RTK RT range

MTL AC and DC power supplies

- **5, 12 or 24VDC output**
- **Choice of AC and DC supply**
- **CE marked and UL, CUL listed**
- **Wide supply range**
- **High reliability**
- **Fully protected output**
- **Mounting accessories**

Quality power conversion products.

Designed to complement the RTK range of MTL alarm annunciators and related instrumentation, the RT range provides cost effective supplies to convert from various AC or DC supply voltages to 5, 12 or 24VDC.

All units provide a fully regulated and stable output which is protected against over-voltage, over-current and short circuit.

CE marked and certified to UL and CUL standards gives you the confidence you need when installing these products as a critical element in the system.

Dual redundant versions of these power supplies are also available for critical applications, see separate datasheet on RT-AD range.

Powering Business Worldwide

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

Publication No. EPS RTK RT range Rev 3
October 2016

TECHNICAL SPECIFICATION

Supply AC versions

Universal 88-264VAC (120-370VDC).

Supply DC versions

Nominal 24VDC (19-36VDC).
Nominal 48VDC (36-72VDC).
Nominal 110VDC (72-144VDC).

Outputs

From 25W to 500W for 5, 12 or 24VDC.

Adjustment

+/-10% from rated voltage via single turn potentiometer.

Over-voltage protection

115-145% rated output voltage.

Overload protection

105-150% shut off, AC recycle to restart short circuit and overload.

Typical tolerance

±1-2% depending on exact model.

Typical efficiency

80-85%

Typical ripple and noise

150mV on 24VDC output supply.

Safety standards

UL1012, UL60950-1, TUV EN60950-1.

EMC standards

EN5022 class B, EN61000-2-2,3.
EN61000-4-2,3,-4,–5,6,8,11, ENV50204.

Environment

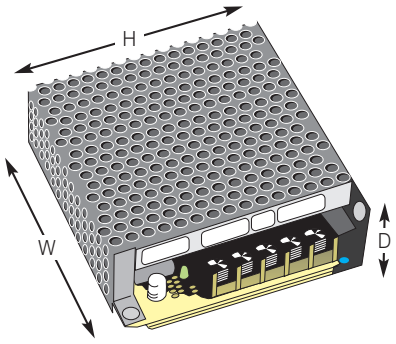
Operating temperature 0-60ºC.
Can operate at higher temperatures when suitably de-rated.

Connections

9.5mm Terminal Block.

Accessories

Mounting plates and DIN-rail mounting brackets and clips.



RT-A RANGE (AC SUPPLY)

Model	Wattage	Supply	Output	Weight	Dimensions (W x H x D)
RT-A-25-5	25W	88-264VAC (120-370VDC)	5VDC @ 5.0A	0.39	99 x 97 x 36mm
RT-A-25-12			12 VDC @ 2.1A		
RT-A-25-24			24VDC @ 1.1A		
RT-A-40-5	40W	88-264VAC (120-370VDC)	5VDC @ 8.0A	0.44	129 x 98 x 38mm
RT-A-40-12			12VDC @ 3.5A		
RT-A-40-24			24VDC @ 1.8A		
RT-A-60-5	60W	88-264VAC (120-370VDC)	5VDC @ 12.0A	0.51	159 x 97 x 38mm
RT-A-60-12			12VDC @ 5.0A		
RT-A-60-24			24VDC @ 2.5A		
RT-A-100-5	100W	88-264VAC (120-370VDC)	5VDC @ 20.0A	0.65	199 x 98 x 38mm
RT-A-100-12			12VDC @ 8.5A		
RT-A-100-24			24VDC @ 4.5A		
RT-A-150-5	150W	88-264VAC (120-370VDC)	5VDC @ 30.0A	0.8	199 x 110 x 50mm
RT-A-150-12			12VDC @ 12.5A		
RT-A-150-24			24VDC @ 6.5A		
RT-A-320-5	320W	88-264VAC (124-370VDC)	5VDC @ 50.0A	1.18	215 x 115 x 50mm
RT-A-320-12			12VDC @ 24.0A		
RT-A-320-24			24VDC @ 12.5A		
RT-A-500-12	500W	88-264VAC (124-370VDC)	12VDC @ 40.0A	1.9	170 x 120 x 93mm
RT-A-500-24			24VDC @ 20.0A		

RT-D RANGE (DC SUPPLY)

Model	Wattage	Supply	Output	Weight	Dimensions (W x H x D)
RT-D-25*-5	25W	24, 48VDC (see below)	5VDC @ 5.0A	0.39	99 x 97 x 36mm
RT-D-25*-12			12VDC @ 2.1A		
RT-D-25*-24			24VDC @ 1.1A		
RT-D-50*-5	50W	24, 48VDC (see below)	5VDC @ 10.0A	0.51	159 x 97 x 38mm
RT-D-50*-12			12VDC @ 4.2A		
RT-D-50*-24			24VDC @ 2.1A		
RT-D-100*-5	100W	24, 48, 110VDC (see below)	5VDC @ 20.0A	0.65	199 x 98 x 38mm
RT-D-100*-12			12VDC @ 8.5A		
RT-D-100*-24			24VDC @ 4.5A		
RT-D-150*-12	150W	24, 48, 110VDC (see below)	12VDC @ 12.5A	0.8	199 x 110 x 50mm
RT-D-150*-24			24VDC @ 6.3A		
RT-D-350*-12	350W	24, 48, 110VDC (see below)	12VDC @ 27.5A	1.1	215 x 115 x 50mm
RT-D-350*-24			24VDC @ 14.6A		

Insert in place of *
B for nominal 24VDC (19-36VDC)
C for nominal 48VDC (36-72VDC)
D for nominal 110VDC (72-144VDC)

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Beds, LU2 8DL, UK.
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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 6645 9864 / 6645 9865
sales.mtlsing@eaton.com

RTK 725 range

Programmable alarm annunciator

- **Modular construction from 1 to 256 alarm channels**
- **Multi-redundant design so there is no single point of failure**
- **Choice of window sizes**
- **Available in six colours with conventional filament lamps or removable LED assemblies**
- **Each channel programmable from the front**
- **Low cost RS485 bi-directional Communications option**
- **Panel or 19" rack mounting or fully integrated into wall mounting or floor standing enclosures**

The RTK 725 range of Alarm Annunciators provide the ideal solution to all your alarm system requirements.

Whatever the size or complexity of your alarm scheme the 725 range can be configured to provide the best solution. With a field proven multi-redundant ASIC design this Annunciator gives the best in reliability, flexibility and programmability for all applications and industries.

With a range of three window sizes, six colours and a choice of bulb or ultra-bright LED illumination, a format and size will be available to match your exact requirements. Each individual alarm way is fully programmable from the front, using the integral programming module. This allows the user to select many different features giving thousands of possible combinations.

Numerous relay outputs are included as standard to connect to external equipment and individual repeat relays or communications can be supplied as an option incorporated as required.

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Beds, LU2 8DL, UK.
Tel: + 44 (0)1582 723633 Fax: + 44 (0)1582 422283
E-mail: rtkenquiry@eaton.com
www.mtl-inst.com

Publication No. EPS RTK 725 range Rev 9
January 2017

FEATURES & BENEFITS

Modular Construction
The modular design of the RTK 725 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 alarm channel to a maximum of 256 channels with a choice of three window sizes.

ASIC Technology
The RTK 725 range of Annunciator builds on the success of previous designs using ASIC technology but taking the design to new levels of reliability.

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 module, which can cause complete system failure. All alarm cards in the RTK 725 range can act as the master controller, if a card does fail then only two alarm points are affected. This design combined with the huge reduction in component count gives a far higher Mean Time Between Failures.

Fully Field Programmable
The user may select from a vast range of different operating functions and alarm sequences including all the standard sequences defined in the ISA publication Alarm Sequences and Specifications S18.1 1979(R1985). The modular design of the 725 range allows units to be assembled in almost any size to suit the customer's exact requirements. Units can be constructed from a single alarm channel to a maximum of 256 channels with a choice of three window sizes. All programmed information is stored in EEPROM giving repeatability, total reliability and requiring no battery backup.

Service From The Front
TAll normal servicing and maintenance is carried out from the front of the unit without the need for special tools. This includes bulb/LED removal, legend changes and all programming. When commissioning the unit it is a simple matter to check and amend all programmed settings from the front of the unit without removing power, boards, backplates or alarm bezels.

This programming module can also be used as a diagnostic tool to indicate the current state of the associated field contacts.

Pushbutton/Programming Module
As standard the bottom right cell is fitted with an integral pushbutton and audible module. This provides six pushbuttons and a 90dB audible together with a 'power on' LED. The rubber keypad is designed for harsh environments with an effective tactile feel to aid operators. It is this keypad that is dropped down to become the programming module when configuring the system.

Shallow Depth
Even with the advanced programming facilities the unit is still only 145mm deep, a fraction of the depth of traditional annunciator systems.

Pre-configured
If specified at the time of ordering, systems can be supplied pre-configured and complete with the associated coloured filters and film legends, ready to install and commission.

Auto-mute and Auto-acknowledge
It is a frequent requirement of alarm systems to have an automatic mute or even automatic acknowledge after a certain time delay. This is another programmable feature supplied as standard on all units.

Expandability
Each Annunciator can be expanded using a factory supplied ribbon cable to link to additional units. Systems consisting of multiple Annunciators can be daisy chained together to form larger systems with common features. All first-up information, synchronised flash rates and pushbutton functions are linked through this ribbon cable.

Sleep Mode
Increasingly Alarm Annunciators are used in applications where the primary supply is produced from batteries, typically substations, which are not permanently manned. To conserve power in these situations the Annunciator can be placed in "Sleep" mode. In this mode the Annunciator works as normal, latching in alarms and driving repeat relays, but the drive to the lamps, horn and pushbutton inputs are disabled.

When the unit is removed from "Sleep" mode all alarm information is available in the normal way.

Serial Communication
Bi-directional RS485 communication is available as a low-cost option. This can be used to receive alarm information from or transmit to third party equipment. Each alarm channel can be configured to accept alarm inputs from the standard alarm contact or via the communications. The communications can be used to create systems linking two or more Annunciators together as repeat or grouped displays.

INPUTS & OUTPUTS

Inputs
All inputs are opto-coupled and comply to the stringent requirements of the European Directive on electromagnetic compatibility and the low voltage directive. This ensures there is no possibility of false alarms. The standard input voltage is 24V but units can be supplied with field contact voltages of 48 or 125V. All versions are capable of accepting AC or DC voltages.

Common Outputs
As standard the 725 range has five relay outputs to cover all normal alarm applications. These are as follows:

1 Critical Audible Relay
2 Non-critical Audible Relay
3 Critical Group Relay
4 Non-critical Group Relay
5 Special Function Relay

Each of the group relays can have a reflash facility to indicate the occurrence of a new alarm within the group. The Special Function Relay can be set to act in a number of different ways to suit the particular application. This function can be selected from one of the following:

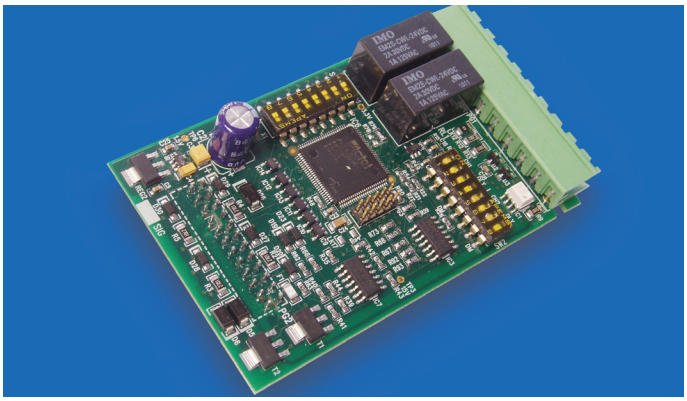
- Total Group Relay
- Ringback Audible Relay
- First-Up Relay
- Watchdog Relay

Audible Outputs
The standard unit will be supplied with an integral 90dB(A) audible and two audible relays (critical and non-critical). Each alarm way can be programmed to be in one, both or neither of these two groups.
The integral audible will always sound on the critical group

Group Outputs With Reflash Facility
Two group relays are provided as standard (critical and non-critical). As with the audible relays, each alarm way can be programmed to be in one, both or neither group. Each group relay can also be set to have a reflash facility. This means the first 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.

Auxiliary Relays
Each alarm way can be supplied with an individual repeat relay. Each relay can be programmed to be energised or de-energised on alarm and both normally open and normally closed contacts are available on customer terminals. The repeat relays can be set to follow the alarm logic, follow the field contact or follow the display.

Connections
All connections are made to the rear of the unit, using two part screw terminals capable of taking 2.5mm^2 cable.



DISPLAY

Window Sizes
This 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 by long life incandescent lamps or 'Fit & Forget' removable LED Assemblies. All colours are available for both lamps and LEDs. These colours are red, amber, yellow, white, green and blue.

GENERAL

Complete Alarm System
Everything is contained within the standard 725 Annunciator to provide a complete alarm monitoring system. This includes all pushbuttons and a local audible.

First-Up
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 four different first-up groups are available, all user programmable from the front.

Power Supplies
The supply required to power the Annunciator is nominally 24VDC. This can be a simple unregulated low cost source as the annunciator itself will provide all the necessary smoothing and regulation.
Eaton can supply suitable Power Supplies or DC/DC Converters if converting from higher AC or DC voltages including the RT-AD Dual Reduandant Supplies.

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

Wall, Panel and Rack Mounting
The standard unit is supplied as a panel mounting 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 725 Annunciator fully integrated into wall mounting or floor standing enclosures or mounting within standard 19" plates.

