

## **Introducing, The Remote Monitor, TYPE RMU/96**

The microprocessor based remote monitor from Metron Eledyne is the latest version of a whole line of successful products, marketed previously under the Eledyne name, and features state-of-the art micro-controller devices, designed around the latest EEC EMC directives. The unit offers a compact, robust and reliable product, offering a great deal more flexibility than its predecessors.

It features 12 channel monitoring, designed primarily for use with the Metron Eledyne range of fire pump control systems, providing remote supervision of complete installations from any manned point, (for example; gate houses and reception points).

The unit may be tailored to your individual requirements both quickly and easily by our team of dedicated software engineers using our unique software-based control system. Component choice has been heavily influenced by the need to meet tough EMC requirements, providing both excellent immunity and reduced emissions.

New features in this model include DIP switches enabling banks of inputs to be configured on site for normally closed or normally open operation, smaller footprint, and more attractively packaged in a style that will blend into most environments without being intrusive, yet impossible to ignore when an alarm state is triggered.

Experience has also shown the need for flexibility. Achieving this is aided by the fact that the control system is entirely software dependent, a complete change in system behaviour is merely a case of replacing the micro-controller i.c., a matter of minutes in most cases, ensuring that down-time is kept to an absolute minimum, essential in fire control applications.

As part of this flexibility, it was also realised that there may be a need for rapid re-allocation of channels, normally a lengthy process, requiring both a rewire, and then producing the correct front panel legend. As most good ideas are both flexible and simple we needed to adopt an approach whereby the customer could complete this task with ease. It was decided to number all channels, and then provide a removable channel allocation label. The label may be pre-printed to order, alternatively the customer may decide to legend the panel themselves on site.

Lamp test facility is included by simultaneously pressing both buttons, reducing the complexity of the user interface.

## Basic Operation

Operation of the R.M.U is relatively straight forward, all functions are accessed via the two push buttons on the front panel.

When an alarm state is registered, the corresponding indicator will flash, and an alarm will sound. Further alarm states will also cause the corresponding indicator to flash in addition.

**MUTE;** Silences any alarm, flashing indicators hold steady. Further alarm states will re-trigger the audible alarm, and while the muted channels remain steady, the new alarm state will cause only the corresponding indicator to flash.

**RESET;** All channels which are no longer in the alarm state will reset, i.e the indicator will extinguish. Providing there are no channels in the alarm state, the audible alarm will remain silent. Any channel which remains in the alarm state will re-trigger the audible alarm, and return to a flashing state.

**LAMP TEST;** Pressing both push-buttons simultaneously will preform a lamp test function.

On occasion, a test engineer may wish to display channels that are still in an alarm state, to distinguish them from channels that have been muted, but the fault has been removed, without re-triggering the audible alarm. This is possible, but not strictly within the functionality of the R.M.U. This is merely a diagnostic tool for installers. The procedure is as follows:- When in the muted state, press and hold the RESET button. All inactive channels will extinguish, while channels that remain active will begin flashing. The audible alarm will remain silent. To avoid setting off the audible alarm, you must transfer the pressure from the RESET button to the MUTE button, taking care not to press both together, (pressing both together will invoke LAMP TEST which in turn will activate the audible alarm). All active channels should return to the muted state.

## Installation Guide

The R.M.U (remote monitoring unit) has been designed primarily for simplicity of installation and ease of use. The unit fully complies with the EMC criteria as specified in the European Directive. Compliance does not, however, cover the final installation of the product. Installation in itself is a reasonably straight forward task, capable of being carried out by relatively inexperienced staff, but it must be stressed that it is the responsibility of the installing engineer to follow E.M.C guidelines as laid down in the E.E.C Directive.

First, remove the four screws securing the front panel of the enclosure, and carefully lift away. Turn the panel over, the main connections being on the P.C.B via screw terminals. (These are push-in plugs, to facilitate easy removal/replacement of the main board).

All inputs are normally closed, and should any conductor become disconnected, will fault to the alarm state. (Banks of 4 may be switched to normally open via dip switch settings - see DIP SWITCH SETTINGS). All channels are rated at 12V d.c maximum. All unused channels should be loomed together along with the GND connection.

Additional connections are provided for connection to a third party warning device.

**NOTE: It is highly recommended, although not essential, that the following recommendations are considered.**

All signal wiring should be separated from power feeds and supplies. Where the two must be in close proximity, it is advisable that they located at right angles to each other, minimising the effect of cross-talk and pick-up.

Signal wiring will be less prone to disturbances if contained within grounded conductive conduit or trunking. Avoid passing signal cables in close proximity to known interference sources, or high power electrical equipment where possible.

Ensure good clean areas of contact at either end of the installation, and use the largest practical gauge of wire to improve signal quality, (maximum 2.5mm diameter cable recommended).

Loop areas of all conductors should be kept to a minimum, as each loop will act as an antenna for radio-interference, and will significantly reduce the immunity of the whole installation.

The enclosure should be earthed with good quality earthing bonds. Avoid earth loops.

## Dip Switch Settings

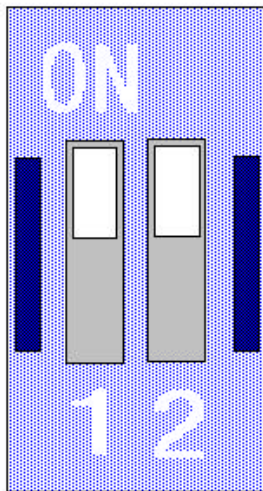
The DIP switches are located on the main P.C.B inside the enclosure. These allow the installing engineer to change the polarity of the alarm signals from N/O to N/C or vice-versa. Each setting controls a bank of four channels at a time.

