BENDER
The Power in Electrical Safety™

RCMS460 / RCMS490
Installation Bulletin / Reference Guide

This document is intended as a reference guide for installing and using a BENDER RCMS460-D or RCMS490-D multi-channel ground fault monitor. This document includes installation, setup, and usage instructions. For complete details, including installation, setup, settings, and troubleshooting, refer to the RCMS user manual, document number TGH1393en. 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
RCMS series devices may be DIN rail mounted, or screw mounted using the black clips located on the top and bottom of the device. See reverse side for dimensions.

Wiring - RCMS
Refer to figure 1 for wiring an RCMS460, or figure 2 for wiring an RCMS490. Refer to section "Wiring - Current Transformers" for detailed information regarding connecting current transformers.
Refer to RCMS series user manual for complete technical details.

> ⚠ **DANGER**
>
> **HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**
>
> • Disconnect all power before servicing.
> • Observe all local, state, and national codes, standards, and regulations.
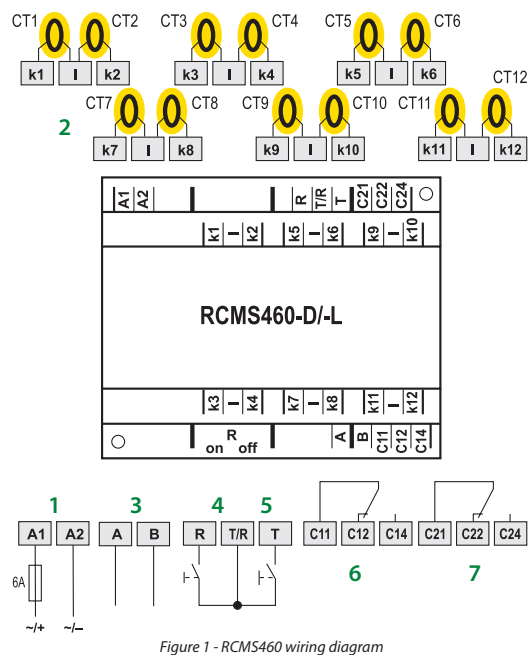

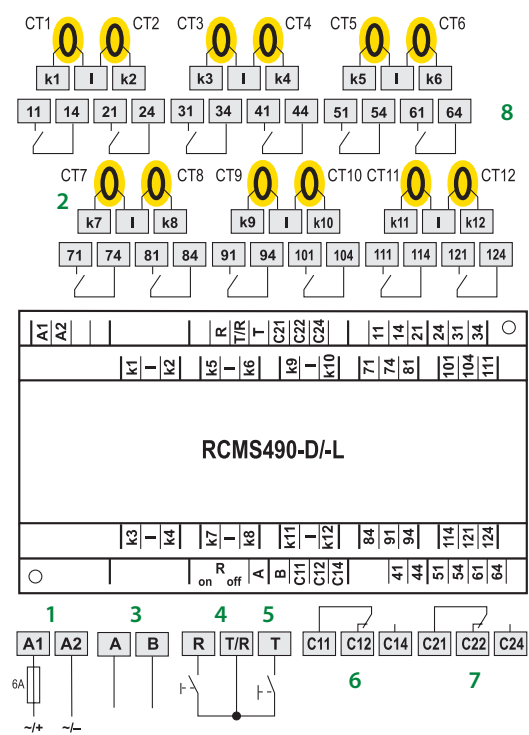*Figure 1 - RCMS460 wiring diagram*

Figure 2 - RCMS490 wiring diagram

1. External supply voltage; 6A fuse recommended for internal device protection
2. Current transformer connections
3. RS-485 interface
4. External reset terminal (N/O contact)
5. External test terminal (N/O contact)
6. Alarm relay K1: Common SPDT alarm contact for all channels
7. Alarm relay K2: Common SPDT alarm contact for all channels
8. Individual SPST contacts for each channel (RCMS490 series only; N/O or N/C depending on setting in menu)

Wiring - Current Transformers

Locate the correct wiring diagram below for the type of current transformer(s) being used.
For connecting to BENDER AB type current transformerrs, use WXS series connecting cables (sold separately). For all other BENDER current transformers, use AWG 22, shielded cable. The maximum length is 130 feet. Current transformers may be screw mounted with the included mounting feet.
For more information on current transformers and installation, refer to the RCMS series user manual, document number TGH1393en.
For installing WF series flexible current transformers, refer to WF series user manual (document TBP409020deen) and installation bulletin (NAE1088030).