CUSTOM SOLUTIONS

ANNUNCIATOR OPTIONS

Illumination (Option LED)
The use of LEDs is becoming more popular and these can be supplied as an optional extra. The 10mm glass wedge bulb is replaced with a small ultra-bright LED Assembly which plugs into the same lampholder as the bulb.

Tropicalised (Option TRO)
In harsh environmental conditions where there may be moisture or chemicals within the atmosphere, there is an option to tropicalise the unit. This consists of covering all the pcbs with a conformal coating and using sealed relays.

Repeat Relays (Option RLY)
The five common relays are always fitted as standard but there is an option of having individual repeat relays for all alarm ways.

Customer Specified Response Time (Option CRT)
As standard the alarm will be activated by signals over 25ms in duration. If this time is either too long or too short to suit the particular application there is an option to increase or decrease this response time.

Disable Horn (Option DHN)
If the integral horn is not required when the audible relays are being used, this can be disabled.

Field Contact Voltage (Option FC)**
The standard unit uses either volt-free contacts or 24V signals to trigger alarms. It is possible to change the field contact voltage to alternatives such as 48V or 125V. All versions are capable of accepting AC or DC voltages.

Rack Mounting
The Annunciators can be supplied premounted in standard 19" aluminium mounting plates. A maximum of 7 cells will fit across a 19" front plate.

RS485 Serial Communications (Option COM)
All 725 range of Annunciators can be fitted with the optional serial communications card, which is usually located in the cell directly above the pushbutton module. This card provides RS485 bi-directional communication to and from third party devices using modbus ASCII or modbus RTU protocols as standard. All pushbutton controls can be local to the annunciator or driven remotely via the communications link. Up to 64 annunciators can be multi-dropped on the same communications connection.

Adjustable Response Time (Option AD*)
If specified at the time of ordering each channel can be supplied with user adjustment of the response time across any range up to 60 seconds.

Three Horn Relay Outputs (Option 3HN)
It is possible to change the operation of the common relays to have three horn relays and a single group relay rather than two of each. With this option the method of programming of the relays remains the same but their operation is altered slightly.

Three Group Relay Outputs (Option 3GP)
It is possible to change the operation of the common relays to have three group relays and a single horn relay rather than two of each. With this option the method of programming of the relays remains the same but their operation is altered slightly.

SYSTEMS AND SPECIALS

Systems
Eaton has extensive systems experience and can supply an alarm annunciator as part of a complete alarm system. This may include installing in wall mounting or floor standing enclosures, integrating into mimic displays or wiring together with other switchgear, power supplies or battery backup systems.
Because of the varied nature of this type of special system, they are priced on application against an agreedspecification.

Greater Ingress Protection
The 725 range facia is rated at IP41. Optional hinged plexiglass covers are available in all sizes for IP54 applications. For extreme environmental conditions enclosures with viewing windows are available to meet IP66 and IP67 standards.

LAMP-ONLY MODULE

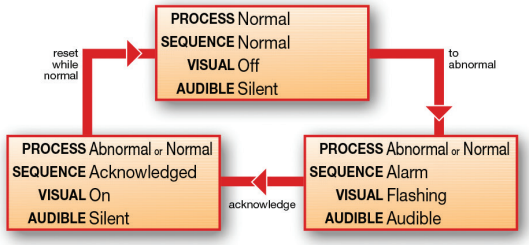
Matching Display
To complement our 725 range of Annunciator the 725LO lamp-only unit is available, which provides the same flexibility of display size, window colours and illumination by lamp or removable LED assemblies. The display can be supplied complete with lamp test facilities or with integral audible and pushbuttons if required. With lamponly versions the lamps or LEDs are simply wired to customer terminals for connection to remote devices as required. See separate datasheet for full details.

ALARM SEQUENCES

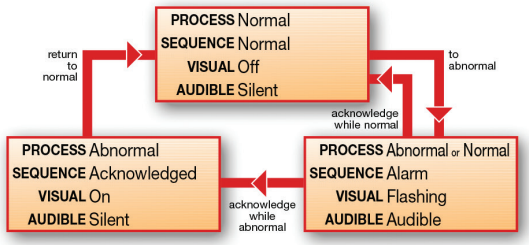
Each alarm channel can be configured to suit the operating sequence required as listed in the ISA publication ***Annunciator Sequences and Specifications S18.1 1979 (R1985).*** Systems can be configured with different features on different alarm ways.

The diagram below shows the most commonly used sequences.

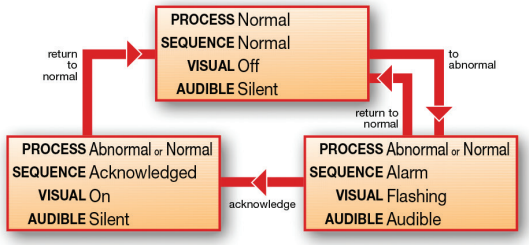
MANUAL RESET — Sequence Code M



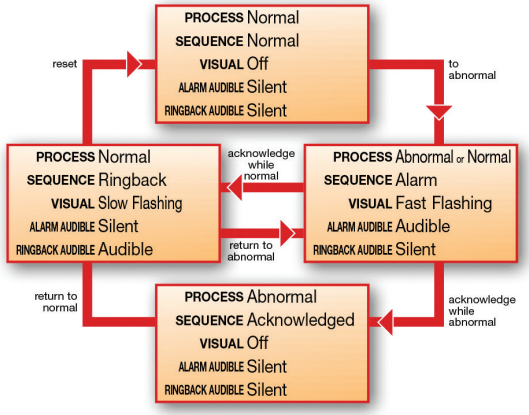
AUTOMATIC RESET — Sequence Code A



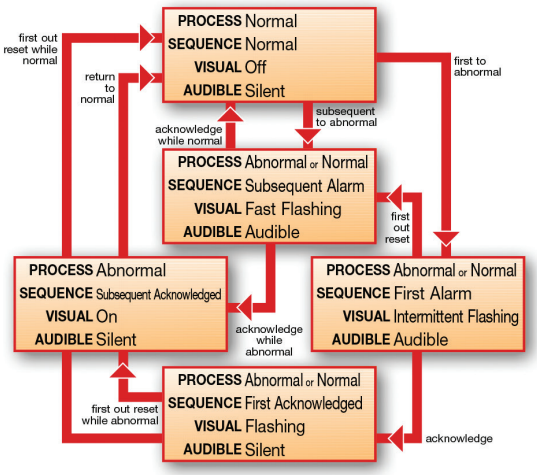
NO LOCK IN



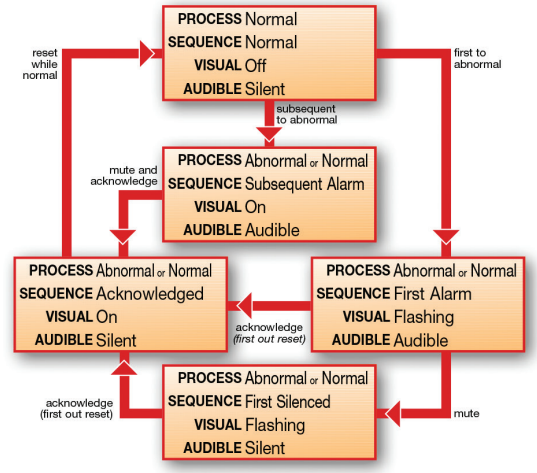
RINGBACK — Sequence Code R



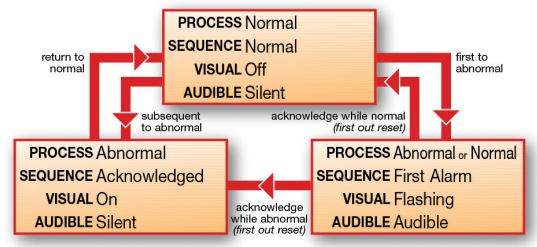
AUTOMATIC RESET FIRST OUT — Sequence F3A
WITH FIRST OUT FLASHING AND RESET PUSHBUTTON



MANUAL RESET FIRST OUT — Sequence F2M-1
WITH NO SUBSEQUENT ALARM FLASHING AND SILENCE PUSHBUTTON



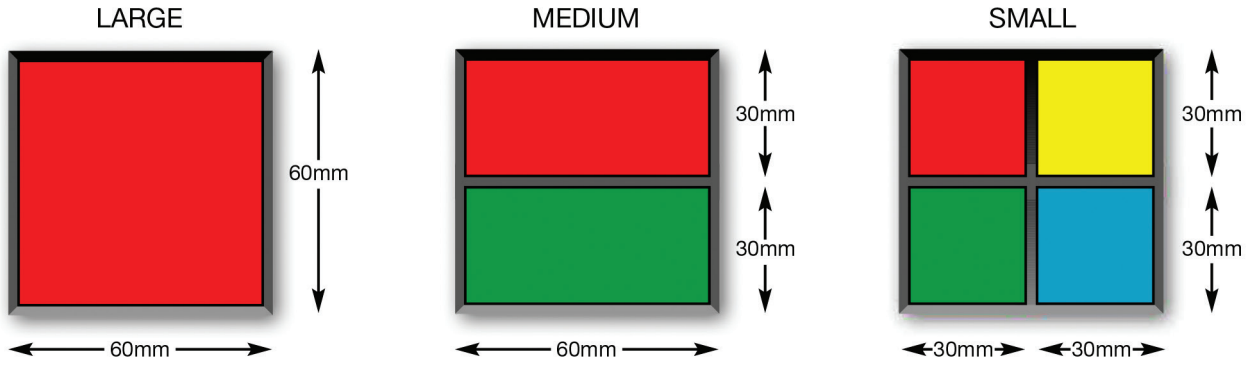
AUTOMATIC RESET FIRST OUT — Sequence F1A
WITH NO SUBSEQUENT ALARM STATE



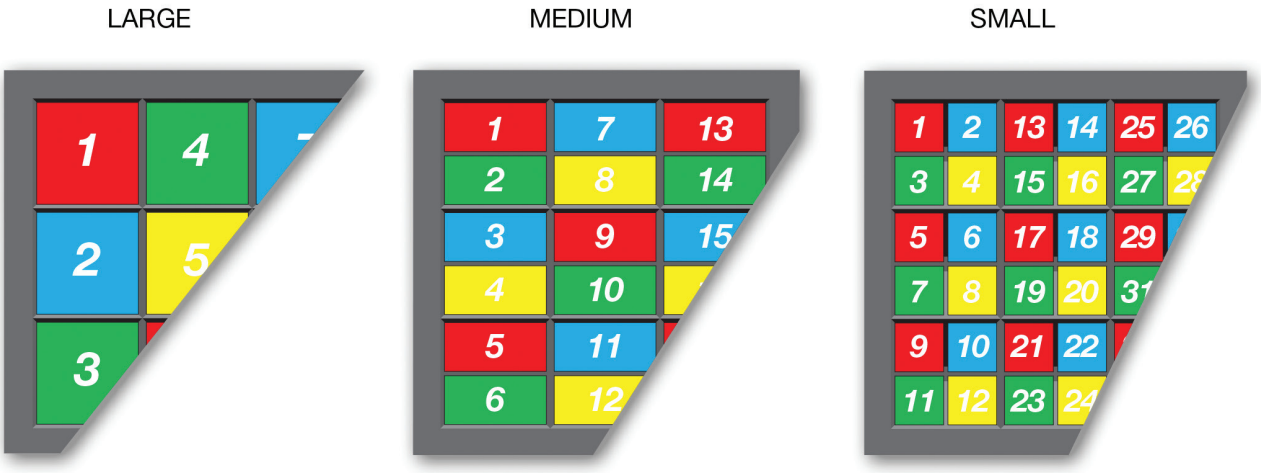
SYSTEM CONFIGURATION

WINDOW SIZE AND LAYOUT

The 725 range of Annunciator is modular in design allowing customers to quickly design each alarm system to suit their exact requirements for both window size and number of windows. The system is built up of multiple cells; each cell has dimensions of 60 x 60mm and can be configured as a single large window (60 x 60mm), two medium windows (60 x 30mm) or four small windows (30 x 30mm). The units are built up from pre-tested components so custom solutions can be provided with the best possible lead times.



Units can be configured into almost any shape and size as long as the overall width or height is less than 30 cells. Windows are numbered depending on window size as shown in the examples below. Please refer to these numbers when providing legend/ configuration details



SYSTEM CONFIGURATION

DIMENSIONS

The dimensions are very simple to work out using the following formula or alternatively read from the table below.