The following table shows the various combinations;

*SW1*    *CHANNEL No.*

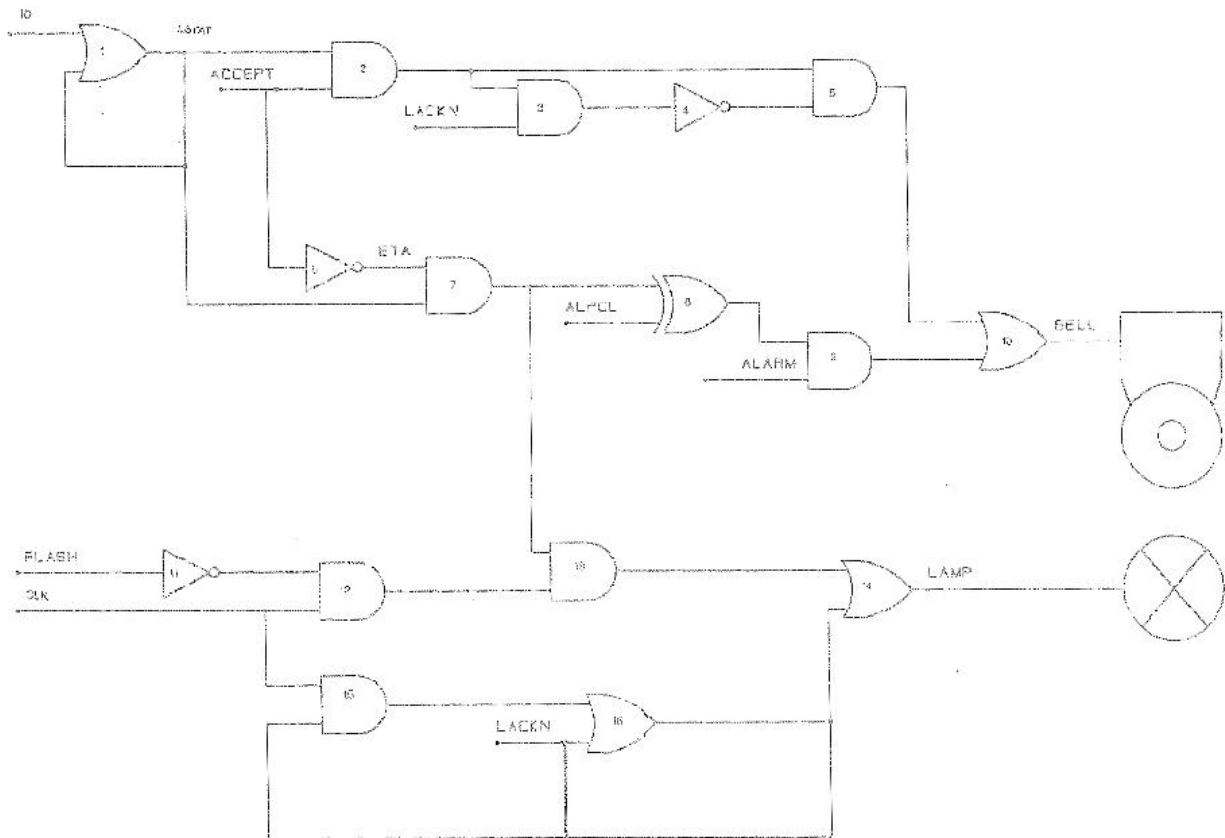
<b>1</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>
<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>		<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>
<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>
<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>
<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

**1=on/NC**    **0=off/NO**



## Technical Overview

The very heart of the system is a Microchip PIC16C55 micro-controller. All inputs are opto-isolated, and diode protected. Output lines are shared with inputs, with outputs held in a high impedance state during the input cycle. Output is delivered visually by high efficiency AlGaAs red L.E.D.s via darlington driver stages. The whole system is software driven, with banks of inputs configured as normally closed or normally open using DIP switches. The basic operation of the system can be described by the following flow chart;



## Processor port allocation

The port allocation for the processor is as follows;

### PORT A (4BIT)

BIT 0	MUTE PUSHBUTTON INPUT
BIT 1	RESET PUSHBUTTON INPUT
BIT 2	BELL RELAY OUTPUT
BIT 3	PROPOSED OUTPUT FOR SERIAL COMMS. TX (STILL UNDER DEVELOPMENT)

### PORT B (8 BIT)

BIT 0	PROPOSED OUTPUT FOR SERIAL COMMS. RX (STILL UNDER DEVELOPMENT)
BIT 1	OPEN COLLECTOR TO MODEM (FUTURE DEVELOPMENT)
BIT 2	NO/NC DIL SELECTOR SWITCH 2
BIT 3	FAULT CHANNEL 12
BIT 4	FAULT CHANNEL 11
BIT 5	FAULT CHANNEL 1
BIT 6	FAULT CHANNEL 2
BIT 7	FAULT CHANNEL 3

### PORT C (8 BIT)

BIT 0	FAULT CHANNEL 4
BIT 1	FAULT CHANNEL 5
BIT 2	FAULT CHANNEL 6
BIT 3	FAULT CHANNEL 7
BIT 4	FAULT CHANNEL 8
BIT 5	FAULT CHANNEL 9
BIT 6	FAULT CHANNEL 10
BIT 7	NO/NC DIL SELECTOR SWITCH 1

## Power Consumption Figures

No. of active channels	Standby	1	2	3	4	5	6	7	8	9	10	11	12
Alarm	44	90	104	116	133	146	157	167	177	185	194	202	210
Muted	44	71	93	114	134	153	169	185	199	213	225	238	249
Maximum	44	90	112	133	155	173	190	206	220	234	247	260	272

