

# MTL RTK725B

## Alarm Annunciator/Event Recorder

- **Modular construction with 2 to 256 alarm ways**
- **Multi-redundant design so there is no single point of failure**
- **Interchangeable, white LED illumination as standard**
- **1ms Event Recording functionality up to 256 points**
- **Isolated RS485 serial communications**
- **Fully software configurable through USB port for each individual alarm point using the intuitive, setup utility**
- **Optional integral PSU for direct connection to 85-264VAC or 88-300VDC**



### Enhanced design with event recording and communication features

The MTL RTK725B brings together many years of development in Alarm Annunciator technology and represents the best available investment in protection for your industrial plant.

Using advanced communication techniques, coupled with Eaton's unique multi-redundant design, the MTL RTK725B Annunciator gives the best combination of flexibility, usability, reliability and cost of ownership.

The modular multi-redundant design instantly provides the user with a more powerful and more reliable system without the possibility of a single component causing system failure. Systems can be constructed in almost any shape and size from a single channel to a maximum of 256 channels.

RS485 serial communications and time-stamping to a resolution of 1ms can be provided as an option for all system sizes up to 256 channels.

As a world leading supplier of process alarm equipment, Eaton can provide a solution for all safe and hazardous area industrial applications. Used for monitoring critical alarms, our range of Alarm Annunciators are designed as modular products, manufactured to meet customer requirements, with a range of options that can be incorporated as required.

## FEATURES & BENEFITS

### Modular Construction

The modular design of the MTL RTK725B range allows units to be assembled in almost any size and shape to suit the individual customer's requirements. Units can be constructed from a single channel to a maximum of 256 channels with a choice of three window sizes.

### LED Illumination as standard

The days of costly maintenance and the risk of missing alarms due to blown bulbs are now behind us. This latest range of Alarm Annunciators uses ultra-bright, white LEDs as standard to back-light different coloured filters. LEDs are considered as reliable as any solid-state electronics but failures can still occur so these LEDs are designed to be easily interchangeable for on-site maintenance.

### Proven CANBUS® Technology

In order to provide the greatest flexibility and programmability in this enhanced Annunciator at the lowest possible cost of ownership, the design utilises the highly successful CANBUS® technology to provide internal communications. This is a robust and fast method of communicating used to ensure the highest combination of speed and security.

### Multi-Redundant Design

As Annunciators are often used to monitor critical plant alarms it is essential the unit provides the highest reliability possible. With this design there is no Common CPU or Common Services Modules, failure of which would cause complete system failure. All Alarms Cards in the MTL RTK725B range can act as the master controller, so if a card does fail then only four alarm points are affected. This design combined with the huge reduction in component count gives a far higher Mean Time Between Failures.



### Fully Software Configurable

Each Annunciator has a programming port positioned behind the Pushbutton Module. This is a standard USB connection to connect directly to your laptop or PC using the cable provided with the unit, although any standard USB cable will suffice. Each individual channel can be configured to operate exactly as required with the user selecting from a huge range of functions, features and alarm sequences. All the standard sequences are available as defined in the ISA publication "Alarm Sequences and Specifications S18.1". The programmed information is safely stored in EEPROM without the need for any battery backup and can also be archived on the PC.

### Advanced Diagnostics

The MTL RTK725B Annunciator is designed with comprehensive diagnostics to monitor all aspects of the systems operation. Any fault found will be indicated on the front LEDs and can also drive a diagnostic relay for external indication. The system will monitor the field contact voltage and also provide an early warning of wiring problems and ground faults. The internal supplies are checked for tolerance and also all aspects of the internal and external communications, clock pulses, memory and configuration data and many more features.



### Sequence of Events

In many applications it is often useful to know the exact sequence of events following a plant breakdown. In order to cater for these applications the MTL RTK725B range can be supplied with an integral 1ms Event Recorder for all system sizes up to 256 channels. As the design uses a distributed architecture, it is possible to maintain the 1ms resolution and accuracy on all system sizes. Larger systems should use the 9000TS Sequence of Events Recorder.

### Communications Options

Various protocols are available including entry level comms, RTK/AMS time stamping protocol and Modbus RTU. Standard level comms will provide RTK/AMS, Modbus RTU & ASCII. The communications card also supports a GPS serial clock signal to synchronize to an external time source with a real time battery backed internal clock in order to ensure data retention in the event of power loss.