Overall dimensions = [(No of cells) x 60] + 24mm

Cutout dimensions = [(No of cells) x 60] +14mm

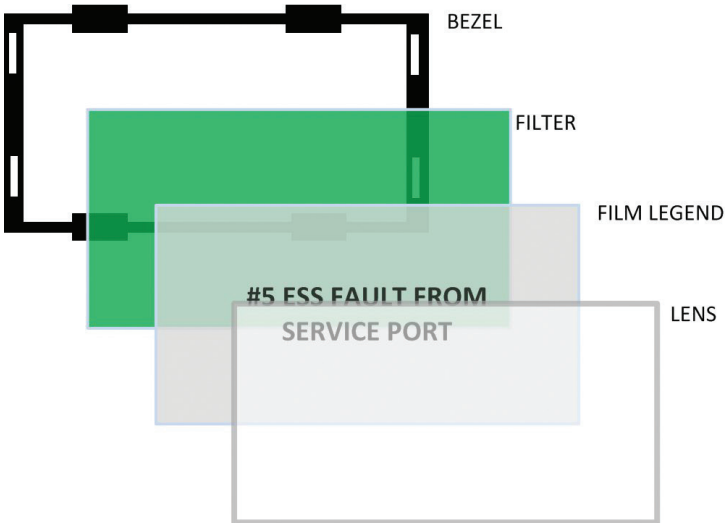
PANEL DIMENSION IN mm						
WIDE				HIGH		
CELLS	Overall	Cut-Out		CELLS	Overall	Cut-Out
1	88	74		1	88	74
2	148	134		2	148	134
3	208	194		3	208	194
4	268	254		4	268	254
5	328	314		5	328	314
6	388	374		6	388	374
7	448	434		7	448	434
8	508	494		8	508	494
9	568	554		9	568	554
10	628	614		10	628	614
11	688	674		11	688	674
12	748	734		12	748	734
13	808	794		13	808	794
14	868	854		14	868	854
15	928	914		15	928	914
16	988	974		16	988	974

FILM LEGENDS

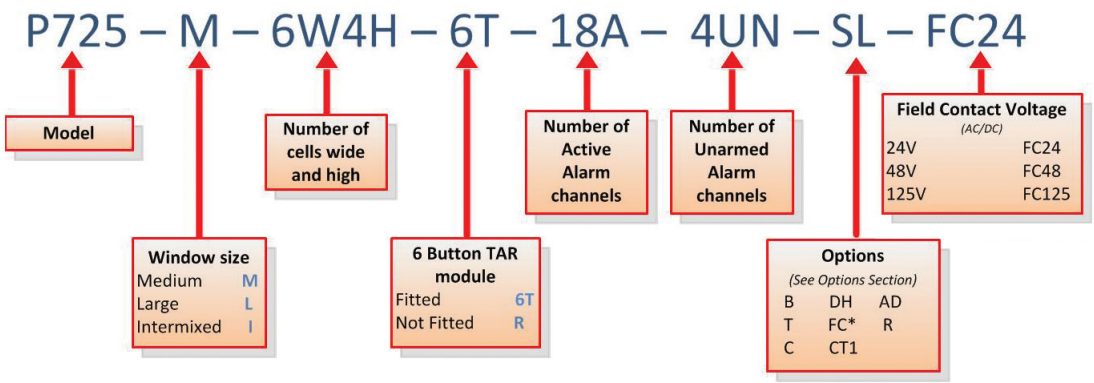
As fully approved details of alarm text is often not available at the time of order, acetate film legends are generally used. Eaton can supply the 725 range of Annunciator complete with alarm legends or they can be generated by the customer using a Microsoft Excel software template. This allows the user to create their own legends locally. Once the details have been entered they can be printed onto acetate film via a laser printer. This software template makes the production of legends in different languages, sizes and fonts very straightforward.

BEZEL ASSEMBLY

The diagram below shows how the bezel assembly is constructed using different layers to diffuse the light, colour and window and show the text using a film legend insert. These assemblies are simple to move around in the Annunciator frame and to change colour or text on site.



ORDER CODE



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 or 24VDC 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 1000V Megger test to ground.

Field Contact Voltage
This voltage is distributed through the annunciator to field contacts, 24VDC is supplied as standard. Options for 48 and 125V are available. The inputs are all bipolar so can accept AC or DC voltages.

Response Time
- Standard units 25ms
- Customer defined fixed response time from 1ms to 60s, specified at time of order.
- Selectable response times (Option AD) each channel can be set with one of the following response times 5ms, 10ms, 25ms, 50ms, 200ms, 2s, 5s, 60s

First-up Discrimination
Better than 5ms

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

Optional remote pushbutton/ programming assembly.

OUTPUTS

Common Relays
Common Relays All systems come with the five common, programmable relays fitted behind the Pushbutton Module.

1. Critical Audible
2. Non-critical Audible
3. Critical Group
4. Non-critical Group
5. Special Function Relay

Repeat Relays
Each alarm way can have individual repeat relays. Changeover contact available. Relay contacts rated at 125VDC @ 0.5A, 24VDC @ 2A, resistive. Two relays per channel can be provided (Option RL2).

Audible
3kHz peizoelectric buzzer at 90dB 30cm.

Communications (Optional)
RS485 2 or 4 wire, Modbus, ASCII or Modbus RTU protocol user selectable. Master and Slave configurations. Supports bi-directional communications Ethernet Modbus TCP/IP. Alarm Management software. Other protocols available on request.

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 for both Lamp and LED Illumination.

Illumination

Small window	Single Bulb/LED
Medium window	Dual Bulb/dual LED
Large window	Four Bulb/four LEDs

The LEDs are ultra-bright LED Assemblies that plug into the standard 10mm wedge style lampholder.

Lamps
28V 50mA 10mm glass wedge. 14,000 hour design life.

LED Assemblies
10mm base 'Fit and Forget' plug-in LED Assemblies, typically 20mA, minimum 11-year life expectancy.

GENERAL

Supply Voltage
24VDC Nominal (19-28VDC)

Supply Current Per Alarm Point (at 24VDC supply)

Quiescent:		22mA
Lamps:	Small window	45mA
	Medium window	90mA
	Large window	180mA
LEDs:	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 100mA.
Standard Power Supplies and DC/ DC Converters can be supplied on request.

Compliance
Emissions to BS EN 61000-6-4:2007 + A1:2011
Immunity to BS EN 61000-6-2:2005
LVD to BS EN 61010-1:2010 and IEC61010-2-201

Surge Immunity
To ANSI/IEEE C37.90.1:1989
BS EN 61000-4-5:2006

Environment
Operating temperature (lamp version) -20 to 50°C
Operating temperature (LED version) -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
Two-part rising clamp type terminals, for conductors up to 2.5mm²

Weight
Two-part rising clamp type terminals, for conductors up to 2.5mm²

Powering Business Worldwide

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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January 2017

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

RTK 725B

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 RTK 725B 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 RTK 725B 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.

Powering Business Worldwide

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

Publication No. EPS RTK 725B Rev 6
February 2024

FEATURES & BENEFITS

Modular Construction
The modular design of the RTK 725B 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 RTK 725B 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 RTK 725B 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 RTK 725B 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 RTK 725B 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. The 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 2.5mm² 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 RTK 725B 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

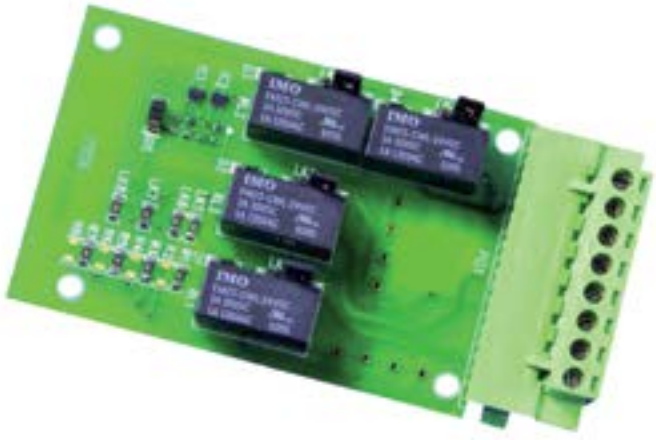
The RTK 725B can be powered from remote 24VDC power supplies or alternatively can be fitted with integral power conversion modules making it possible to connect directly to higher AC or DC supplies.

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 RTK 725B 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 RTK 725B 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

All Variants Op temp: -20 to 60°C
Other options Op Temp: -20 to 65°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 to IP54

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

Powering Business Worldwide

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

RTK RT range

MTL AC and DC power supplies

- **5, 12 or 24VDC output**
- **Choice of AC and DC supply**
- **CE marked and UL, CUL listed**
- **Wide supply range**
- **High reliability**
- **Fully protected output**
- **Mounting accessories**

Quality power conversion products.

Designed to complement the RTK range of MTL alarm annunciators and related instrumentation, the RT range provides cost effective supplies to convert from various AC or DC supply voltages to 5, 12 or 24VDC.

All units provide a fully regulated and stable output which is protected against over-voltage, over-current and short circuit.

CE marked and certified to UL and CUL standards gives you the confidence you need when installing these products as a critical element in the system.

Dual redundant versions of these power supplies are also available for critical applications, see separate datasheet on RT-AD range.

Powering Business Worldwide

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

Publication No. EPS RTK RT range Rev 3
October 2016

TECHNICAL SPECIFICATION

Supply AC versions

Universal 88-264VAC (120-370VDC).

Supply DC versions

Nominal 24VDC (19-36VDC).
Nominal 48VDC (36-72VDC).
Nominal 110VDC (72-144VDC).

Outputs

From 25W to 500W for 5, 12 or 24VDC.

Adjustment

+/-10% from rated voltage via single turn potentiometer.

Over-voltage protection

115-145% rated output voltage.

Overload protection

105-150% shut off, AC recycle to restart short circuit and overload.

Typical tolerance

±1-2% depending on exact model.

Typical efficiency

80-85%

Typical ripple and noise

150mV on 24VDC output supply.

Safety standards

UL1012, UL60950-1, TUV EN60950-1.

EMC standards

EN5022 class B, EN61000-2-2,3.
EN61000-4-2,3,-4,–5,6,8,11, ENV50204.

Environment

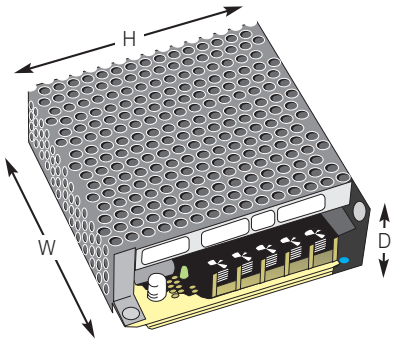
Operating temperature 0-60ºC.
Can operate at higher temperatures when suitably de-rated.

Connections

9.5mm Terminal Block.

Accessories

Mounting plates and DIN-rail mounting brackets and clips.



RT-A RANGE (AC SUPPLY)

Model	Wattage	Supply	Output	Weight	Dimensions (W x H x D)
RT-A-25-5	25W	88-264VAC (120-370VDC)	5VDC @ 5.0A	0.39	99 x 97 x 36mm
RT-A-25-12			12 VDC @ 2.1A		
RT-A-25-24			24VDC @ 1.1A		
RT-A-40-5	40W	88-264VAC (120-370VDC)	5VDC @ 8.0A	0.44	129 x 98 x 38mm
RT-A-40-12			12VDC @ 3.5A		
RT-A-40-24			24VDC @ 1.8A		
RT-A-60-5	60W	88-264VAC (120-370VDC)	5VDC @ 12.0A	0.51	159 x 97 x 38mm
RT-A-60-12			12VDC @ 5.0A		
RT-A-60-24			24VDC @ 2.5A		
RT-A-100-5	100W	88-264VAC (120-370VDC)	5VDC @ 20.0A	0.65	199 x 98 x 38mm
RT-A-100-12			12VDC @ 8.5A		
RT-A-100-24			24VDC @ 4.5A		
RT-A-150-5	150W	88-264VAC (120-370VDC)	5VDC @ 30.0A	0.8	199 x 110 x 50mm
RT-A-150-12			12VDC @ 12.5A		
RT-A-150-24			24VDC @ 6.5A		
RT-A-320-5	320W	88-264VAC (124-370VDC)	5VDC @ 50.0A	1.18	215 x 115 x 50mm
RT-A-320-12			12VDC @ 24.0A		
RT-A-320-24			24VDC @ 12.5A		
RT-A-500-12	500W	88-264VAC (124-370VDC)	12VDC @ 40.0A	1.9	170 x 120 x 93mm
RT-A-500-24			24VDC @ 20.0A		

RT-D RANGE (DC SUPPLY)

Model	Wattage	Supply	Output	Weight	Dimensions (W x H x D)
RT-D-25*-5	25W	24, 48VDC (see below)	5VDC @ 5.0A	0.39	99 x 97 x 36mm
RT-D-25*-12			12VDC @ 2.1A		
RT-D-25*-24			24VDC @ 1.1A		
RT-D-50*-5	50W	24, 48VDC (see below)	5VDC @ 10.0A	0.51	159 x 97 x 38mm
RT-D-50*-12			12VDC @ 4.2A		
RT-D-50*-24			24VDC @ 2.1A		
RT-D-100*-5	100W	24, 48, 110VDC (see below)	5VDC @ 20.0A	0.65	99 x 97 x 36mm
RT-D-100*-12			12VDC @ 8.5A		
RT-D-100*-24			24VDC @ 4.5A		
RT-D-150*-12	150W	24, 48, 110VDC (see below)	12VDC @ 12.5A	0.8	199 x 110 x 50mm
RT-D-150*-24			24VDC @ 6.3A		
RT-D-350*-12	350W	24, 48, 110VDC (see below)	12VDC @ 27.5A	1.1	215 x 115 x 50mm
RT-D-350*-24			24VDC @ 14.6A		

Insert in place of *
B for nominal 24VDC (19-36VDC)
C for nominal 48VDC (36-72VDC)
D for nominal 110VDC (72-144VDC)

Powering Business Worldwide

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 6645 9864 / 6645 9865
sales.mtlsing@eaton.com

RTK P725LO range

Display facias

- **A range of display types, sizes and configurations**
- **LED illumination**
- **Modular construction so displays can be matched to your exact requirements**
- **All units available in six window colours**
- **All units supplied complete and ready to panel mount**
- **Low installed depth**

A variety of display formats for alarm and status indication.

Designed to complement our range of MTL alarm annunciators and instrumentation products the display facias provide a range of cost effective products to show alarm and plant status in the clearest possible way.

The main ranges covers different applications and industries. All panels are modular in construction so can be configured to suit the exact shape and size requirements.

