# RCMA423

## *Installation Bulletin / Reference Guide*

This document is intended as a reference guide for installing and using a BENDER RCMA423 ground fault monitor. This document includes installation, setup, and usage instructions. For complete details, including installation, setup, settings, and troubleshooting, refer to the RCMA423 user manual, document number TGH1442en. This document is intended as a supplement and not a replacement to the complete user manual.

Only qualified maintenance personnel shall operate or service this equipment. These instructions should not be viewed as sufficient for those who are not otherwise qualified to operate or service this equipment. This document is intended to provide accurate information only. No responsibility is assumed by BENDER for any consequences arising from use of this document.

## Installation

**Mounting**
RCMA423 series devices may be DIN rail mounted, or screw mounted using the black clips located on the top and bottom of the device. Screw mounting requires an extra black clip (article number B98060008, sold separately).

**Wiring - General**
Refer to figure 1 for wiring the RCMA423. Refer to section "Wiring - Current Transformers" for detailed information regarding connecting current transformers.
When routing the circuit through the current transformer, whether it is single-phase, three-phase, or DC, ensure all conductors are routed through, including the neutral if it is being used. Do not place the ground conductor through the CT.

**⚠ DANGER**

**HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

- Disconnect all power before servicing.
- Observe all local, state, and national codes, standards, and regulations.

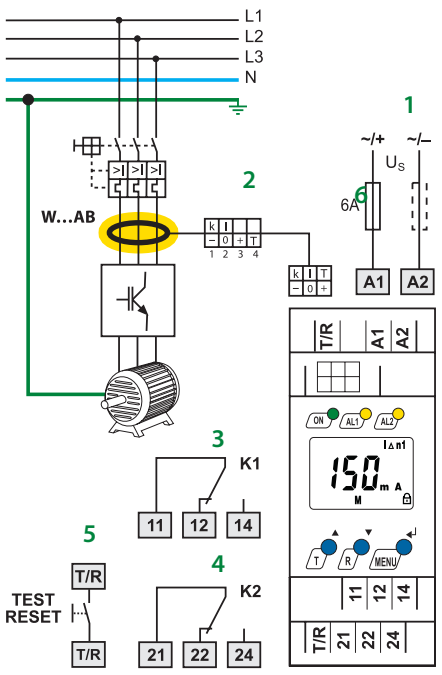



*Figure 1 - RCMA423 wiring diagram*

1. External supply voltage; 6A fuse recommended for internal device protection
2. Connection to current transformer. All conductors, including the neutral if it is being used, must be routed through the CT. Do not route the ground conductor through the CT.
3. Alarm relay K1: SPDT contact
4. Alarm relay K2: SPDT contact
5. External test / reset terminal (N/O contact; momuntary closure for reset, closure for > 1.5 s for test)

**Wiring - Contacts**
Using a normally closed or normally open contact utilizes two factors: wiring out of the proper terminal, and setting the respective contact to normally energized or deenergized operation. Refer to the chart below for relay conditions. For changing the energized state of the contact, refer to "Figure 8 - Contact operation" on the reverse side of this document.

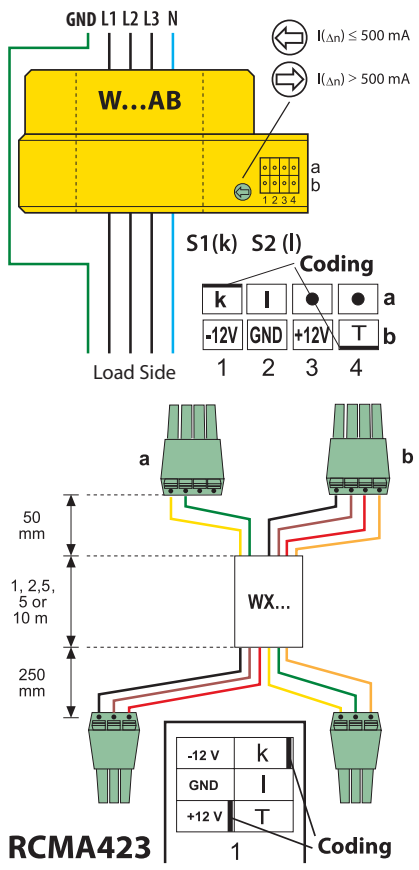
The factory default for the RCMA423 is normally energized operation for relays K1 and K2.

