the network remain largely common with their non-networked counterparts.

Other than including additional information to defining the network location of the particular *Multi/IFAX* Control Unit reporting the event.

(Refer to *Multi/IFAX* Operating Instructions).

● *Multi/IFAX* CONTROL OPERATIONS ACROSS THE *IFAXNetwork*

Though the *IFAXNetwork* functions as a single and fully integrated system that allows control to be undertaken from either *Multi/IFAX* Control Unit location, certain operations are not permitted across the network.

These specific functions can only be completed at the local *Multi/IFAX* Control Unit that is to be affected by the operation.

- 'Station Disconnection / Reconnection' - from the remainder of the *IFAXNetwork*.
- Manual Re-configuring of a *Multi/IFAX* system.
- 'Walk Test'.

The event record at each *Multi/IFAX* Control Unit will contain all events that have occurred at each Station.

The events are stored in the order that they are received at each *Multi/IFAX* Control Unit via *IFAXNetwork*.

A continuous hard-copy record of *IFAXNetwork* events can be taken at either Station location, by connecting a printer to its local *Multi/IFAX* Control Unit.

On accessing *Multi/IFAX View* and *Disable* menus, the operator will automatically be prompted to enter the network Station number that is to be affected by the subsequent command.

To illustrate this, a typical example follows.

Example: Disabling a Zone

From accessing the *Disable Zone* menu (at *IFAXNetwork* Station 1), the LCD displays and operation sequence to disable a Zone at the remote *Multi/IFAX* Station would be similar to the following:

```
Disable Zone:
Station Number: 1
Station Name.....
(This Station)      [Enter/Cancel/1...2]
```

The number range shown in brackets indicates the valid Station number range for the *IFAXNetwork*.

Keypad entry: 2

```
Disable Zone:
Station Number: 2
Station Name.....
[Enter/Cancel/1...2]
```

Keypad entry: *Enter*

```
Disable Zone at Station 2
Zone Number: ___
[Cancel/0...255]
```

The number range shown in brackets indicates the valid Zone number range for the *Multi/IFAX* Control Unit at Station 2.

Keypad entry: 4

```
Disable Zone at Station 2
Zone Number: 4
Zone Name.....
[Enter/Cancel/0...255]
```

Keypad entry: *Enter*

```
Processing over Network
```

On acceptance of the instruction, the message above will be displayed for 2 or 3 seconds whilst the command is executed over the *IFAXNetwork*.

After this, the display will briefly show the following message to confirm that the Zone disablement has been successfully completed at the remote *Multi/IFAX* Control Unit and then returns to the upper level *Disable Zone* menu, to allow selection of further zones.

```
Accepted
```

The *Disabled* LED indicator of each *Multi/IFAX* Control Unit will be lit and each Control Unit will include full details of the first disablement on their LCD's.

```
Zone Disabled
Station Name.....
Zone Name.....
Station 2   Zone 4
```

If further disablements are completed each *Multi/IFAX* Control Unit will continue to display the first event only - but will also indicate the total quantity of disablements (see example below).

Full details of all disablements may be examined from either *Multi/IFAX* location via the operating menu.

```
Zone Disabled
Station Name.....
Zone Name.....
Station 2   Zone 4
(1 of X Disablements)
```

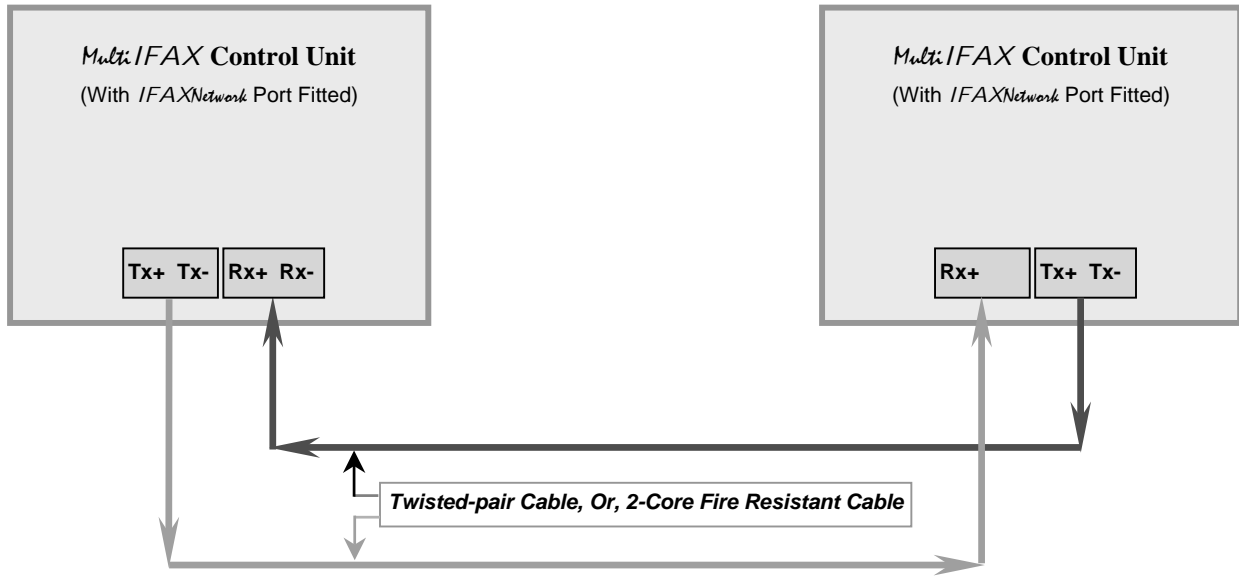
The **Station Name** is the *IFAXNetwork* Station textual description for the *Multi/IFAX* originating the event.