Various window sizes and styles are available, all back-lit by "fit and forget" ultra-bright LED assemblies to provide the clearest possible display to operators.

Alarm text is provided in the form of laser printed film legends, which allows changes to be easily made as plant needs evolve.

Powering Business Worldwide

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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January 2017

P725LO DISPLAY FACIA

This is a lamp-only version of the best selling 725 range alarm annunciator. Using the same modular construction, frame assembly and illumination method means these displays will match exactly the full annunciator system.

Window details

The P725LO is available in three different window sizes, small, medium and large:

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

The display is built up from multiple cells; each cell has dimensions of 60 x 60mm and can be configured as a single large window, two medium windows or four small windows.

Display size

Almost any size and format can be constructed using the basic cell structure, with a window size being selected from above or if required intermixed windows can be supplied. The maximum overall size either vertically or horizontally is 30 cells.

Window colours

All three window sizes are available in the following six colours.

- Red
- Amber
- Yellow
- White
- Green
- Blue

Supply voltage

24VDC is normally used to power the illuminated windows.

Standard systems are supplied with a positive common linked internally. This allows externally switched 0V signals to initiate each channel as required.

As an option, systems with a common 0V can be used instead, allowing +24VDC switched inputs to be used. This must be specified at the time of ordering.

Integral components

As these displays are used for alarm indication it is often necessary to include pushbuttons and audibles within the display itself to acknowledge and reset alarms. These are normally fitted in the bottom right hand cell.

Window marking

Displays can be configured with the required filter colours and film legends to suit the exact customer's requirements or alternatively we can supply a template to allow users to create their own legends locally.

Connections

The standard display has rear mounted rising clamp terminals suitable for solid or stranded cable up to 2.5mm^2. There is a single terminal for each window and a common return to simplify the system wiring.

TECHNICAL SPECIFICATION

LED version

"Fit and forget" ultra-bright removable LED assemblies (2 LED's per assembly) that plug into the standard 10mm wedge lamp socket

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

Environment

Operating temperature:

-20 to 60°C

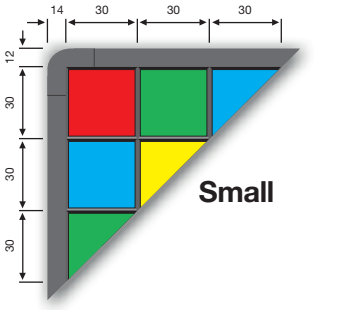
Storage temperature: –20 to 80°C
Humidity: 0-95% RH non condensing

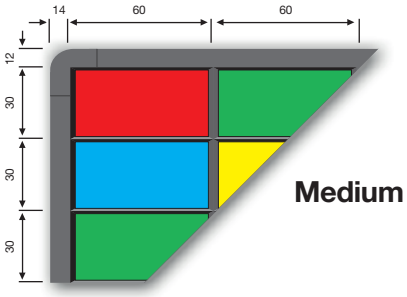
Protection

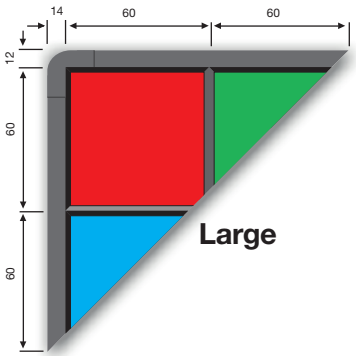
Front of panel IP41
Rear of panel IP20

Compliance

Immunity to EN61000-6-2:2001
Emissions to EN61000-6-4:2001
LVD to EN61010-1:1993

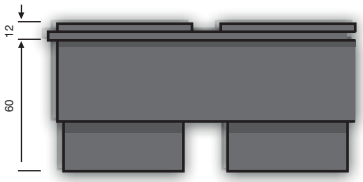






Small:	Height	= 24 + (rows x 30)
	Width	= 24 + (columns x 30)
Medium:	Height	= 24 + (rows x 30)
	Width	= 24 + (columns x 60)
Large:	Height	= 24 + (rows x 60)
	Width	= 24 + (columns x 60)

For cutout size subtract 14mm from each dimension



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

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

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

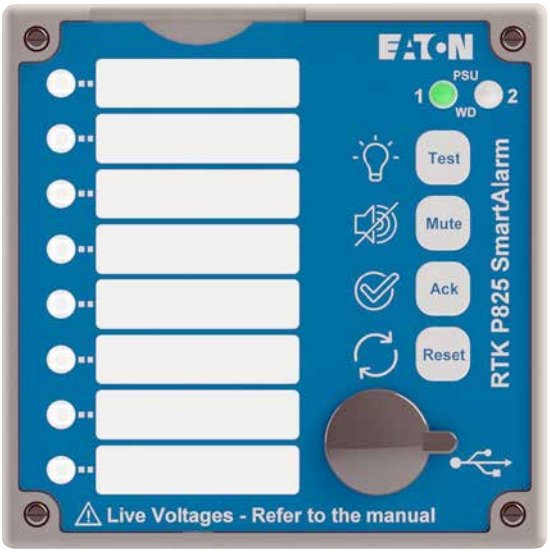
ASIA-PACIFIC:
+65 6645 9864 / 6645 9865
sales.mtlsing@eaton.com

Publication No. EPS RTK P725LO & DF30 Rev 3 180117
January 2017

RTK P825 SmartAlarm

Fully featured compact annunciator

- DIN Size Module with 8, 16, 24 and 32 channel versions
- Internally generated 24VDC signal supply, with options for powered inputs 24VDC, 125VAC/DC, 48VDC or 250VAC/DC
- Pluggable LED's in five colours, Red, Yellow, White, Blue and Green
- Remote Pushbuttons inputs with mappable functions
- Each channel is fully software configurable through a front panel USB port using the intuitive set-up utility
- Integrated power supply, providing direct connection to 85-264VAC or 88-300VDC.
- Optional wide range DC supply 19-72VDC
- Optional internal redundant power supply
- Full ISA 18.1 Sequences built in, programmable via front panel USB connection
- Optional IP54 protection
- No links required for relay configuration



The RTK P825 SmartAlarm brings together many years of development in Alarm Annunciator technology and builds on the functionality of the field proven RTK UC625.

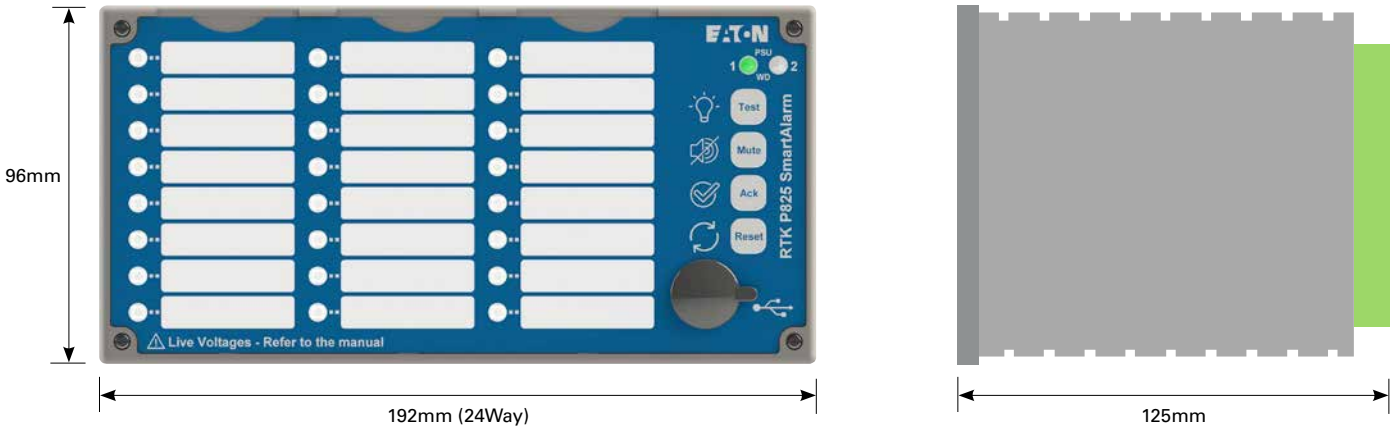
The RTK P825 SmartAlarm is designed as a complete alarm system with integral, audible, relays and pushbuttons for the most cost effective solution for monitoring critical process alarms. Incorporating ISA 18-1 1979 (R1992) alarm sequences which are programmable via the front panel mounted USB connector. The unit provides dual horn relays, LED display, optional signal duplicating relays and / or dual redundant PSU's, making the RTK P825 SmartAlarm an ideal choice where full functionality is required and space is a premium.

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

Powering Business Worldwide

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

Publication No. EPS RTK P825 Rev 2 061118
November 2018



FEATURES & BENEFITS

Modular Construction

The modular design of the SmartAlarm allows units to be assembled in three standard sizes 8 , 16 , 24 , 32 channels, all housed in DIN standard enclosures.

High intensity LEDs are utilised for the SmartAlarm and the following colour options are available ; White, Yellow, Green, Red and Blue. LEDs are designed to be easily interchangeable for on-site maintenance and commissioning.

Fully Software Configurable

Each Annunciator has a programming port located behind an IP rated bung on the front panel below the . This is a standard USB mini 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 range of functions, features and alarm sequences.

Alarm Sequences

All of the standard sequences are available as defined in the ISA publication "Alarm Sequences and Specifications S18-1 1979 (R1992)". 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 SmartAlarm is designed with comprehensive diagnostics to monitor all aspects of the systems operation. Any fault found will be indicated in the diagnostic windows of the configurator when a PC is connected to the unit. When the unit is operating normally without any connection to a PC, errors are indicated to the operator by flashing front panel LED's.

Communications

As an option a Modbus RTU RS 485 isolated serial port can be provided on the rear of the unit.

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 greatly reduces the possibility of false alarms. The standard unit provides an isolated +24VDC to power the individual signal inputs. Field contact voltage options of 24VDC/125VAC-DC or 48VDC/250VAC-DC are available.

Integral Redundant Power Supplies

In order to maintain the highest level of reliability in safety critical applications, all models can be equipped with optional integrated dual power supplies, whereas the standard unit is equipped with a single fully isolated universal input supply. Each supply is capable of accepting either 85-264VAC or 88-300VDC, or 19-72VDC specified at the time of order.

Field Contact Voltage Monitoring

The field contact voltage supply input is fuse protected and monitored for failure. If this supply failsf or any reason an output relay is tripped to warn operators that alarm information may be lost.

Sleep Mode

All units are equipped with 'Sleep' mode which is typically used in substation applications where the visual and audible outputs are disabled during unmanned periods to reduce drain on the station batteries. Whilst in 'Sleep' mode, the alarm logic will continue to react in the normal way including the operation of the group alarm relays and individual repeat and common alarm relays – ONLY the drive signals to the LEDs and the audibles are disabled until the unit is placed back into the 'Run' mode.

FEATURES & BENEFITS

Film Legend Engraving

Because the exact text is often not known at the time of order, the SmartAlarm has been developed to use acetate film , or Paper legends which allows users to easily generate their own legends using a computer and suitable printer.

Connections

All connections are made on the rear of the unit using two-part quick disconnect rising clamp terminals accepting up to 2.5mm^2 cable. All terminals are lockable using the screws at each end of the terminal making it impossible for terminals to fall out or be removed inadvertently.

Common Outputs

As standard, each unit is fitted with five common relays: Critical Audible Relay Non-Critical Audible Relay, Common group relay "A" Common group relay "B" and a Watchdog Relay.
The common alarm relays are equipped with a reflash feature to indicate the occurrence of a new alarm within the unit. The functrion of each common relay can be modified as required.

Watchdog LED's

A watchdog function is available on the front panel of the unit, indicating if one of the following issues occur:-

- PSU 1 / PSU2 Failure
- FCV Failure (Field contact voltage)
- Systems Failure
- Comm's Failure

Pushbutton Controls

Four Integral tactile pushbuttons are provided for Functional Test, Acknowledge, Mute, and Reset which control the operation of the standard alarms within the instrument. These internal buttons can be mapped to other pushbutton functions via the supplied configuration soft-ware. Additionally external pushbuttons can be connected via mappable terminals on the rear of the unit if required.

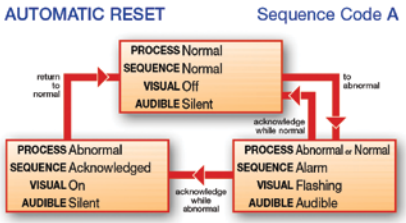
IP Rating

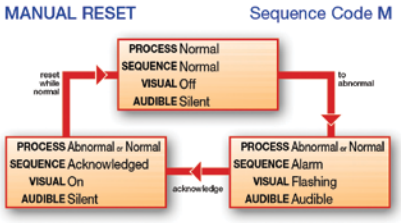
Flush panel units are IP40 rated, with an Optional IP54 kit.

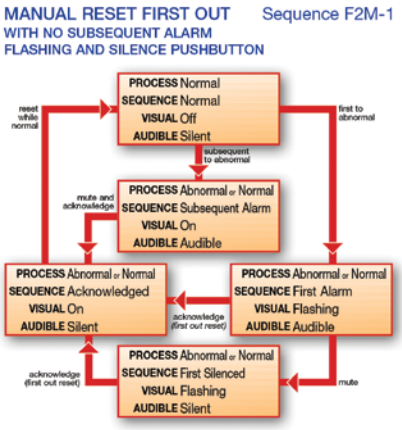
Tropicalisation

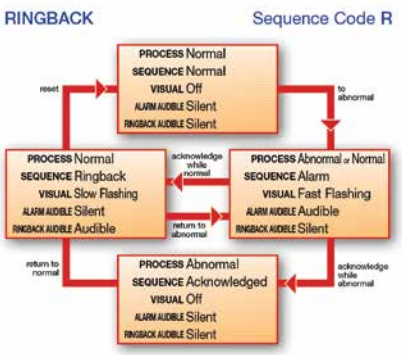
In harsh environments where moisture or chemicals may be present in the atmosphere, there is an option to tropicalise the unit with a conformal coating.