Wiring - Standard Current Transformers
Use figure 3 below for the following current transformers: W0-S20, W1-S35, W2-S70, W3-S105, W4-S140, W5-S210, W20, W35, W60, W120, W210, WR series, WS series. Use AWG 22, shielded cable with a maximum length of 130 ft.
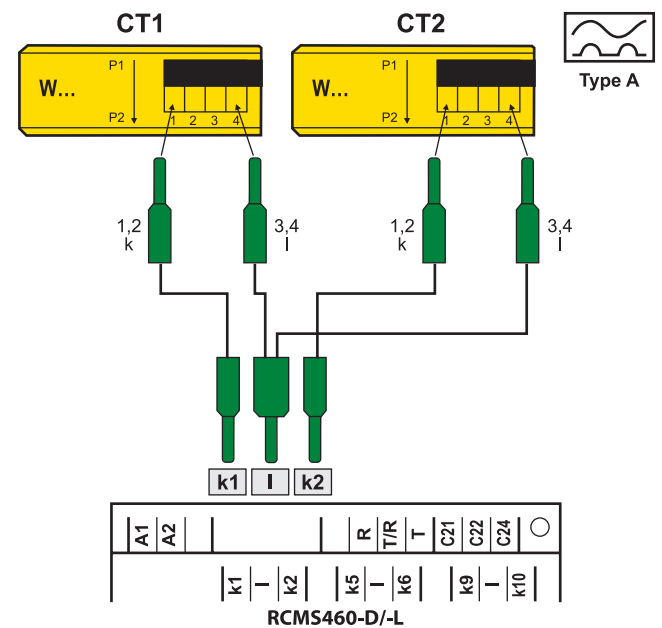
Figure 3 - Wiring diagram for standard BENDER current transformers

Wiring - AB Type Current Transformers
Use figure 4 below for the following current transformers: W20AB, W35AB, W60AB, W120AB, W210AB. Ensure that the arrow on the current transformer is pointing in the correct direction for the desired trip level. The following components are required:

- AN420 power supply (sold separately). One AN420 can power up to six (6) current transformers.
- One (1) WXS series connecting cable (sold separately) per current transformer.

