RCTC
Central Unit

FIRE SAFETY

MRB3TRE

28/08/2017

Programversion 1.25

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MRB3 TRE – Three wires only

General information

Control and monitoring of dampers with fire and/or smoke function and detectors.

The RCTU module and central RCTC panel are control function units in Bevent Rasch's MRB3 monitoring system for automatic control and monitoring of connected dampers and detectors. In the event of a fault or alarm, the system switches to alarm operation. Smoke detectors with service alarms are used to avoid alarm operation in the event of soiled detectors.

The MRB3 system has a unit for each damper and these are connected together into a network to the central RCTC. This minimises wiring and is very cost-effective. The damper units can be advantageously delivered fitted and attached to the damper, which minimises connection time because then only the power supply and communications cable need be connected.

MRB3 installations can be executed with a common three-wire cable for lower voltages for both power supply and communications, which all of the damper modules are connected to in parallel. The power supply is provided from an external transformer and the number of dampers determines the transformer's size.

One can also power each station with a separate transformer/power supply and only used a two-wire cable for communications.

59 dampers can be connected to an RCTC. Three R30 expansion units can be connected. These can handle an additional 59 dampers per unit. The maximum number is thus 236 dampers. See the installation instructions however, for cable and transformer alternatives.

From the RCTC, information can subsequently be further relayed to DUC via Modbus for example.

Block diagram
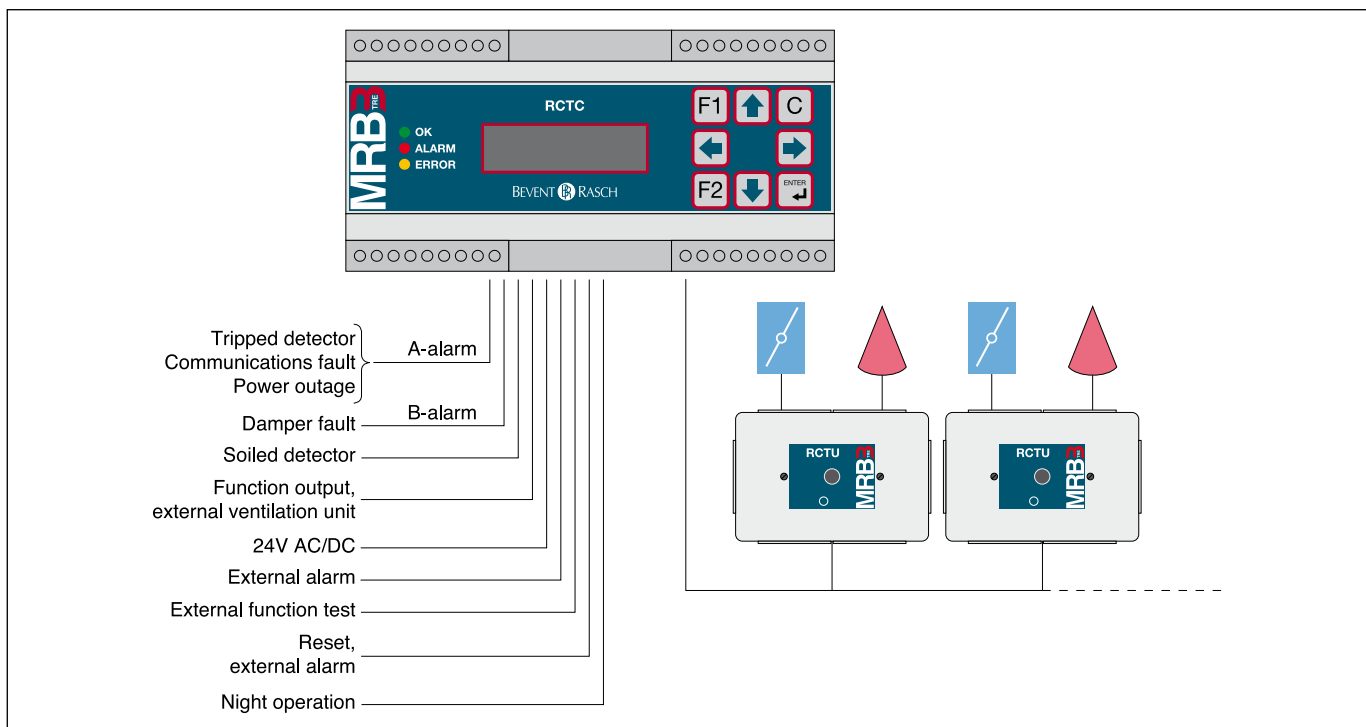
Quick facts

- Central for connecting damper modules
- Monitoring up to 236 dampers with expansion modules
- Adjustable function test
- Up to 20 sections
- Three thread network minimize wiring.
- 24 VAC
- Can be connected and communicate with a master system via modbus
- Can be connected to an Ethernet (TCP/IP)