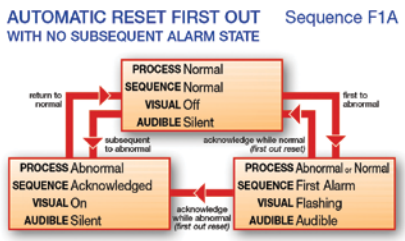
SEQUENCE TABLES











TECHNICAL SPECIFICATION

INPUTS

Alarm Initiation
125-250V inputs are all bipolar so can accept AC or DC voltages. 24/48V inputs are DC only.

Alarm Contacts
The standard unit provides +24VDC to power the Customers volt-free contacts, optional versions are available for use with Customer powered 24VDC/125VAC/DC or 48VDC/250VAC/DC field contact supplies. Each input can be software configured to operate from either a Normally Open or Normally Closed field contact as required.

Isolation
All customer inputs are optically coupled as standard.

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, which is selectable between 48 and 250V, is available. 125-250V inputs are all bipolar so can accept AC or DC voltages. 24/48V inputs are DC only

Response time
Each Channel is software configurable on each channel from 1ms to 65s. As a default each input is set to 10ms delay.

First-up Discrimination
Better than 10ms

Pushbuttons
Four internal pushbuttons are available, "Test, "Mute" Ack" "Reset" plus five customer terminals for use with external pushbuttons which are mappable as required.

OUTPUTS

Common Relays
All systems are supplied with five relays as standard, providing 1 x watchdog, 2 x horn and 2 common alarm outputs for customer use.

Relay ratings:-
2 x Horn relays
Contact rating
2A @ 30VDC, 2A @ 125VAC
150mA @ 115VDC
Selectable as Energized or De-Energised

2 x Group relays
Contact rating
1A @ 24VDC, 0.2A @ 110VDC
Selectable as N/O, N/C

1 x Watchdog Relay
Contact rating
1 A @ 30VDC, 0.2A @ 110VDC
Selectable as Energised or De-Energised

Repeat relays
The optional Individual channel repeat relays are low power configurable to follow either the input, logic or display.
contact rating
0.2A @ 30VDC, 0.2 @ 110VDC
Selectable as N/O, N/C

Audible
A 2.4kHz piezoelectric buzzer at 90dB 30cm. Integral audible is included om all models

Communications
An isolated RS485 port providing Modbus RTU protocol is available as an option.

DISPLAY

Pluggable high Intensity LED's

LED Colours
Red, Yellow, White, Green and Blue
Each LED is plugged into a base to allow easy serviceability in case of LED failure.

Legends
Laser printed onto standard acetate sheet, or paper using templates provided by Eaton Electric.

GENERAL

Supply Voltage
(Primary) Integral Power Supply:

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

Or optionally

24VDC Nominal (19-72VDC)

(Auxiliary) Integral Power Supply:

(Optional) Optionally Not fitted or

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

Or optionally

24VDC Nominal (19-72VDC)

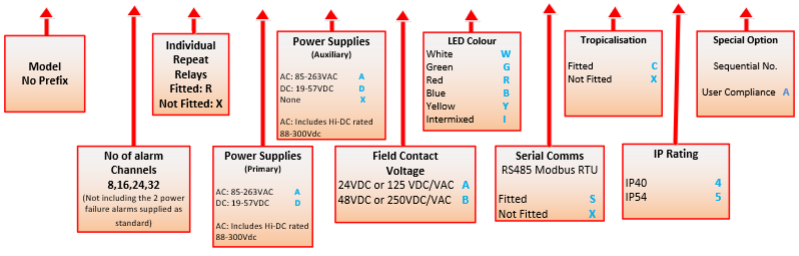
Or Optionally None

Dimensions
8 way unit:
96 h x 96 w x 125 d mm (DIN) [<4.5Watt]
16 way unit:
96 h x 144 w x 125 d mm (DIN) [<5Watt]
24 way unit:
96 h x 192 w x 125 d mm (DIN) [<5.5Watt]
32 way unit:
96 h x 240 w x 125 d mm (DIN) [<6.5Watt]

No. of Ways	Overall In mm		
	HEIGHT	WIDTH	DEPTH
8	96	96	125
16	96	144	125
24	96	192	125
32	96	240	125
No. of Ways	**Cut-out In mm**		
8	91 + 0.5	91 + 0.5	-
16	91 + 0.5	139 + 0.5	-
24	91 + 0.5	187 + 0.5	-
32	91 + 0.5	235 + 0.5	-

Order Code

SMA - 16 - R - A - D - A - Y - S - C - 5 - X



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

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November 2018

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

RTK PEX7250

Explosion proof alarm annunciator for total programmability in hazardous areas

- **Suitable for use in Zone 1, 2, 21 and 22 Hazardous areas**
- **Certified Ex d IIB +H2 T100°C/T85°C**
- **Ultra-bright LED illumination as standard**
- **Multi-redundant design (ensuring no single point can cause failure)**
- **Fully field programmable for all standard ISA sequences plus a range of options**
- **IEC61508 certified version to IL2 level**
- **Options include: Horn and Group Relays, Repeat relays per channel, RS485 communications**

For total programmability in hazardous areas

The PEX7250 explosion proof alarm annunciator offers a vast range of features and benefits normally reserved for use in safe area annunciators only. The heart of the system is one of our field proven Alarm Annunciators; the 725 range, 725B/C or the SIL725. These are available in three different window sizes depending on the model choice, these are 30 x 30mm, 60 x 30mm or 60 x 60mm.

Reliability of the system is vastly improved over conventional systems using our multi-redundant annunciator designs, removing any reliance on common control cards. The standard enclosure is copper-free aluminium alloy, finished in a light grey epoxy paint, making it ideal for offshore applications.

Systems are available in a range of formats and sizes and are certified for use in Zone 1 hazardous areas. All systems are automatically covered by our standard 5-Year Warranty.

Powering Business Worldwide

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

Publication No. EPS RTK PEX7250 Rev 5
January 2017

TECHNICAL SPECIFICATION

Certification
ATEX certified to
EN60079-0:2012 +A11:2013
EN60079-1:2014, EN60079-11:2012
EN60079-31:2013
Group II, Category 2 GD, Ex d IIB H2,
Group IIIC IP66/67
T100°C/85°C

Location
Zones 1 or 2. Gas Group IIB +H2 or IIA
Zones 21 or 22. Dust
Temp Class up to T85°C for Ta = 40°C
Temp Class up to T100°C for Ta = 55°C

Certificate No.
Baseefa06ATEX0089X

Number of alarm ways
Systems are available in a range of sizes depending on window size from 1 to 56 points in a single enclosure

Materials
The Ex d enclosure: copper-free cast alloy. Ex de Control Station and Ex e Terminal Box: GRP

Connections
The annunciator is wired to a row of terminals suitable for cable sizes up to 2.5mm2. On larger systems, the terminals are mounted within an Ex e terminal box below the Ex d enclosure

Cable Entries
Five M20 cable entries are included as standard. Alternative quantity and size of metric or NPT threads can be provided on request

Pushbuttons
Test, Accept and Reset are included as standard, additional control pushbuttons can be added as required. These are mounted in an attached, certified Ex de Control Station

Cover
The cover is hinged as standard, to allow easy access for wiring and commissioning

Outputs
Units can be equipped with a variety of different outputs for group relays, horn relays, RS485 communications or SIL2 compliant relay outputs. These will depend on the model and variant requested

Environment
Operating temperature:
-20 to 40°C for T85°C
-20 to 55°C for T100°C
Storage temperature: -20 to 80°C
Humidity: 0-95% RH, non-condensing

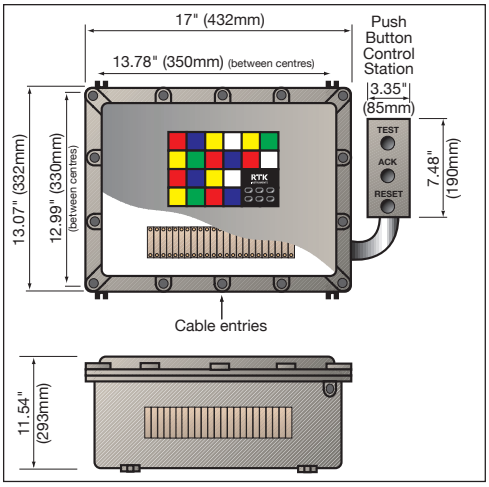
Protection
IP65 as standard, IP66 can be obtained using suitable sealant and gasket

Detailed Specification
See the relevant datasheet on the particular Annunciator used, either RTK725 range, RTK725B/C or RTKSIL725 for full details on Alarm Annunciator specification

Specials
The details shown here demonstrate our standard range of Ex d IIB Annunciators. The Eaton team can can quote for alternatives and IIC systems on request

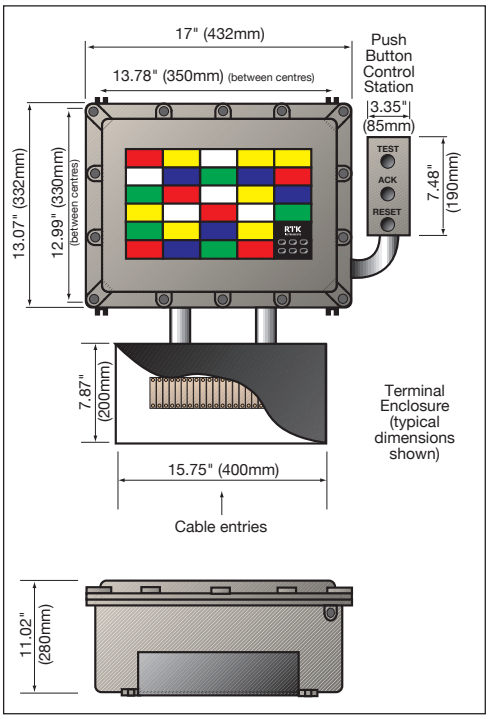
With Integral Terminals

Suitable for 4 to 20-way Annunciators



With Separate Terminal Enclosure

Suitable for 16 to 56-way Annunciators



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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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January 2017

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

RTK SIL725

Configurable SIL2 Safety Annunciator certified to IEC61508

- SIRA certified at safety integrity level SIL2 to IEC61508
- Modular construction from 1 to 128 alarm channels
- Multi-redundant design
- Choice of window sizes
- Ultra-bright LED illumination as standard
- Each channel configurable from the front
- Panel or 19" rack mounting or fully integrated into wall mounting or floor standing enclosures
- Six choices of coloured LED filter

The SIL725 Safety Annunciator is designed and manufactured to provide a high safety integrity for critical alarm applications and for use as a component part of a safety instrumented system. The unit is third party certified by SIRA using the CASS methodology to a safety integrity level of SIL2.

Whatever the size or complexity of your alarm scheme the SIL725 can be configured to provide the best solution. With a field proven multi-redundant design this Annunciator gives the best in reliability, flexibility and configurability for all applications and industries.

With a range of two window sizes, six colours and ultra-bright LED illumination, a format and size will be available to match your exact requirements. Each individual alarm way is fully configurable from the front, using the integral configuration module. This allows the user to select many different features giving thousands of possible combinations.

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Beds, LU2 8DL, UK.
Tel: + 44 (0)1582 723633 Fax: + 44 (0)1582 422283
E-mail: mtlenquiry@eaton.com
www.mtl-inst.com

Publication No. EPS SIL725 rev 6 070521
May 2021

FEATURES & BENEFITS

The SIL725 will provide a highly reliable alarm system which, when used as specified, will provide functional safety as defined below

- On alarm contact opening or loss of signal voltage on an input channel the related alarm window will be illuminated
- On an alarm being triggered, the integral horn shall sound until muted or acknowledged
- When an alarm input that is configured to drive a horn relay is triggered, the horn relay shall deenergise, for both Horn A and Horn B.
- When an input that is configured to drive a group relay is triggered, the group relay shall de-energise, for both Group A and Group B.

Limits of Application

In order to maintain the SIL2 certification the unit is subject to the following limitations as detailed in the operating manual.

a) a 10-year lifetime

b) A periodic proof test of the complete system

c) Operation within the specified environmental and electrical limits

d) Alarm contacts must be normally closed, open to alarm

e) Relays must be energised in normal use and de-energise on alarm

Modular Construction

The modular design of the SIL725 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 alarm channel to a maximum of 128 channels with a choice of two window sizes.

Technology

The SIL725 Annunciator builds on the success of previous designs but taking the design to new levels of safety and reliability.

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 module, which can cause complete system failure. All alarm cards in the SIL725 can act as the master controller. Also each window is driven by two cards in a 1oo2 (1 out of 2) arrangement so that a card failure will not prevent an alarm being tripped.

Fully Field Configurable

The user may select from a vast range of different operating functions and alarm sequences including all the standard sequences defined in the ISA publication 'Alarm Sequences and Specifications S18.1 1979(R1985)'.
The modular design of the SIL725 allows units to be assembled in almost any size to suit the customer's exact requirements. Units can be constructed from a single alarm channel to a maximum of 128 channels with a choice of two window sizes.
All configured information is stored in EEPROM giving repeatability, excellent reliability and requiring no battery backup.