Figure 4 - Wiring diagram for AB type BENDER current transformers

Menu Structure Flow Chart

The flow chart to the left shows the structure of the menu built into the RCMS460-D and RCMS490-D. The menu is used for viewing alarms, viewing the status of the system, and making any necessary settings changes.
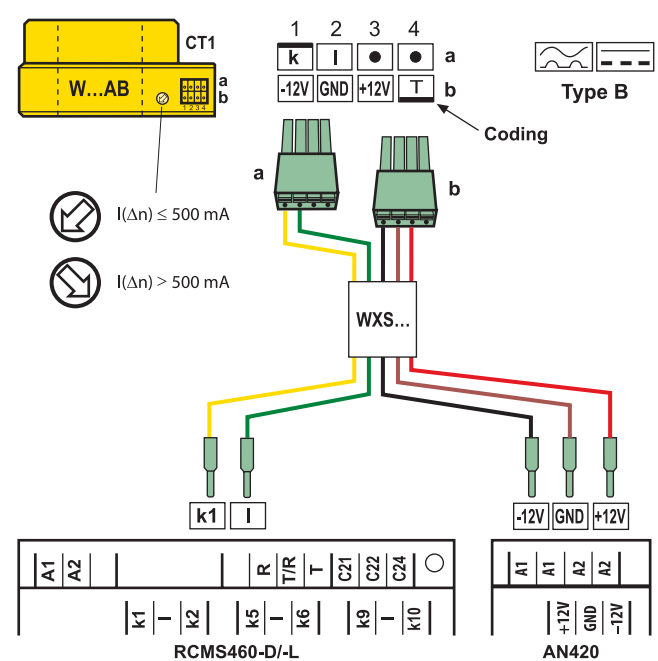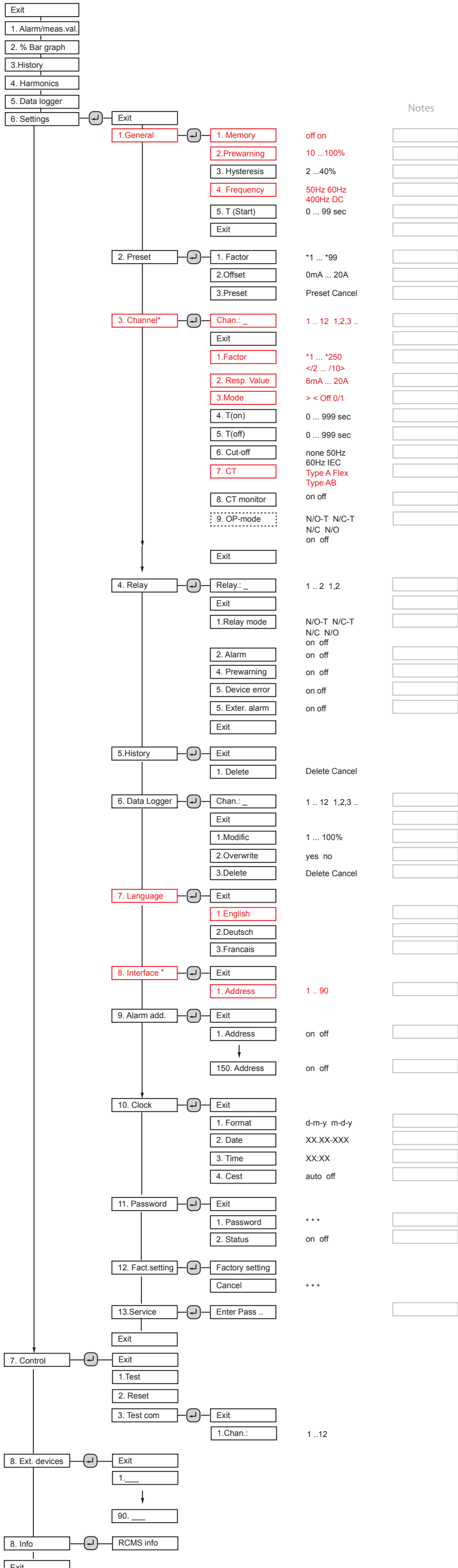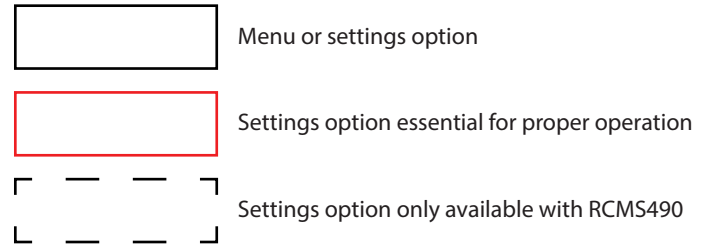Use the supplied gray boxes to take note of applied settings for future reference.

Menu or settings option		
Settings option essential for proper operation		
Settings option only available with RCMS490		

Device Setup Tips

- For menu option INTERFACE > ADDRESS, the default setting is address 2. For installations with only one RCMS device, this setting must be changed to address 1. Failure to do so will cause a "No Master" alarm message on the device.

- All twelve channels are active by factory default. If channels are not being used, they must be deactivated by changing menu option CHANNEL > MODE to "Off." Active channels with no current transformer connected will activate a CT connection error.

- If many channels will be utilized with similar settings, the recommended procedure is:
  1. Change the CHANNEL > CHAN. setting to "1...12" and apply common settings to all channels.
  2. Deactivate unused channels by changing CHANNEL > CHAN. to the respective individual channel number and changing MODE to "Off."
  3. Apply channel-specific settings by changing CHANNEL > CHAN. to the respective individual channel number.