Function description

The RCTC is a self-monitoring control panel used as a central unit for RCTU damper modules. 59 RCTU modules can be connected to an RCTC. For larger systems, an expansion unit is used – the R30. It can handle an additional 59 dampers per unit. The RCTC can handle up to three R30 units, which means that the maximum number of dampers is 236.

Communications between the RCTC and connected RCTU modules are via a three-wire cable with free configuration (free topology) in linear, branched or star networks. The RCTC has an integrated clock with a battery on which the time for manoeuvring can be set. In the event of communications faults, the RCTU damper module switches to alarm operation. Operating status is indicated at each RCTU but can also be read on the RCTC.

The RCTC has a display and keypad for checking current status, making settings, conducting function tests and resetting smoke detectors. The modules can sectionalised for example.

Watchdog

Watchdog is an integrated safety function that causes the damper to close in the event of loss of communications. Watchdog is deactivated upon delivery to facilitate installation. Watchdog is activated in the RCTC.

Alarm functions

A-alarm
- Tripped detector
- Communications fault
- Power outage
- Fault in detector coil
- External incoming alarm

Service alarm
- Soiled detector

B-alarm
- Damper fault
- Power outage
- System fault

Function output (programmable)
- Function testing, for example

Inputs
- External alarm
  - Sets the system and dampers to alarm mode
- Night operation
  - Closes dampers without setting the system to alarm mode
- Reset
  - Resets external alarm
- Function test
  - Conducts function test of all dampers
- Ethernet

Front panel
• Display
• Buttons
• LEDs
  - OK, green for operation. Off for alarm or service mode
  - ALARM, red for A-alarm
  - ERROR, yellow for B-alarm

Settings
After powering up, settings are made for the preferred function as follows:
• Authorisation code for service mode is entered
• Date and time is entered
• Dampers are addressed
• Sectionalising as needed
• Point in time for automatic function testing
• Activation of Watchdog

See the manual for detailed instructions.

The menus are displayed without entering an authorisation code.

Addressing
All RCTU modules must be addressed during commissioning. For addressing RCTU modules, the addressing command is started. Thereafter the button is pressed for each RCTU to activate the unit. During connection, the number of connected dampers is displayed.

Sectionalising
Connected RCTU modules can be sectionalised into 9 different sections. When a detector trips, only dampers in the same section close. The point in time for function testing can be set for each section.

Networks
The RCTC can be connected to an Ethernet (TCP/IP) network for connection to superordinate systems. Checking of the process image for each RCTU can be performed via Ethernet. Regulative dampers can be regulated via Modbus.
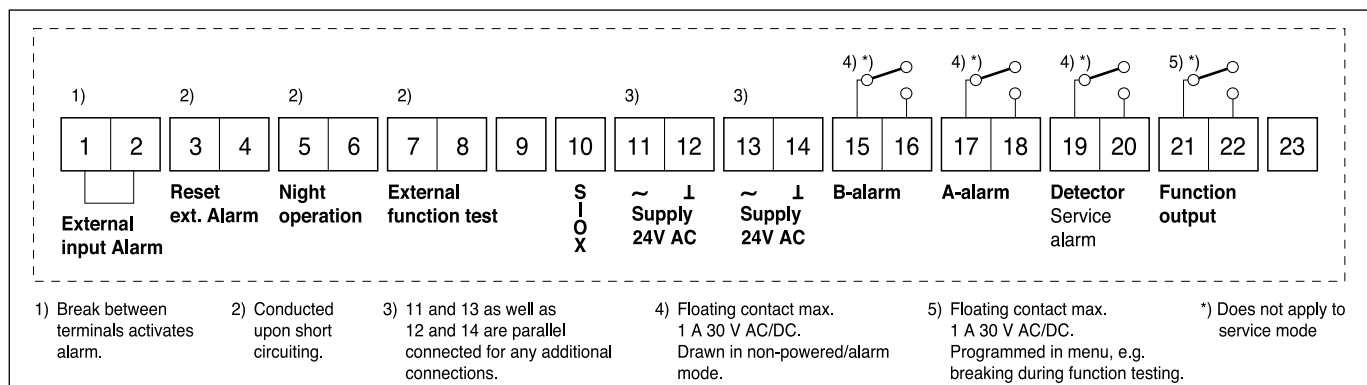
Service mode
The unit is programmed in service mode. Outgoing alarms are then blocked but are shown on the display to facilitate troubleshooting. Moreover, all dampers are opened. When work is completed, service mode must be deactivated.