Service From The Front

All normal servicing and maintenance is carried out from the front of the unit without the need for special tools.
This includes LED removal, legend changes and all configuration. When commissioning the unit it is a simple matter to check and amend all programmed settings from the front of the unit without removing power, boards, backplates or alarm bezels.
This configuration module can also be used as a diagnostic tool to indicate the current state of the associated field contacts.

Pushbutton/Configuration Module

As standard the bottom right cell is fitted with an integral pushbutton and audible module. This provides six pushbuttons and a 90dB audible together with a 'power on' LED. The rubber keypad is designed for harsh environments with an effective tactile feel to aid operators. It is this keypad that is dropped down to become the configuration module when configuring the system.

Shallow Depth

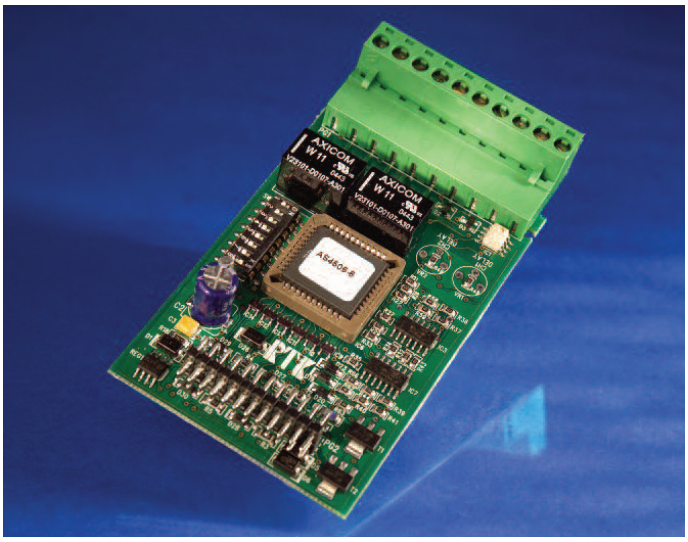
Even with the advanced configuration facilities the unit is still only 145mm deep, a fraction of the depth of traditional annunciator systems.

Pre-configured

If specified at the time of ordering, systems can be supplied pre-configured and complete with the associated coloured filters and film legends, ready to install and commission.

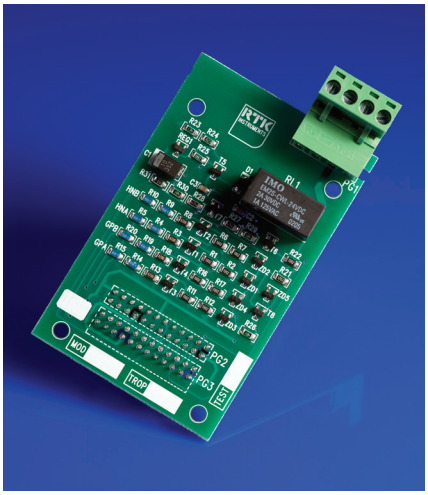
Auto-mute and Auto-acknowledge

It is a frequent requirement of alarm systems to have an automatic mute or even automatic acknowledge after a certain time delay. This is another configurable feature supplied as standard on all units.



FEATURES & BENEFITS

Inputs & outputs



Inputs

All inputs are opto-coupled and comply to the stringent requirements of the European Directive on electromagnetic compatibility and the low voltage directive. This ensures there is no possibility of false alarms. The standard input voltage is 24V but units can be supplied with field contact voltages of 48 or 125V. All versions are capable of accepting AC or DC voltages.

Common Safety Outputs

The SIL725 can have up to four SIL2 compliant common safety relay outputs to provide the following

1. Horn Relay A (HNA)
2. Horn Relay B (HNB)
3. Group Relay A (GPA)
4. Group Relay B (GPB)

The standard configuration is two common relays (HNA and GPA). Other configurations from zero to four common relays can be accommodated – please specify at the time of ordering.

Audible Outputs

The annunciator can be supplied with an integral 90dB(A) audible and two optional audible relays. Each alarm way can be programmed to be in one, both or neither of these two groups. The integral audible will always sound on the audible group A.

Individual Repeat Relays (Non SIL)

Each alarm way can be supplied with a non-SIL individual repeat relay. Each relay can be configured to be energised or de-energised on alarm and both normally open and normally closed contacts are available on customer terminals. The repeat relays can be set to follow the alarm logic, follow the field contact or follow the display.

Connections

All connections are made to the rear of the unit, using two part screw terminals capable of taking 2.5mm2 cable.

Diagnostic Relay

In order to avoid the possibility of undetected faults within the Annunciator, there is an additional diagnostic board fitted with a watchdog relay output. This monitors supply voltage tolerance, Alarm Board voltage tolerance and voltage levels on all common lines including the calibration line

Display

Window Sizes This 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)

Backlit Illumination

Each window is backlit by 'Fit & Forget' removable LED Assemblies. A choice of six coloured filters are available. These colours are red, amber, yellow, white, green and blue.

General

Complete Alarm System Everything is contained within the standard SIL725 Annunciator to provide a complete alarm monitoring system.
This includes all pushbuttons and a local audible.

First-Up

In alarm annunciation applications it is often essential to know which alarm occurred first in a particular group. To this end, three different first-up sequences and two different first-up groups are available, all user configurable from the front.

Power Supplies

The supply required to power the SIL725 Annunciator is nominally 24VDC. The supply should have internal voltage protection or switch over to a second unit. Where the power supply has internal over volt protection the output must not exceed 31VDC.

CE Marked

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

Wall, Panel and Rack Mounting

The standard unit is supplied as a panel mounting version ready for customers to drop into a single cut-out.
If required RTK can supply the SIL725 Annunciator fully integrated into wall mounting or floor standing enclosures or mounting within standard 19" plates.

Tropicalised

As the RTK Safety Annunciator is designed for applications around the world in many different environments all units are supplied tropicalised as standard to help prevent any problem with moisture or contaminants in the atmosphere.

CUSTOM SOLUTIONS

Annunciator Options

Repeat Relays (Option R)

There is an option of individual repeat relays for all alarm ways although these are not SIL certified outputs and should not be used as part of a safety instrumented system.

Common Safety Relays

The SIL725 can have up to four SIL2 compliant common safety relay outputs to provide the following

1 Horn Relay A (HNA)

2 Horn Relay B (HNB)

3 Group Relay A (GPA)

4 Group Relay B (GPB)

The standard configuration is two common relays (HNA and GPA).
Other configurations from zero to four common relays can be accommodated
– please specify at the time of ordering.

Customer Specified Response Time

(CRT Option 0,1,2)

As standard the alarm will be activated by signals over 22ms in duration. If this time is either too long or too short to suit the particular application there is an option to increase or decrease this response time.

If specified at the time of ordering each channel can be supplied with user adjustment of the response time across any range up to 2 seconds.
Field Contact Voltage (Option 1,2,3)

The standard unit uses either volt-free contacts or 24V signals to trigger alarms. It is possible to request alternative Field Contact Voltages of 48VAC/VDC or 125VAC/VDC. These alternative must be requested at time of order.

Rack Mounting

The Annunciators can be supplied premounted in standard 19" aluminium mounting plates. A maximum of 7 cells will fit across a 19" front plate.

Systems and Specials

Systems

RTK Instruments has extensive systems experience and can supply an alarm annunciator as part of a complete alarm system. This may include installing in wall mounting or floor standing enclosures, integrating into mimic displays or wiring together with other switchgear, power supplies or battery backup systems.
Because of the varied nature of this type of special system, they are priced on application against an agreed specification.

Greater Ingress Protection

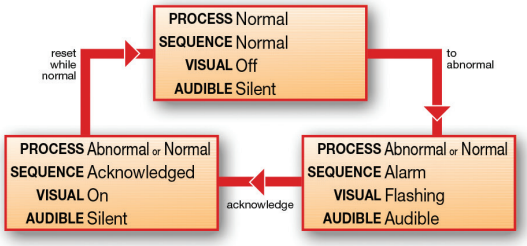
The SIL725 facia is rated at IP41. Optional hinged plexiglass covers are available in all sizes for IP54 applications. For extreme environmental conditions enclosures with viewing windows are available to meet IP66 and IP67 standards.

ALARM SEQUENCES

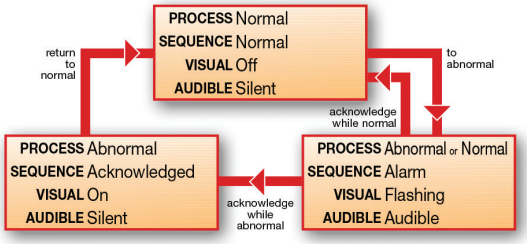
Each alarm channel can be configured to suit the operating sequence required as listed in the ISA publication Annunciator Sequences and Specifications S18.1 1979 (R1985). Systems can be configured with different features on different alarm ways.

The diagram below shows the most commonly used sequences.

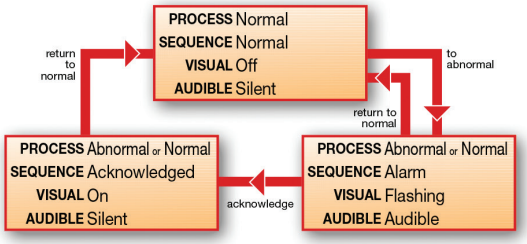
MANUAL RESET Sequence Code M



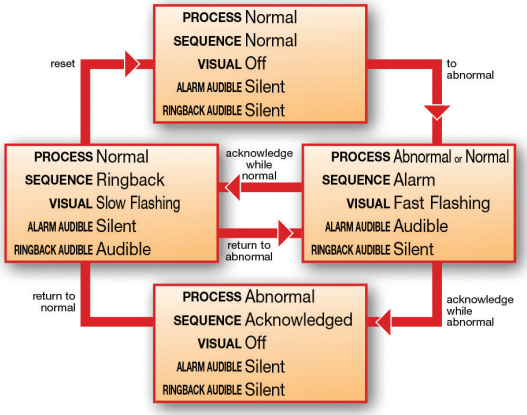
AUTOMATIC RESET Sequence Code A



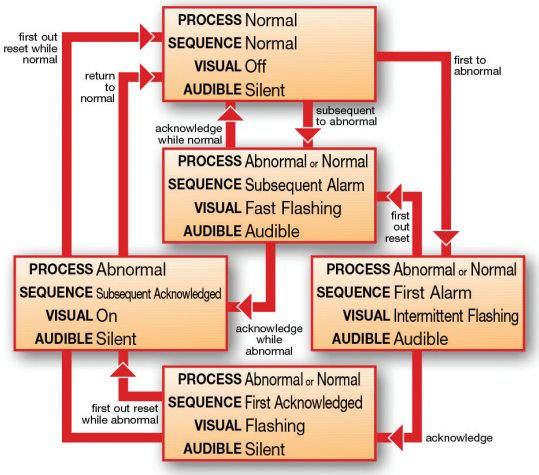
NO LOCK IN



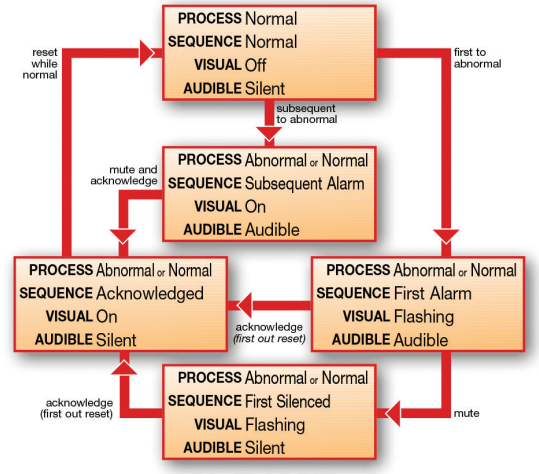
RINGBACK Sequence Code R



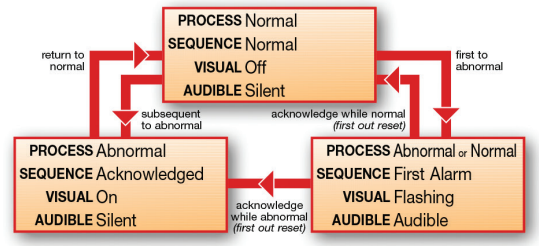
AUTOMATIC RESET FIRST OUT Sequence F3A
WITH FIRST OUT FLASHING AND RESET PUSHBUTTON



MANUAL RESET FIRST OUT Sequence F2M-1
WITH NO SUBSEQUENT ALARM FLASHING AND SILENCE PUSHBUTTON



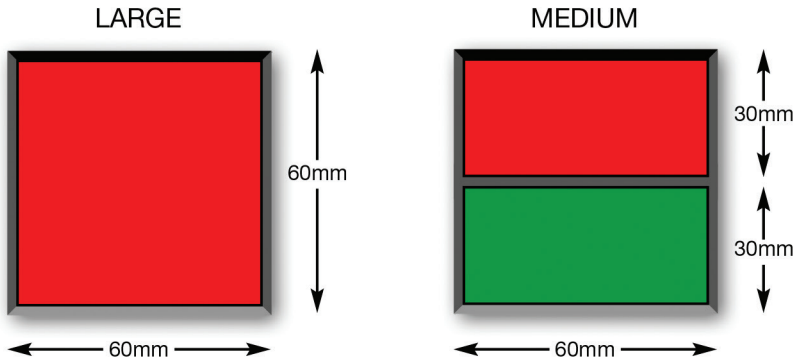
AUTOMATIC RESET FIRST OUT Sequence F1A
WITH NO SUBSEQUENT ALARM STATE



SYSTEM CONFIGURATION

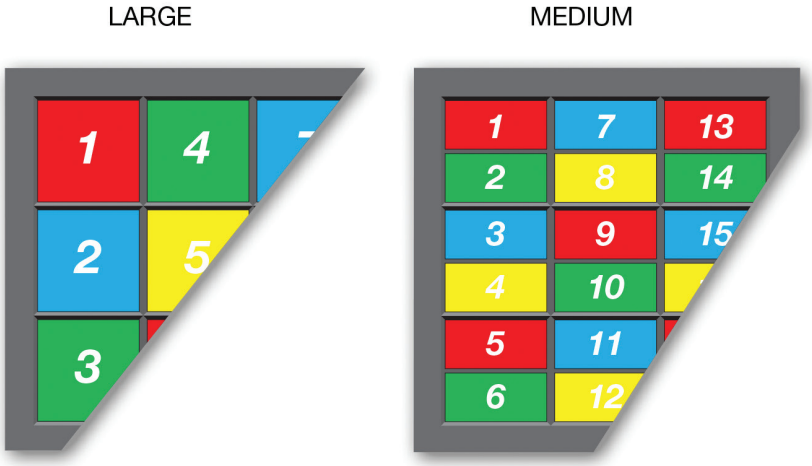
Window Size and Layout

The SIL725 Annunciator is modular in design allowing customers to quickly design each alarm system to suit their exact requirements for both window size and number of windows. The system is built up of multiple cells; each cell has dimensions of 60 x 60mm and can be configured as a single large window (60 x 60mm) or two medium windows (60 x 30mm). The units are built up from pre-tested components so custom solutions can be provided with the best possible lead times.