The **Zone Name** is the Stations Zone textual location description.

The **2**, and **4**, are respectively the *IFAXNetwork* Station Number and *Multi/IFAX* Zone number.

The **First of X Disablements** is only displayed where more than one disablement condition exists and indicates the total number.

● **IFAXNetwork INTERCONNECTION AND ARRANGEMENT**



➤ **Connection Detail**

Normally, the interconnection link between the *Multi-IFAX* Control Units of a two-unit network is subject to a maximum distance limit of 1200 metres (dependent on cable specification).

However, where necessary this limit may be extended by the use of appropriate in-line signal booster units.

Signaling form is full-duplex EIA-422 at 4800 Baud.

The communication link between the Network Stations requires two cable-pairs.

(One for 'Transmit' and one for 'Receive').

If the link can be adequately protected it is possible to complete this with a 4-core (2x twisted-pairs + screen) cable.

Where safety critical events are to be signaled across the *IFAXNetwork*, and to provide prolonged operation in the event of a fire, the communication link must be protected and installed to ensure adequate fire resistance.

In this case, the links can be completed via two 2-core fire-resistant cables.

At each end of the network link, terminations are completed via 5-way screw terminal blocks located on each *Multi-IFAX* Main Board.

Interconnection information and terminal assignments are:

<i>IFAXNetwork</i> Link – END 1 <i>Multi-IFAX</i> Main Board Network Terminal	<i>IFAXNetwork</i> Link – END 2 <i>Multi-IFAX</i> Main Board Network Terminal	'Paired' Wire Cores
Tx + (<i>Transmit A +ve</i>)	Rx + (<i>Receive B +ve</i>)	Pair 1
Tx - (<i>Transmit A -ve</i>)	Rx - (<i>Receive B -ve</i>)	Pair 1
Rx + (<i>Receive A +ve</i>)	Tx + (<i>Transmit B +ve</i>)	Pair 2
Rx - (<i>Receive A -ve</i>)	Tx - (<i>Transmit B -ve</i>)	Pair 2
E (<i>Signal Ground</i>)	(E) (<i>Signal Ground</i>)	Screen/Core

➤ **IFAXNetwork Station Address Setting**

A unique 'Station number' and a textual description of its location is set within the configuration data of each *Multi/IFAX* Control Unit on an *IFAXNetwork*.

Each *Multi/IFAX* Control Unit automatically downloads the Station number to its associated *IFAX* Network Interface Module during system configuration.

• **IFAXNetwork OPERATION**

➤ **Multi/IFAX Displays – General**

The *Multi/IFAX* keeps an internal record of which was the first condition of a particular type (e.g. Alarm) and which was the most recent.

These are indicated on the LCD by the words: *First* and *Newest*.

The ordering of any other conditions of that type is not indicated on the display (although this can be clearly identified from the event log and on printed records).

The Status Display normally shows the *First* condition and the menu system is used to view the other conditions.

When the *First* condition has been cleared, the *Multi/IFAX* does not know which condition is the *next* earliest condition of that type.

Thus, it no longer uses the word *First* and only indicates which is the *Newest*.

➤ **Alarm Conditions on the IFAXNetwork**

Each *Multi/IFAX* Control Unit will display full details of the first Alarm condition to occur on the *IFAXNetwork*, including the originating Zone, Sensor and network Station.

Additionally, the common Fire LED indicator of each *Multi/IFAX* Control Unit will be lit.

The Sounders Activated and Remote Signal Activated LED's may also be lit if appropriate.

If more than one Alarm exists, both Stations will continue to display the first event only - but will also indicate the total quantity of Alarm conditions.

Full details of all Alarm conditions may be examined from either *Multi/IFAX* location via the operating menu and viewed in the display order 'Latest Alarm' – 'First Alarm' – 'Others'.

An example Alarm message that will be displayed at all *Multi/IFAX* Control Units of an *IFAXNetwork* is shown below.

```
FIRE                               Smoke
Station Name.....
Zone Name Sensor Name.....
Station 2   Zone 6   Loop 2   Sensor 34
                (First of X Alarms)
```

The **Station Name** is the *IFAXNetwork* Station textual description for the *Multi/IFAX* originating the event.

The **Zone Name** and **Sensor Name** are the Stations Zone and Sensor textual location description for the device in Alarm condition.

