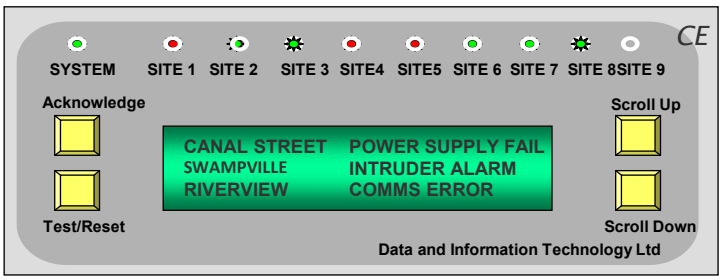
TADU – Simple Alarm Monitoring & Display System



- **Simple Alarm Monitoring System for up to 9 remote sites**
- **Simple Alarms display in Signallers Control Room**
- **Clear unambiguous message display**
- **Duplicated communications path**
- **Flexible communications network architecture**
- **Interfaces alarms and controls from Associated equipment**

Background

The D&IT TADU – Simple alarm Monitoring & Display System has been developed to address the requirements for monitoring small systems and displaying alarms on a simple display in locations where space is at a premium e.g in Signal Control Rooms.

System Overview

This simple alarm-gathering system comprises four elements as shown schematically in Figure 1 overleaf.

The system comprises a Special Polling Unit (SPU) and a Text Alarm Display Unit (TADU) on which the results of the SPU's activity are displayed, together with a number of SP-15 Remote Terminal Units (RTUs). If the TADU is standard, then nine site RTUs can be supported; if the TADU is the variant having a volume control, then eight site RTUs can be supported.

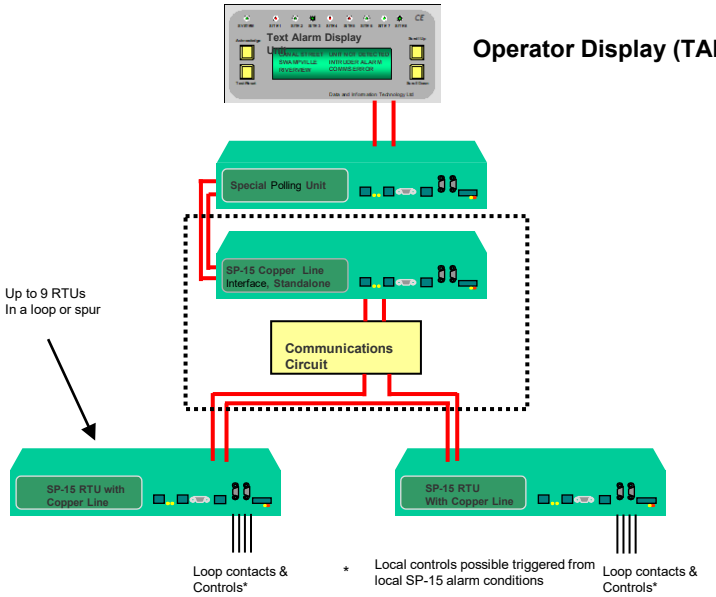
The Polling Unit sequentially interrogates the remote sites for their alarm status, polling from one to nine (or eight, depending on the TADU) sites as set in the LCT menus.

Having extracted the alarm information, the Polling Unit then causes relays to operate, these relays being connected to the various LEDs and the sounder in the Text Alarm Display Unit.

When a new alarm is received from an RTU, it causes the appropriate Site LED to flash and the buzzer to sound. The LED will continue to flash and the buzzer to sound until the Acknowledge/Refresh push switch is pressed, even if the source of the alarm subsequently clears (i.e. the alarm was a fleeting one).

When all current alarms have been acknowledged, the LED(s) will stop flashing, and they will show the current aggregate state of the different alarm categories across all RTUs.

The SYSTEM status LED shows green when there are no alarms associated with communicating to the RTUs or to the Display Panel. It flashes red when a new system status alarm is detected, and this becomes a steady-state red after acknowledgement.



Text Alarm Display Unit (TADU)

The TADU occupies a panel area 100 mm high by 250 mm wide and has various mounting options and comprises:

- A four line x 40 character, back-lit text display with buttons for display text 'Scroll Up' and 'Scroll Down'
- Audible alarm indication
- Alarm 'Acknowledge' button
- A tri-colour LED for each remote site
- A tri-colour 'System' LED
- Lamp 'Test/Reset' button
- 48 Volt DC Operation

On each line twenty characters are allocated to a site name, with the second twenty being allocated to a text description of the alarm conditions, eg 'Power Supply Fail'. Up to four alarm conditions can be seen at any one time. By using the 'Scroll Up' and 'Scroll Down' buttons, the Signaller can read the additional alarm conditions.
The standard TADU supports 9 sites/RTUs. An option is available to fit a volume control – this replaces site 9 LED and offers 8 site monitoring.

Special Polling Unit (SPU)

This SPU is a derivative of the SP-15 and comprises an I/O expander and Polling firmware configured to provide enhanced facilities.

For reliability, a duplicated communications route structure is supported, resulting in a network with a ring/loop configuration. This unit sequentially polls, in alternate directions around the loop, all of the remote sites by addressing each RTU.

SP-15 Copper Line Interface, Standalone

The Copper Line Interface provides a communications mechanism between the sites on the system. It can drive up to 16 km of copper cable, alternatively the signals can be transported with standard transmission equipment supporting a VF interface.

SP-15 RTU Copper Line Units at Remote Sites

This is a special version of the SP-15 RTU that is fitted with a Copper Line Interface. The Copper Line unit is the same unit as fitted in the Standalone version, supporting inter-RTU distances up to 16km. Each RTU is fitted with up to 2 x 8 Input Alarm Modules monitoring up to 16 alarms at each remote site. Two independent polling ports allow the unit to be configured in a loop for polling purposes. This ensures no loss of information should any single communications failure occur.

There is a maximum of nine RTUs per system.

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