Units can be configured into almost any shape and size as long as the overall width or height is less than 30 cells.

Windows are numbered depending on window size as shown in the examples below. Please refer to these numbers when providing legend/configuration details



Rear View/Removable Customer Terminals

SYSTEM CONFIGURATION

DIMENSIONS

The dimensions are very simple to work out using the following formula or alternatively read from the table below.

Overall dimensions = [(No of cells) x 60] + 24mm

Cutout dimensions = [(No of cells) x 60] +14mm

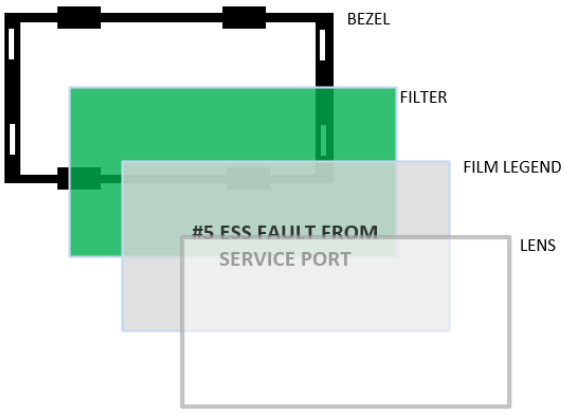
PANEL DIMENSION IN mm					
WIDE			HIGH		
CELLS	Overall	Cut-Out	CELLS	Overall	Cut-Out
1	88	74	1	88	74
2	148	134	2	148	134
3	208	194	3	208	194
4	268	254	4	268	254
5	328	314	5	328	314
6	388	374	6	388	374
7	448	434	7	448	434
8	508	494	8	508	494
9	568	554	9	568	554
10	628	614	10	628	614
11	688	674	11	688	674
12	748	734	12	748	734
13	808	794	13	808	794
14	868	854	14	868	854
15	928	914	15	928	914
16	988	974	16	988	974

FILM LEGENDS

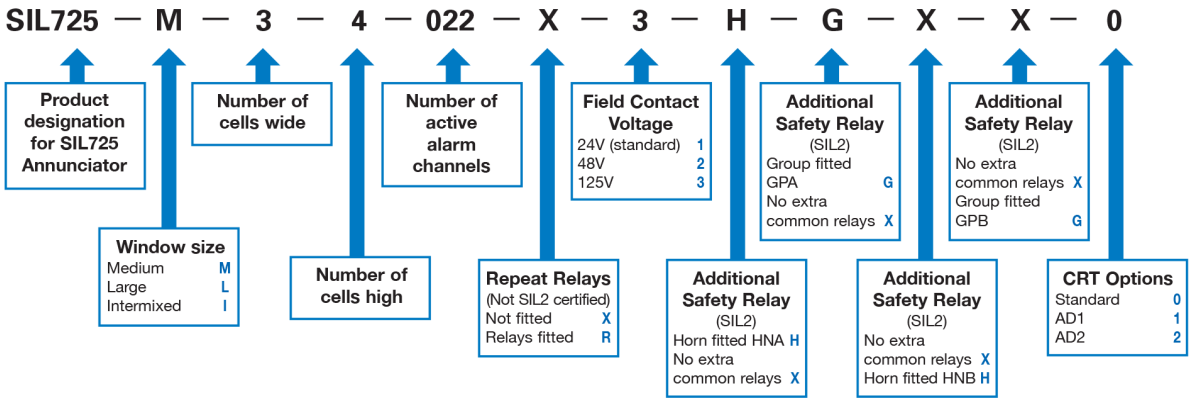
As fully approved details of alarm text is often not available at the time of order, acetate film legends are generally used. RTK can supply the Series 725 Annunciator complete with alarm legends or they can be generated by the customer using a Microsoft Excel software template. This allows the user to create their own legends locally. Once the details have been entered they can be printed onto acetate film via a laser printer. This software template makes the production of legends in different languages, sizes and fonts very straightforward.

BEZEL ASSEMBLY

The diagram below shows how the bezel assembly is constructed using different layers to diffuse the light, colour and window and show the text using a film legend insert. These assemblies are simple to move around in the Annunciator frame and to change colour or text on site.



ORDER CODE



TECHNICAL SPECIFICATION

Safety Requirements

Refer to the Certificate and the Operating Manual for the full details on using the SIL725 as part of a safety instrumented system.

Certification

Sira certified using CASS methodology at safety integrity level
SIL2 to IEC 61508-2:2000
Certificate No: Sira FSP 09006/01

Inputs

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

Alarm Contacts
The standard unit is suitable for volt-free contacts or 24VDC powered inputs. Each input is triggered from a Normally Closed field contact.

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

Field Contact Voltage
This voltage is distributed through the annunciator to field contacts, 24VDC is supplied as standard.
Options for 48 and 125V are available.
The inputs are all bipolar so can accept AC or DC voltages.

Response Time

- Standard units 22ms
- Customer defined fixed response time from 1ms to 2s, specified at time of order
- Adjustable response time typically 5-50ms (Option AD1)
  25ms-2s (Option AD2)

First-up Discrimination
Better than 5ms

Pushbuttons
Both integral and terminals for remote fitting

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

Outputs

Common Safety Relays The standard configuration is two common relays (HNA and GPA). Other configurations from zero to four common relays can be accommodated – please specify at the time of ordering. The common outputs are forced guided relays and have contacts rated at 24VDC @ 4A, 110VDC @ 1A, resistive.

Repeat Relays
Each alarm way can have individual repeat relays. Changeover contact available. Relay contacts rated at 125VDC @ 0.5A, 24VDC @ 2A, resistive.

Audible
3kHz peizoelectric buzzer at 90dB 30cm.

Display

Window Sizes
Medium: 60 x 30mm (W x H)
Large: 60 x 60mm
Window Colours
Red, Amber, Yellow, White, Green and Blue.
Illumination

Medium window	Assemblies/dual LED
Large window	Assemblies/four LEDs

The LEDs are ultra-bright LED Assemblies that plug into the standard 10mm wedge style lampholder.

LED Assemblies
10mm base 'Fit and Forget' plug-in LED Assemblies, typically 20mA, minimum 11-year life expectancy.

General

Supply Voltage

24VDC Nominal (21-28VDC)

Supply Current Per Alarm Point (at 24VDC supply)

Quiescent:	18mA
Medium window	40mA
Large window	80mA

Relays: All window sizes 10mA per relay

Additional current for pushbutton module and audible 120mA

Each SIL2 compliant Common Relay will add 50mA each

Power Supplies can be supplied on request.

Compliance
Immunity to
EN61000-6-2:2005
Emissions to
EN61000-6-4:2007+A1:2011
LVD to
EN61010-1:2010&IECE61010-2-201

Surge Immunity
To AMSI/IEEE C37.90:1989

Environment
Operating temperature -20 to 60°C

The SIL725 can work up to 60°C but should not be exposed to an ambient temperature with an average (over its working life) greater than 50°C as this will affect the operating life of the product.

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
Two-part rising clamp type terminals, for conductors up to 2.5mm2

Weight
Approximately 0.3kg per module.

Warning:

Safety integrity of the SIL725 relies on none of the electrical or environmental limits being exceeded

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

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May 2021

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

Technical data
MTL process alarm equipment

March 2020
EPS RTK UC625 Rev 5

CROUSE-HINDS SERIES

RTK UC625

Programmable alarm annunciator

- **Alarm Sequence selectable to ISA S18.1-1979**
- **Available in a range of sizes from 12 to 40 ways**
- **Expansion units available to create larger systems**
- **Integral redundant supplies with universal inputs**
- **Two additional 'power failure' alarms with relay outputs**
- **Low Power Consumption**
- **Exclusive ASIC Technology for greater reliability**
- **Only 130 mm Installed Depth**

An expandable compact alarm system

The RTK UC625 Alarm System, developed from the field proven P625 range of alarm annunciators, offers the latest in ASIC technology packed into a compact design for applications where panel space is at a premium.
The lightweight stainless steel construction gives a compact and simple to install modular unit which can easily be expanded by the addition of extra Alarm Cards.

Maintenance can be carried out live without the necessity of 'gas checks' or prior shutdown. Unlike explosionproof, purged and type 'n' systems, installation is simple and relatively low cost.

With the addition of a number of ancillary devices a complete intrinsically safe alarm and control package can be provided.

Powering Business Worldwide

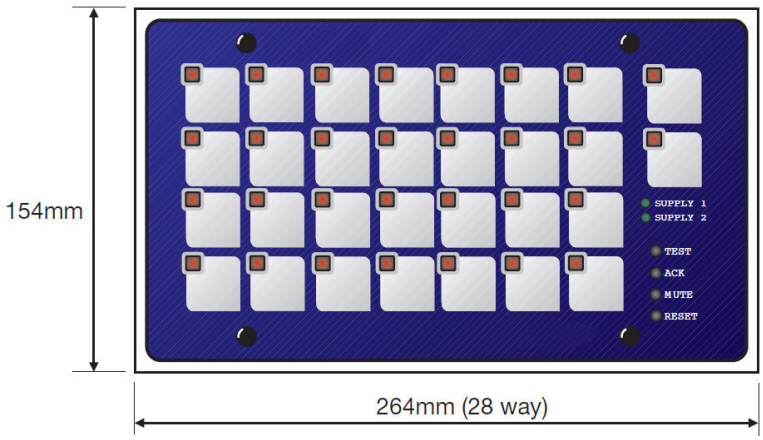
Eaton Electric Limited,
Great Marlings, Butterfield, Luton
Beds, LU2 8DL, UK.
Tel: + 44 (0)1582 723633 Fax: + 44 (0)1582 422283
E-mail: rtkenquiry@eaton.com
www.mtl-inst.com

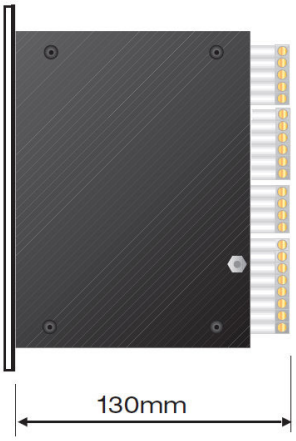
Publication No. EPS RTK UC625 Rev 5
March 2020

RTK UC625

March 2020

FEATURES & BENEFITS





Various Sizes

Various sizes are available from 12 to 40 alarm points. Each unit is supplied with two additional alarm points for monitoring the two integral power supplies.

Dimensions are as follows:

NO. OF WAYS	OVERALL IN MM		CUT-OUT IN MM	
	HEIGHT	WIDTH	HEIGHT	WIDTH
12	154	152	141	136
16	154	180	141	164
20	154	208	141	192
24	154	236	141	220
28	154	264	141	248
32	154	292	141	276
36	154	320	141	304
40	154	348	141	332

Fully Field Programmable

Flexible design allows selection of a range of features and a choice of operational alarm sequences, which are compliant to ISA S18.1 1979. Alarms can be set to operate from either a normally open or a normally closed volt-free signal contact.

ASIC Technology

The RTK UC625 continues our success with field proven ASIC technology already employed in our range of alarm products,
This gives the user both greater flexibility and reliability.

Auxiliary Relays

Each channel is equipped with an integral relay facility, typically used to initiate inputs to third party devices such as RTU, SCADA or DCS systems.
On board DIL switches or jumpers allow the user to select the manner in which the relay responds; normally energised or de-energised relay state and if the contact is normally open or normally closed in the non-alarm state.

Inputs

All inputs are optically coupled and comply to the stringent requirements of the European Electromagnetic Compatibility and Low Voltage Directives. The standard input voltage is 24VDC but 48VDC,125VDC or 250VDC are available as an option.

Integral Redundant Power Supplies

In order to maintain the highest level of reliability in safety critical applications, all models are equipped with integrated dual power supplies. The standard unit is equipped with two fully isolated universal input supplies, each capable of accepting either 85-264VAC or 88-300VDC. As an option the secondary supply can be suitable for 24VDC if specified at the time of order.