Specifications

Example:
Damper module RCTC- 1

Non-enclosed = 1
Enclosed = 2

Accessories:
Transformer RCTF 100 VA
Expansion module R30, 59 dampers

Technical data
Terminal voltage:	24V AC/DC
Power consumption:	3V A
Ambient temperature.:	0° – +55°C
Output relays:	1A vid 30 AC/DC
Communications port:	Ethernet

RCTC-1
Enclosure class:	IP 20
Dimensions (WxHxD):	160 x 105 x 58 mm
Weight:	300g
Mounting:	DIN rail

RCTC-2
Enclosure class:	IP40
Dimensions (WxHxD):	300 x 215 x 100
Weight:	1 200g
Mounting:	Wall mounting

Wiring diagram

1) Break between terminals activates alarm.

2) Conducted upon short circuiting.

3) 11 and 13 as well as 12 and 14 are parallel connected for any additional connections.

4) Floating contact max. 1 A 30 V AC/DC. Drawn in non-powered/alarm mode.

5) Floating contact max. 1 A 30 V AC/DC. Programmed in menu, e.g. breaking during function testing.

*) Does not apply to service mode

General network diagram

Total max. 236 RCTU modules

Max. 59 RCTU modules
Max. 1000 m in each bus

— SIOX BUS
— SIOX SUB-BUS

Max. 3 R30 units
Max. 59 RCTU modules in each R30
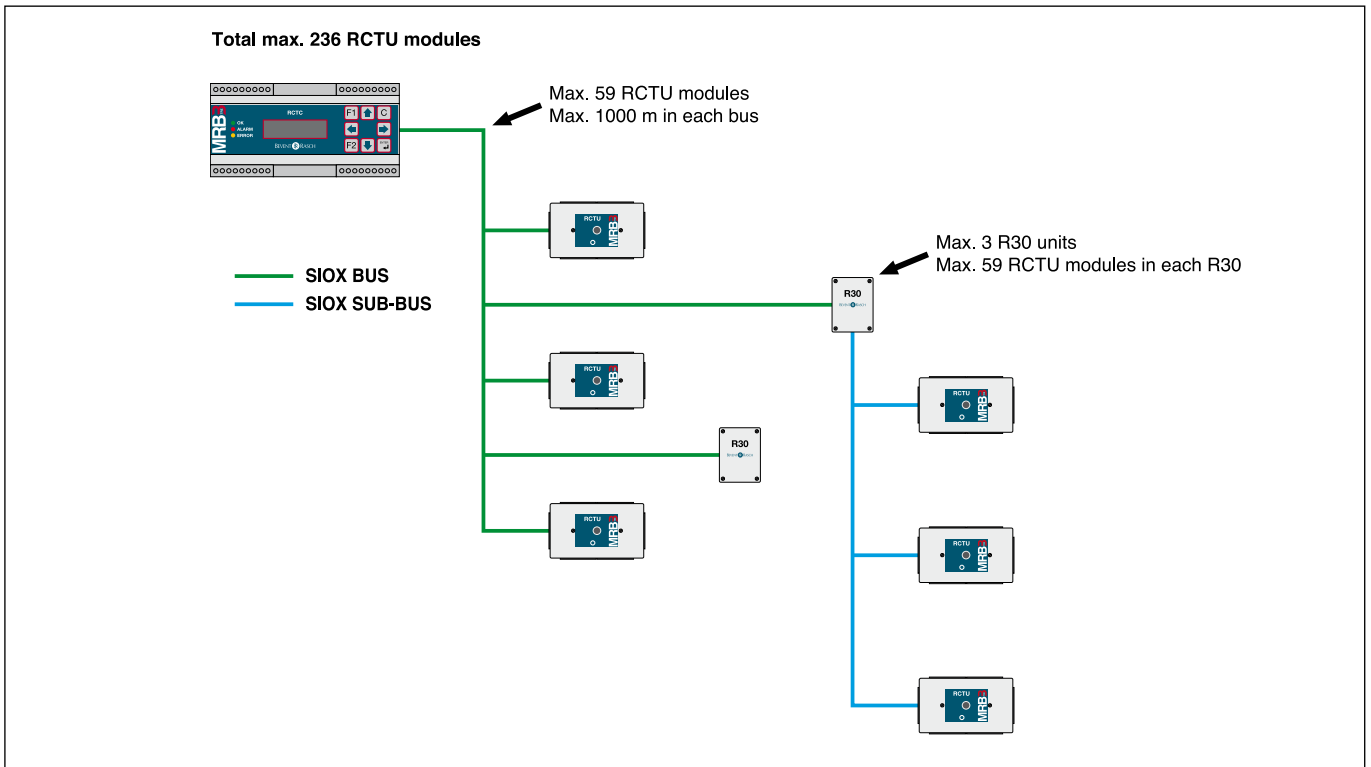
General power supply diagram

