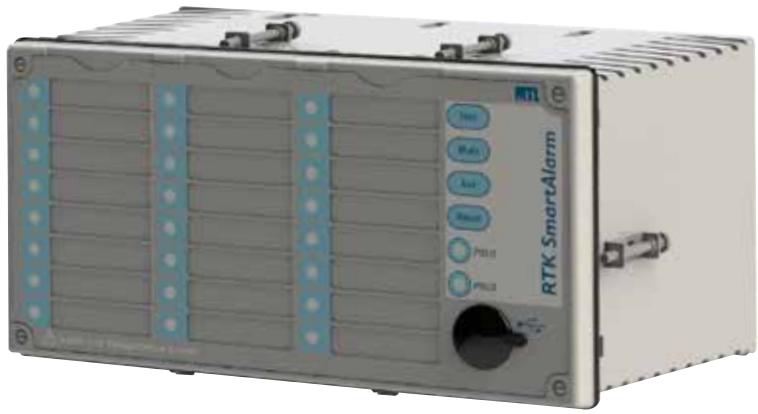
technical datasheet

SmartAlarm

Alarm Annunciator / Monitor

- DIN Size Module with 8, 16 and 24 channel versions
- Internal FCV 24vDC
- Pluggable LED's in five colours, Red, Yellow, White, Blue and Green
- Internal Logic PSU
- Remote Pushbuttons mapped to P/B function.
- Fully software configurable through USB port for each individual alarm point using the intuitive, setup utility
- Integrated PSU, providing direct connection to 85-264VAC or 88-360VDC.
- Wide input DC supply 18-58VDC
- Full ISA 18.1 Sequences built in programmable via front Panel USB connection.
- Optional IP54 protection
- Very low power consumption for longer hold up on standby batteries
- No links required for relay configuration



Fully featured Compact Annunciator

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

The 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 sequence programmable via the front panel mounted USB connector, the unit also accommodates optional signal duplicating relays, dual horn relays, LED display, making the SmartAlarm an ideal choice where full functionality is required and space is a premium.

As a world leading supplier of process alarm equipment, RTK Instruments 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 incorporated as required.

FEATURES & BENEFITS

Modular Construction

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

LED Illumination as standard

High intensity LEDs are utilised for the SmartAlarm and provide the following colour options; 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 positioned on the front panel below the Pushbuttons behind an IP rated bung. 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 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 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, flashing front panel LED's will indicate a watchdog error visible to the operator.

Communications Options

Various protocols are available via isolated RS485 Serial connection provided on the rear of the unit. These include; Modbus RTU, Modbus ASCII and RTK propriety protocol RTK/AMS.

INPUTS AND OUTPUTS

Inputs

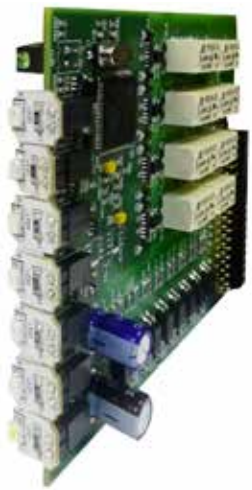
All inputs are opto-coupled and comply to the stringent requirements of the European Directive in Electromagnetic Compatibility and the Low Voltage Directive. This ensures there is no possibility of false alarms. The standard unit has a internally generated FCV input voltage of 24V DC. External FCV source can be accommodated as either 24V/125V or by optional board type 48V/250V. All versions are capable of accepting AC or DC voltages.

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 a single integral audible. In addition two common relays can be programmed to drive external audible providing Critical, none critical audible discrimination.



Connections

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

GENERAL

Complete Alarm Systems

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

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 8 different first-up groups are available, all user programmable through the configuration software.

Power Supplies

The SmartAlarm can be powered from remote 24VDC (18-58VDC) via an integral isolated DC/DC converter, or alternatively can be fitted with integral AC PSU, making it possible to connect directly to higher AC or DC supplies.

CE Marked

Designed to surpass the stringent requirements of the European EMC and LVD directives, the Annunciator conforms to the highest standard of both safety and function.

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. If required RTK can supply the Substation Annunciator fully integrated into wall mounting or floor standing enclosures or mounted in standard 19" plates.

TECHNICAL SPECIFICATION

INPUTS

Alarm Initiation

The inputs are bipolar and can accept AC or DC voltages. Only one type can be present on a single unit.

Alarm Contacts

The standard unit is suitable for volt-free contacts, 24/125 or 48/250 V DC/AC 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. As standard this is selectable between 24 and 125V. As an option a different version, which is selectable between 48 and 250V, is available. The inputs are all bipolar so can accept AC or DC voltages.

The response time

The response time is software configurable on each channel from 1ms to 65s. As a default the system is supplied at 20ms for all channels.

First-up Discrimination

Better than 10ms.

Pushbuttons

Four front panel mounted pushbuttons are available, "Test, "Mute" Ack" "Reset" with five mapped external connections via a rear mounted two part connector.

OUTPUTS

Common Relays

All systems come with five relays as standard, one of which is configured as a "watchdog" relay, which will trip if any card fails or if there is any internal system fault. Relay ratings : -

2 x Horn relays selectable N/O, N/C rated at 2A @ 120VAC: 2 x Group relays selectable N/O, N/C rated at 1A @ 24VDC, 0.5A @ 125VAC.

1 x watchdog relay selectable N/O, N/C rated at 0.5A @ 125VAC.

Repeat relays

Repeat relays are low power magnetically latched, pulse type, each with NO/NC contact ratings of : -

1A @ 24VDC, 0.5A @ 125VAC.**Audible**

A single integral audible is included.

Audible Frequency range: 2k4 Hz piezoelectric buzzer at 85dB 30cm.

Communications

RS485 2 or 4 wire. Master and Slave configurations. Supports bi-directional communications.
Entry Level : Isolated RS485 port.
Protocols include RTK/AMS (Non Time stamping) , Modbus RTU, Modbus ASCII.

DISPLAY

Through Hole 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, using templates provided by RTK Instruments Ltd.

GENERAL

Integral Power Supplies

24VDC Nominal (18-58VDC).
Universal AC or DC supply 85-265VAC or 88-360VDC.

Dimensions

8 way unit: 96 h x 96 w x 125 d mm (DIN)
16 way unit: 96 h x 144 w x 125 d mm (DIN)
24 way unit: 96 h x 192 w x 125 d mm (DIN)

Compliance

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

Surge Immunity

To AMSI/IEEE C37.90:1989

Environment

Operating temperature: -20 to 60°C Storage temperature: -20 to 70°C
Humidity: 0-95% RH, non condensing

Enclosure Flammability

UL94V2

Protection

Front of panel: IP40 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 2.5mm^2 with retaining screws to ensure connectors cannot fall out.

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