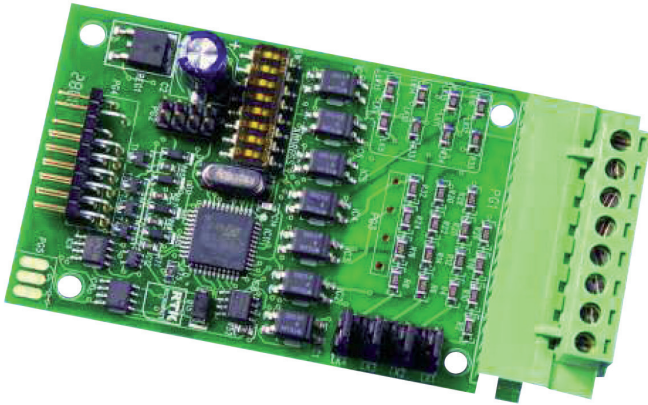
### Inputs and Outputs

#### Inputs

All inputs are opto-coupled and comply to the stringent requirements of the European Directive in Electromagnetic Compatibility and the Low Voltage Directive. This ensures there is no possibility of false alarms. The standard unit has a selectable input voltage of 24V or 125V and a further version provides 48V. All versions are capable of accepting AC or DC voltages.

#### Common Relay Outputs

The MTL RTK725B Annunciator gives the most flexible range of relay outputs available today. As well as having options of one or two individual repeat relays per channel, it is possible to have up to 32 common relays which are user configurable as watchdog relays, group relays, horn relays, ring-back relay or diagnostic relays. The standard unit has four configurable common relays. Additional relay cards are added when required to suit each application.



**Auxiliary Relays**

Each alarm way can be supplied with one or two individual repeat relays. Each relay can be configured to be energised or de-energised on alarm and both normally open and normally closed contacts can be used. The repeat relays can be set to follow the alarm logic, follow the field contact or follow the display.

**Re-flash**

All the programmable group relays can be set to have the re-flash facility. This means the first alarm to alarm in the group will change the state of the relay and any subsequent alarms within the same group will cause the relay to pulse for approximately 0.5 seconds.



**Audible Outputs**

The standard unit has two integral audibles which can be configured as a critical and non-critical audible. In addition four standard relays can be programmed to drive external audibles. In total up to sixteen different audible groups can be programmed.

**Connections**

All connections are made to the rear of the unit, using two part screw terminals capable of taking 2.5mm<sup>2</sup> cable. For additional security these terminals are also fitted with retaining screws at each end.

**DISPLAY**

**Window Sizes**

The flexible unit is designed to be fully modular using a cell based structure.

Each cell can house:

- One large window (60 x 60mm)
- Two medium windows (60 x 30mm)
- Four small windows (30 x 30mm)

Window sizes can be mixed as required

**Backlit illumination**

Each window is backlit using the latest ultra-bright, white LEDs. These provide a true “fit and forget” solution and improve the reliability without compromising the display brightness or clarity. Window colours available are red, amber, yellow, white, green and blue.

**GENERAL**

**Complete Alarm System**

Everything is contained within the standard MTL RTK725B Annunciator to provide a complete alarm monitoring system. This includes power supply, all pushbuttons and local audibles.

**First-Up Alarms**

In alarm annunciation applications it is often essential to know which alarm occurred first in a particular group. To this end, four different first-up sequences and 16 different first-up groups are available, all user programmable through the configuration software.

**Power Supplies**

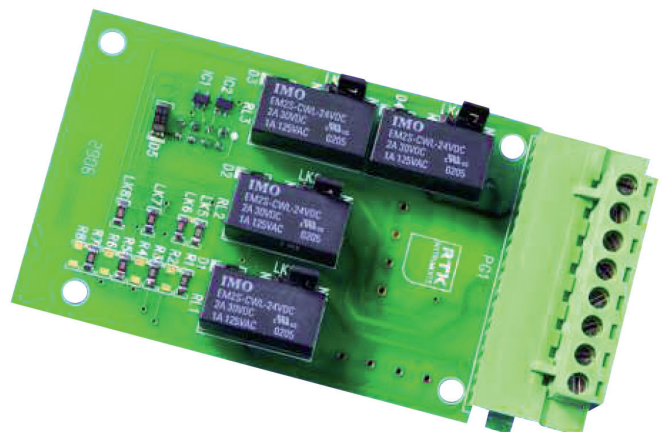
The MTL RTK725B can be powered from remote 24VDC power supplies or alternatively can be fitted with integral power conversion modules making it possible to connect directly to higher AC or DC supplies.

**CE Marked**

Designed to meet the requirements of European EMC and LVD Directives.

**Wall, Panel and Rack Mounted**

The standard unit is supplied as a panel mounted version ready for customers to drop into a single cut-out. The rear of the annunciator must be protected by an enclosure which is at least IP30 and secured by a tool or key. If required Eaton can supply the MTL RTK725B Annunciator fully integrated into wall mounting or floor standing enclosures or mounted in standard 19” plates.



**TECHNICAL SPECIFICATION**

**INPUTS**

The inputs are all bipolar so can accept AC or DC voltages.

**Alarm Contacts**

The standard unit is suitable for volt-free contacts, 24 or 125VDC powered inputs. Each input can be easily set to operate from either a Normally Open or Normally Closed field contact.