Field Contact Voltage Monitoring

When using 24VDC the field contact voltage is supplied from the UC625. This supply is protected and fused and also monitored for failure. If this supply fails for any reason an output relay is tripped to warn operators that alarm information may be lost.

Power Consumption

Power consumption is kept to a minimum by the use of super-bright LEDs.

Auto Accept Timer

In unmanned applications it is common to have an automatic accept facility after a pre-set time, typically one minute; this is a standard feature on the UC625.

Dual Horn Facility

Two horn relays are fitted as standard and each pair of alarm ways can be selected to operate either a critical or non-critical integrally mounted horn relay.
In substation applications it is common for one relay to be used to operate the externally mounted station bell and the second relay to be used to operate a common power failure audible alarm.

Sleep Mode

All units are equipped with ‘Sleep’ mode which is typically used in substation applications where the visual and audible outputs are disabled during unmanned periods to reduce drain on the station batteries. Whilst in ‘Sleep’ mode, the alarm logic will continue to react in the normal way including the operation of the group alarm relays and individual repeat and common alarm relays – ONLY the drive signals to the LEDs and the audibles are disabled until the unit is placed back into the ‘Run’ mode.

Input Response

As standard, the input response is set to 22ms for optimum performance, however this delay is user programmable and can be reduced or extended to suit the exact site conditions.

RTK UC625

March 2020

FEATURES & BENEFITS

Film Legend Engraving

Because the exact text is often not known at the time of order, the UC625 has been developed to use acetate film legends which allows users to easily generate their own legends using a computer and laser printer.

Connections

All connections are made on the rear of the unit using two-part quick disconnect rising clamp terminals accepting up to 2.5mm² cable. All terminals are lockable using the screws at each end of the terminal making it impossible for terminals to fall out or be removed inadvertantly.

Common Outputs

As standard, each unit is fitted with three common relays: Critical Audible Relay, Non-Critical Audible Relay and Common Alarm Relay. The common alarm relay is equipped with a reflash feature to indicate the occurrence of a new alarm within the unit.

Power Failure Alarms

Two channels within the annunciator are reserved for power failure monitoring. One monitors the presence of the primary supply and the other monitors the presence of the auxiliary supply.

Pushbutton Controls

Integral pushbuttons are provided for Functional Test, Acknowledge, Mute, and Reset which control the operation of the standard alarms within the instrument. The two power failure alarms have their pushbutton control lines wired to Customer terminals for connection to remote Functional Test, Accept and Reset pushbuttons. As an option, all alarms ways can be controlled from the integral pushbuttons.

Illumination

The RTK UC625 is equipped with 8mm superbright red LEDs for increased reliability and minimal power consumption.

IP Rating

Flush panel units are IP51 rated, optional IP54 weatherproof doors or IP56 wall mounted enclosures are available.

Tropicalisation

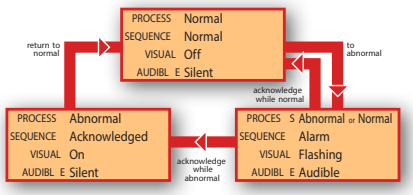
In harsh environments where moisture or chemicals may be present in the atmosphere, there is an option to tropicalise the unit. This consists of spraying the unit with a conformal coating.

Serviceability

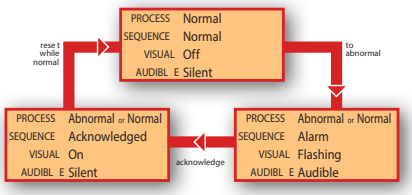
All normal servicing and maintenance is carried out from the front of the unit without the need for special tools.

SEQUENCE TABLES

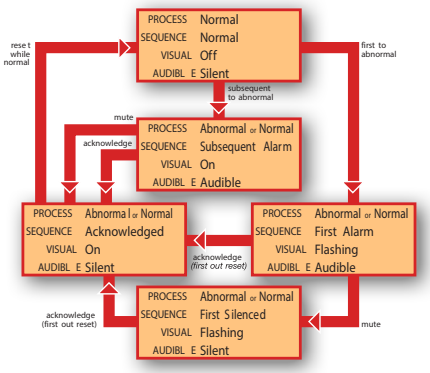
AUTOMA TIC RESET Sequence Code A



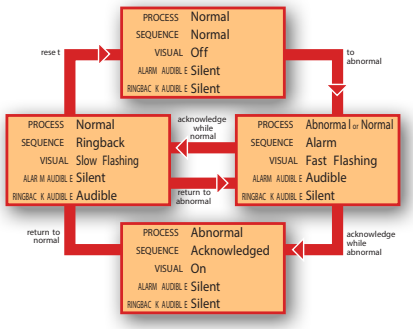
MANUAL RESET Sequence Code M



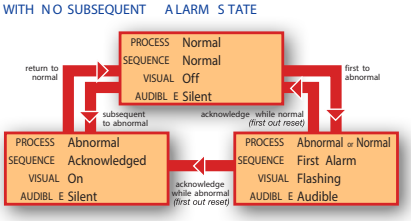
MANUAL RESET FIRST OUT Sequence F2M-1
WITH NO SUBSEQUENT ALARM
FLASHING AND SILENCE PUSHBUTTON



RINGBACK Sequence Code R



AUTOMA TIC RESET FIRST OUT Sequence F1A
WITH NO SUBSEQUENT ALARM STATE



RTK UC625

March 2020

INPUTS

Alarm Contacts

All inputs are optically coupled and can be used for volt free Normally Open or Normally Closed contact inputs. Voltage inputs can also be used, these can be 24, 48, 125 or 250VAC/DC.

Alarm Contact and Cable Resistance

N/C contact-series resistance of contact cables 5k max.
N/O contact-parallel resistance of contact cables 150k min.

Surge Immunity

IEEE/ANSI C37.90.1
IEC 61000-4-4, 2KV

Input Response Time

The standard unit has a response time of 22ms. DIL switches are used to select alternative response times.

First-up Discrimination

Better than 5ms.

Input Protection

Inputs are protected against accidental connection to mains voltages (240VAC, 50Hz) or a 1000V Megger Test.

OUTPUTS

Visual

Back illumination by 8mm super-bright LEDs plus green Power On LED.

Relays

Individual signal duplicating relays, contacts rated at 125VDC max,
24VDC @ 2A
125VDC @ 100mA
Horn and group relays, contacts rated at 125VDC max,
24VDC @ 2A
125VDC @ 0.5A

Audible

Two integral audibles are included asstandard, which can be inhibited as required.

SUPPLY

Supply 1

Voltage range 85-264VAC or 88-300VDC.

Supply 2

Voltage range 85-264VAC or 88-300VDC (Optional 24VDC).

GENERAL

Connections

Two part rising clamp terminals, for cables up to 2.5mm².

EMC Compliance

Immunity: EN61000-6-2:2005
Emissions: EN61000-6-4:2007

LVD Compliance

Compliant with EN61010-1:2010 and IEC61010-2-201

Environment

Operating Temp 0 to +60°C
Storage Temp –20 to +80°C
Humidity 0–95% RH, non-condensing

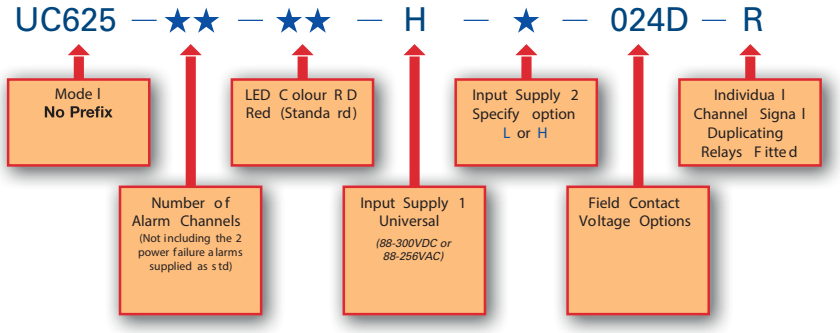
Protection

Front – IP51, Rear – IP20.
The rear of the UC625 must be protected by an enclosure which is at least IP30 and secured by a tool or key

Pushbuttons

Integrally mounted Functional Test, Acknowledge, Mute and Reset pushbuttons for all standard alarms. One set of terminals for the two “power failure” alarms pushbutton circuits.

ORDER CODE



MODEL NO.	NO OF ALARMS	LED COLOUR	SUPPLY 1	SUPPLY2	FIELD CONTACT VOLTAGE	REPEAT RELAYS
UC625	12	**RD**=Red **YW**=Yellow **AM**=Amber **GN**=Green **WT**=White **IN**=Intermixed	**H**=Universal 88 to 300VDC or 88 to 264VDC	**OPTIONAL** **L**=24VDC or **H**-UNIVERSAL 88 to 264VDC or 88 to 300VDC	**Standard** 024D=24V **OPTIONAL POWERED INPUTS** 048=48V 110=110V	**R**=Repeat Relay Option Fitted
	16					
	20					
	24					
	28					
	32					
	36					
	40					

Powering Business Worldwide

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

Publication No. EPS RTK UC625 Rev 5 160320
March 2020

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

Wall mounting alarm annunciator system

Flexible Alarm System supplied ready to mount on site

- **Modular construction from 1 to 256 alarm channels**
- **Complete alarm system with all required terminals, audibles, power supplies and pushbuttons**
- **Choice of different Annunciators**
- **Choice of enclosure material**
- **Ready for immediate installation on site**
- **Available with different power supply arrangements**

The Wall Mounting Annunciator range is supplied as a finished Alarm System ready to mount onto a wall or vertical structure. The system is a fully operational Annunciator System complete with MCB, Power Supply, audible, control pushbuttons and terminals.

All alarm ways are wired to terminals ready for direct connection on site through the bottom mounted un-drilled gland plate. All that is required is the connection of the supply voltage and the alarm contacts.

The System can be supplied with a choice of different Annunciators depending on the application requirements. The Annunciator can include a Power Supply, DC/DC Converter or battery backed standby supply.

Powering Business Worldwide

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

Publication No. EPS RTK 725WM Rev 2
January 2017

TECHNICAL SPECIFICATION

Annunciator
Systems can be provided fitted with the 725B, Range 725, UC625 or SIL725 Alarm Annunciator. Please see separate datasheets on these products for full technical specification.

Enclosures
The Annunciator can be supplied in the following enclosures, sized to suit the Annunciator being fitted:

- Stainless steel (304 or 316)
- Mild steel coated in epoxy polyester in light grey (RAL7035)
- Glass reinforced Polyester (GRP) Hinges are always fitted on the left unless requested otherwise

Wall Mounting
The wall mounting boxes are all equipped with a means of mounting directly onto a wall or frame. Depending on the size and weight of the box this will be through internal mounting holes or external mounting brackets. Lifting keys are included on larger enclosures.

Terminals
All Annunciator inputs and outputs are wired to Weidmuller W Series terminals ready for direct connection by the customer.

Cables
All wiring from the Annunciator to the terminals is supplied in tri-rated 0.75mm2 cable through open slot trunking and fitted with insulated bootlace ferrules.
Alternative cable to suit local markets or special conditions can be supplied upon request.

Cable entries
All incoming connections would normally be made through the un-drilled gland plate positioned on the bottom of the enclosure.

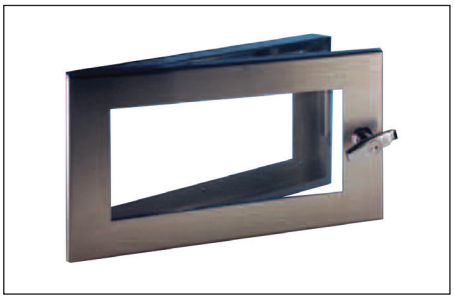
Power Supplies
The Wall Mounting Annunciator can be supplied from 24VDC or supplied complete with suitable PSU or DC/DC Converter to convert from alternative supply voltages. These include:

- 85 to 264VAC
- 36-72VDC
- 72-144VDC
- 120-370VDC

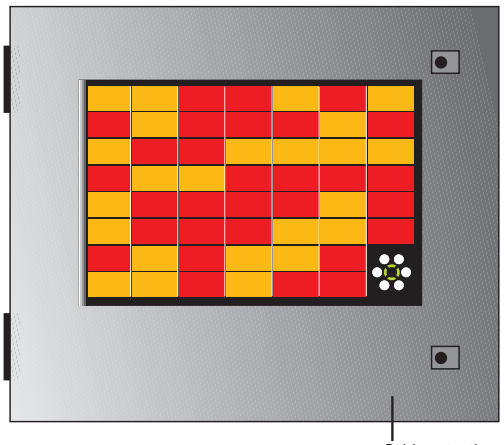
An integral MCB is also fitted to protect the PSU and also allows maintenance technicians to switch off power to the system.

Battery backup
The above power supply arrangement can be extended to include a battery backed system. This uses the P673 components that provide a backup of a defined number of alarms for a defined period using sealed lead-acid batteries.

Environmental Protection
The standard protection of the box is IP55 but the front of the Annunciator itself is sealed to IP41. Alternative arrangements can be provided to give a IP54 or IP65 protection of the whole assembly.



Testing
All systems are supplied pre-tested for immediate installation on site. This includes full earth bonding and high voltage insulation resistance testing.



Cable entry through undrilled gland plate.

Powering Business Worldwide

Eaton Electric Limited,
Great Marlings, Butterfield, Luton
Beds, LU2 8DL, UK.
Tel: + 44 (0)1582 723633 Fax: + 44 (0)1582 422283
E-mail: mtlenquiry@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 6645 9864 / 9865
sales.mtlsing@eaton.com