The **2**, **6**, **2**, **34**, and **Smoke**, are respectively the *IFAXNetwork* Station Number, *Multi/IFAX* Zone, Loop number, Point address, and type of the device in Alarm condition.

The **First of X Alarms** is only displayed where more than one Alarm condition exists and indicates the total number.

Both *Multi/IFAX* Control Units show the originating *IFAXNetwork* Station number and Station Name in their status messages.

No Zonal LED's are activated for Alarm messages from the remote IFAX Station.

Each Multi/IFAX Control Unit's configuration data holds its own individual set of Alarm outputs operating patterns for each Zone of both Stations on the IFAXNetwork.

Each Station can thus be set to activate its own localised Alarm output circuits as required dependent on the Alarm Zone of the remote originating Station.

➤ **Warning, Fault, Test and Disabled Conditions on the IFAXNetwork**

When no Alarm conditions exist, then either Multi/IFAX in a Warning, Fault, Test, or Disabled State have their full status messages broadcast and the first event of each type displayed at both network Stations in a similar manner.

Additionally, the common Warning, Disabled, Fault, Test, Supply Fault, Remote Signal Fault/Disabled and Sounders Fault/Disabled LED indicators will be operated as appropriate at both Multi/IFAX Control Units.

If more than one condition exists, both Stations will continue to display the first event only of each type - but will also indicate the total quantity of each condition.

Full details of all conditions of each type may be examined from either Multi/IFAX location via the operating menu

An example Warning message that will be displayed at both Multi/IFAX Control Units of an IFAXNetwork is shown below.

Pre-Alarm	Smoke
Station Name.....	
Zone Name Sensor Name.....	
Station 2 Zone 6 Loop 2 Sensor 34	
	(First of X Warnings)

The **Station Name** is the IFAXNetwork Station textual description for the Multi/IFAX originating the event.

The **Zone Name** and **Sensor Name** are the Stations Zone and Sensor textual location description for the device in Pre-Alarm condition.

The **2, 6, 2, 34**, and **Smoke**, are respectively the IFAXNetwork Station Number, Multi/IFAX Zone, Loop number, Point address, and type of the device in Pre-Alarm condition.

The **First of X Warnings** is only displayed where more than one Warning condition exists and indicates the total number.

• **TYPICAL IFAXNetwork RESPONSE TIMES**

This summary lists typical approximate response times to various cross-network operations.

Remote Interrogation Operations	
To view a Loop Circuit summary from the remote <i>Multi/IFAX</i> on LCD	1 - 3 seconds
To increment to the next Loop Circuit summary display	1 - 3 seconds
To print a Loop Circuit summary from the remote <i>Multi/IFAX</i> Control Unit	3 - 10 seconds
To print a full Loop Circuit report from the remote <i>Multi/IFAX</i> Control Unit	5 - 15 seconds per device
To view an individual device report from the remote <i>Multi/IFAX</i> on LCD	1 - 3 seconds
To increment to the next addressable device report display	1 - 3 seconds

Remote Disable / Re-enable Operations	
Times stated is that to complete the operation at the remote <i>Multi/IFAX</i> and to display the resulting status information at both <i>IFAXNetwork</i> Stations	
To disable a Zone at the remote <i>Multi/IFAX</i> Control Unit	3 - 6 seconds
To re-enable a Zone at the remote <i>Multi/IFAX</i> Control Unit	3 - 6 seconds
To disable a Loop Circuit, or an individual addressable device at the remote <i>Multi/IFAX</i> Control Unit	2 - 5 seconds
To re-enable a Loop Circuit, or an individual addressable device at the remote <i>Multi/IFAX</i> Control Unit	2 - 5 seconds
To disable Alarm Sounders, Auxiliary Outputs, Remote Signal Output or an individual Alarm Output at the remote <i>Multi/IFAX</i> Control Unit	- 5 seconds 2
To re-enable Alarm Sounders, Auxiliary Outputs, Remote Signal Output or an individual Alarm Output at the remote <i>Multi/IFAX</i> Control Unit	- 5 seconds 2

Events Broadcast Across the <i>IFAXNetwork</i>	
Times stated is that for the operation to be completed and displayed (where appropriate) at both <i>IFAXNetwork</i> Stations	
Any single <i>Multi/IFAX</i> Fault report	1 - 3 seconds
Return to quiescent state on clearance of the <i>Multi/IFAX</i> Fault condition	1 - 3 seconds
An <i>IFAXNetwork</i> Fault report	2 - 5 seconds
Return to quiescent state on clearance of an <i>IFAXNetwork</i> Fault condition	2 - 10 seconds
Any single <i>Multi/IFAX</i> Fire Alarm condition	1 - 3 seconds
Action an Alarm Silence operation across the <i>IFAXNetwork</i>	1 - 3 seconds
Action an Alarm Re-Sound operation across the <i>IFAXNetwork</i>	1 - 3 seconds
Action a System Reset operation across the <i>IFAXNetwork</i>	3 - 6 seconds