**Isolation**

All customer inputs are optically coupled as standard and are capable of withstanding a 1000V Megger® test to ground.

**Field Contact Voltage**

This voltage is distributed through the annunciator to field contacts. As standard, this is selectable between 24 and 125V. As an option, a different version is available for 48V. The inputs are all bipolar so can accept AC or DC voltages.

**Response Time**

The response time is software configurable on each channel from 1ms to 65s. As a default the system is supplied at 10ms for all channels.

**First-up Discrimination**

Better than 10ms

**Pushbuttons**

Both integral and terminals for remote fitting

- Lamp Test
- System Test
- Acknowledge
- Mute
- Reset
- First-up Reset

It is not necessary to use the standard integral Pushbutton Module. If required, the position normally used for this module can be fitted with additional alarm windows and external pushbuttons wired to terminals.

**OUTPUTS**

**Common Relays**

The MTL RTK725B system is totally flexible in terms of common relay outputs. Up to 32 relays can be fitted which can be configured as group relays, horn relays, ring-back relays, diagnostic relays etc. All systems come with a standard four relays, one of which will be configured as "watchdog" relay which will trip if any card fails or there is any internal system fault.

**Repeat Relays**

Each alarm way can have up to two individual repeat relays. Changeover contact available.

**Relay ratings**

Relay contacts rated at:  
125VDC @ 0.5A,  
24VDC @ 2A, resistive.

**Audible**

Two integral audibles are included which can be programmed as critical or non-critical horns.

Audible 1: 3kHz piezoelectric buzzer at 90dB 30cm.

Audible 2: 2.5kHz piezoelectric buzzer at 80dB 30cm.

**Communications**

RS485 2 or 4 wire. Master and Slave configurations. Supports bi-directional communications.

Entry Level: Isolated RS485 port - RTK/AMS or Modbus

**RTU**

Standard: 2 off Isolated RS485 ports. Many protocols available.

**TIME STAMPING**

**Resolution**

1 ms across the whole system up to 256 channels.

**Accuracy**

± 0.5 ms

**Synchronisation**

Via Real Time Clock (RTC) Battery Backed Optional GPS Master Clock  
Buffer size on each System:  
- 900 events on each alarm card  
- 500 events on rear port comms card  
- 700 events in sort buffer on comms card

**DISPLAY**

**Window Sizes**

Small: 30 x 30mm  
Medium: 60 x 30mm (W x H)  
Large: 60 x 60mm

**Window Colours**

Red, Amber, Yellow, White, Green and Blue

**Illumination**

Small window: Single white LED  
Medium window: Dual white LED  
Large window: Four white LEDs  
Each LED is plugged into a base to allow easy serviceability in case of LED failure.

**Legends**

Laser printed onto standard acetate sheet, using templates provided by Eaton.

**GENERAL**

**Supply Voltage**

24VDC Nominal (19-28VDC)

**Integral Power Supplies**

Universal AC or DC supply  
85-264VAC  
88-300VDC

Each Power Supply Card can power up to 40 small, 20 medium or 10 large windows. Additional power supplies will be required for systems larger than the above.

**Supply Current Per Alarm Card (at 24VDC supply)**

Quiescent: 25mA

**Window illumination current**

Small window: 20mA  
Medium window: 40mA  
Large window: 80mA

Relays: All window sizes  
10mA per relay

Additional current for pushbutton module, common relay and audible is nominally 200mA.

Standard External Power Supplies and DC/DC Converters can be supplied on request.

**Compliance**

Immunity to EN61000-6-2:2005  
Emissions to EN61000-6-4:2007  
LVD to EN61010-1:2010 & IEC61010-2-201

**Surge Immunity**

To ANSI/IEEE C37.90:1989

**Environment**

Operating temperature: -20 to 60°C  
Storage temperature: -20 to 80°C  
Humidity: 0-95% RH, non condensing

**Protection**

Front of panel: IP41  
Rear of enclosure: IP20  
Optional covers and enclosures to protect from IP54 up to IP67

**Connections**

All connections are two-part rising clamp type terminals, for conductors up to 2.5mm² with retaining screws to ensure connectors cannot fall out.

**Weight**

Approximately 0.3kg per module



**Eaton Electric Limited,**  
Great Marlings, Butterfield, Luton  
Beds, LU2 8DL, UK.  
Tel: + 44 (0)1582 723633 Fax: + 44 (0)1582 422283  
E-mail: rtkenquiry@eaton.com  
www.mtl-inst.com

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**EUROPE (EMEA):**  
+44 (0)1582 723633  
mtlenquiry@eaton.com

**THE AMERICAS:**  
+1 800 835 7075  
mtl-us-info@eaton.com

**ASIA-PACIFIC:**  
+65 6 645 9888  
sales.mtlsing@eaton.com

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