**Device Relay Conditions**

| Relay Operation Setting | Device Alarm State | K1 STATE | K2 STATE |
|---|---|---|---|
| Normally deenergized mode (N/D)<br>Non-failsafe mode<br>"N/O" in device settings menu | Power ON, normal state (no alarms) | 11-12 CLOSED<br>11-14 OPEN | 21-22 CLOSED<br>21-24 OPEN |
| | Power OFF | 11-12 CLOSED<br>11-14 OPEN | 21-22 CLOSED<br>21-24 OPEN |
| | Power ON, alarm state | 11-12 OPEN<br>11-14 CLOSED | 21-22 OPEN<br>21-24 CLOSED |
| Normally energized mode (N/E)<br>Failsafe mode<br>"N/C" in device settings menu | Power ON, normal state (no alarms) | 11-12 OPEN<br>11-14 CLOSED | 21-22 OPEN<br>21-24 CLOSED |
| | Power OFF | 11-12 CLOSED<br>11-14 OPEN | 21-22 CLOSED<br>21-24 OPEN |
| | Power ON, alarm state | 11-12 CLOSED<br>11-14 OPEN | 21-22 CLOSED<br>21-24 OPEN |

## Wiring - Current Transformers

Only the following BENDER current transformers may be used with the RCMA423: W20AB, W35AB, W60AB, W120AB, W210AB. Use WX series connecting cables (sold separately) to connect the CT to the RCMA423. Ensure that the arrow on the current transformer is pointing in the correct direction for the desired trip level. Current transformers may be screw mounted with the included mounting feet. Refer to RCMA423 series user manual for complete technical details.




**Available Trip Level Ranges**
The adjustable trip level ranges vary depending on which size current transformer is being used, listed below:

- W20AB: 30 mA - 500 mA
- W36AB, W60AB, W120AB: 30 mA - 3 A
- W210AB: 300 mA - 3 A

## Front Panel Display

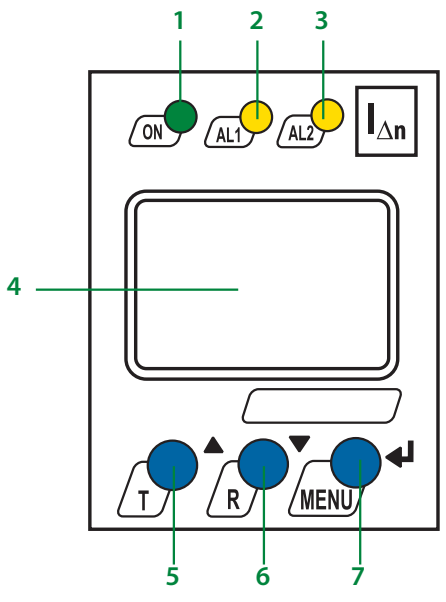
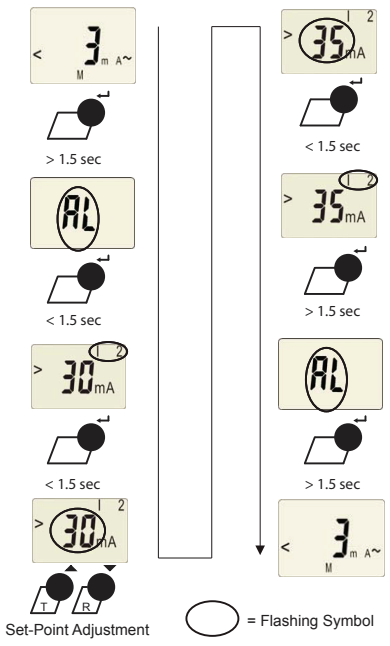


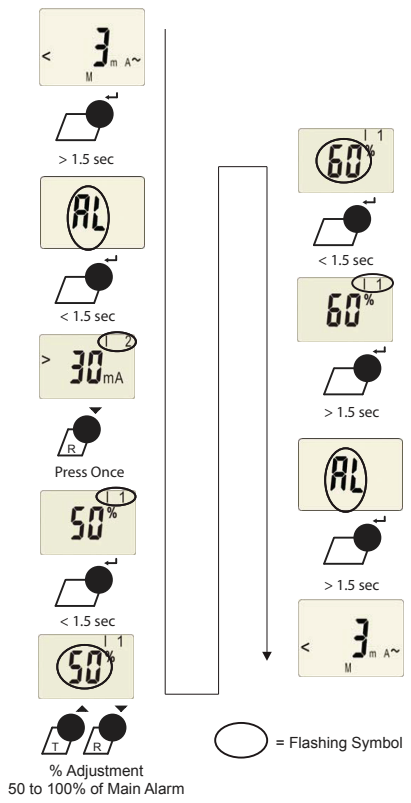

*Figure 2 - RCMA423 front display*

1. LED "ON" (green): Illuminates when power is applied to the device. Flashes when the CT connection alarm is active.
2. LED "AL1" (yellow): Illuminates when the prealarm is activated. Flashes when the CT connection alarm is active.
3. LED "AL2" (yellow): Illuminates when the main alarm is activated. Flashes when the CT connection alarm is active.
4. Backlit LCD display
5. TEST / UP button: Activates self-test / scrolls up inside main menu.
6. RESET / DOWN button: Resets device / scrolls down inside main menu.
7. MENU / ENTER button: Activates main menu / Confirms (momuntary push) or goes back a step (held > 1.5 s) inside main menu.