⊥ 24V AC
~
— SIOX BUS

– Transformers are selected based on the number of dampers
– SIOX is retained throughout the network
– Max. 100 metres cable per transformer
– 3 x 1.5 mm2 cable
– Transformer centrally located in each group
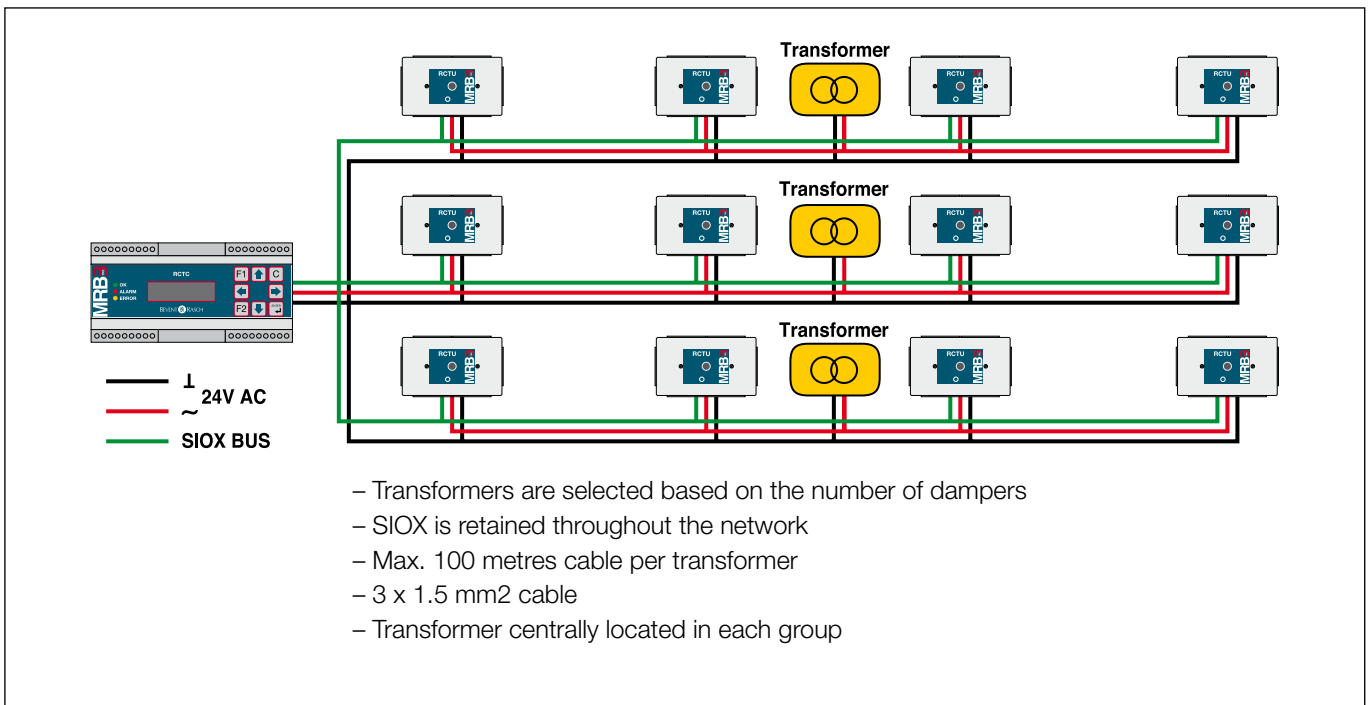
Spänningsmatning

Spjällmodulerna är avsedda för spjällmotorer med 24VAC spänningsmatning. Vår rekommendation är att använda en 100VA transformator per 10 brandspjäll.

Placera transformatorn så centralt i sektionen som möjligt. Mellan separat spänningsmatade sektioner skall endast SIOX-kommunikation och jord kopplas.

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