## Figure 4 - Setting main alarm trip value



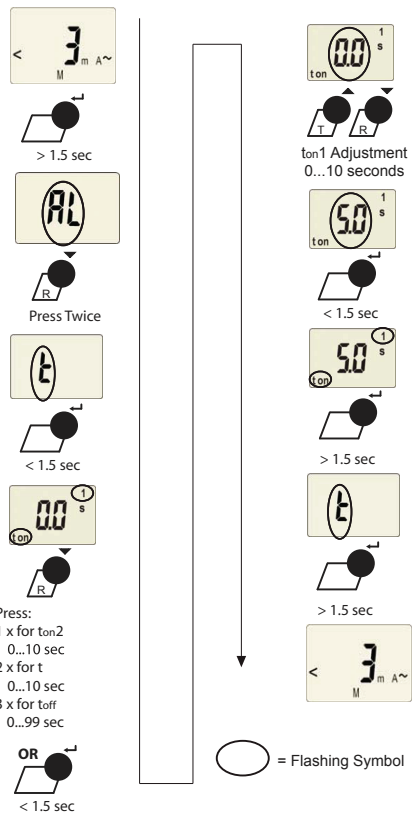

## Figure 5 - Setting prealarm trip value




## Figure 6 - Changing Time Delays

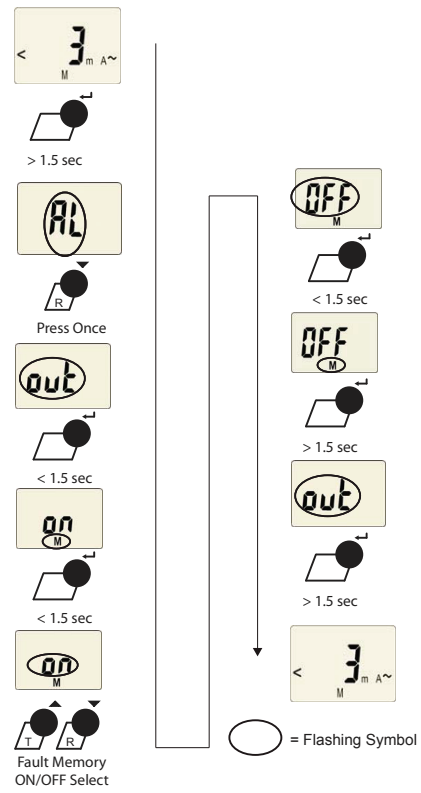
Four separate time delays are available:

- $t_{on1}$ - Response delay, prewarning
- $t_{on2}$ - Response delay, main alarm
- t - Startup delay
- $t_{off}$ - Delay on release



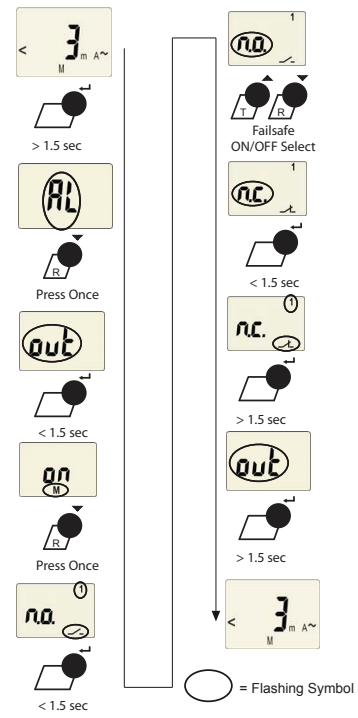

## Figure 7 - Latching behavior (fault memory)

Changing this setting to "ON" will cause the RCMA423 to latch in the event of an alarm, and require a manual reset if the alarm clears. Changing this setting to "OFF" will cause the RCMA423 to automatically reset if the alarm clears. Changing this setting to "CON" will activate latching mode; additionally, in this mode, if power is lost to the RCMA423, it will remain in alarm when power is restored.




## Figure 8 - Contact operation

Use this option to change the behavior of the contacts between normally deenergized (non-failsafe) mode and normally energized (failsafe) mode. The two SPDT contacts may be changed individually. Note that the RCMA423 labels normally deenergized operation as "N/O" and normally energized operation as "N/C"; utilzing a normally open or normally closed contact only depends on which contact output is wired.




## Menu Flow Chart for Common Settings

Figure 4 through figure 8 on the reverse side of this document contain flow charts for modifying commonly used features and settings in the RCMA423's main menu. Not all available features are listed in this document. For more information, consult the RCMA423 user manual.

## Menu Legend

| | | | |
|---|---|---|---|
| R | DOWN ARROW button | < 1.5 s | Momuntary button push |
| T | UP ARROW button | > 1.5 s | Hold button for at least 1.5 s, then release |
| | MENU / ENTER button | | |