Front Panel Display
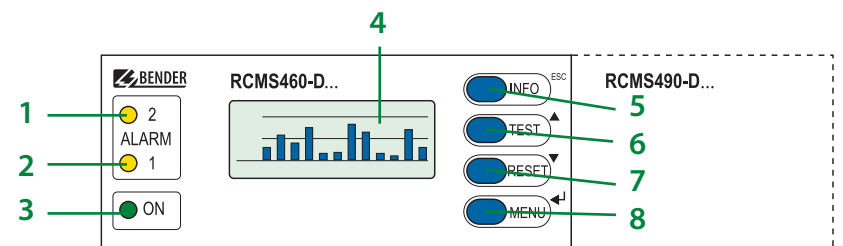
1. LED "ALARM 2": Illuminates when the main alarm of any channel has activated.
2. LED "ALARM 1": Illuminates when the prewarning has activated.
3. LED "ON": Illuminates when power is applied to the device.
4. Backlit LCD display
5. INFO/ESC button: Displays system and device information / Exits the menu without changing parameters.
6. TEST / Arrow Up button: Activates self-test / Scrolls up in main menu.
7. RESET / Arrow Down button: Resets device / Scrolls down in main menu.
8. MENU / Enter key: Toggles between the main display, the internal menu, and the alarm display / Confirms changes inside main menu.

Technical Data

Refer to RCMS series user manual (document TGH1393en) or RCMS series datasheet (document NAE1042060) for detailed technical information on RCMS series devices and current transformers.

Dimensions

Dimensions in inches (mm).

Figure 5 - RCMS460 dimensions in inches (mm)

Figure 6 - RCMS490 dimensions in inches (mm)

Menu Flow Chart (left column)

- Exit
- 1. Alarm/meas.val.
- 2. % Bar graph
- 3. History
- 4. Harmonics
- 5. Data logger
- 6. Settings — Exit — Notes
  - 1. General
    - 1. Memory — off on
    - 2. Prewarning — 10 ...100%
    - 3. Hysteresis — 2 ...40%
    - 4. Frequency — 50Hz 60Hz / 400Hz DC
    - 5. T (Start) — 0 ... 99 sec
    - Exit
  - 2. Preset
    - 1. Factor — *1 ... *99
    - 2. Offset — 0mA ... 20A
    - 3. Preset — Preset Cancel
  - 3. Channel*
    - Chan.: _ — 1 .. 12 1,2,3 ..
    - Exit
    - 1. Factor — *1 ... *250 </2 ... /10>
    - 2. Resp. Value — 6mA ... 20A
    - 3. Mode — > < Off 0/1
    - 4. T(on) — 0 ... 999 sec
    - 5. T(off) — 0 ... 999 sec
    - 6. Cut-off — none 50Hz / 60Hz IEC
    - 7. CT — Type A Flex / Type AB
    - 8. CT monitor — on off
    - 9. OP-mode — N/O-T N/C-T / N/C N/O / on off
    - Exit
  - 4. Relay
    - Relay.: _ — 1 .. 2 1,2
    - Exit
    - 1. Relay mode — N/O-T N/C-T / N/C N/O / on off
    - 2. Alarm — on off
    - 4. Prewarning — on off
    - 5. Device error — on off
    - 5. Exter. alarm — on off
    - Exit
  - 5. History — Exit
    - 1. Delete — Delete Cancel
  - 6. Data Logger
    - Chan.: _ — 1 .. 12 1,2,3 ..
    - Exit
    - 1. Modific — 1 ... 100%
    - 2. Overwrite — yes no
    - 3. Delete — Delete Cancel
  - 7. Language — Exit
    - 1. English
    - 2. Deutsch
    - 3. Francais
  - 8. Interface * — Exit
    - 1. Address — 1 .. 90
  - 9. Alarm add. — Exit
    - 1. Address — on off
    - ↓
    - 150. Address — on off
  - 10. Clock — Exit
    - 1. Format — d-m-y m-d-y
    - 2. Date — XX.XX-XXX
    - 3. Time — XX:XX
    - 4. Cest — auto off
  - 11. Password — Exit
    - 1. Password — * * *
    - 2. Status — on off
  - 12. Fact.setting — Factory setting
    - Cancel — * * *
  - 13. Service — Enter Pass ..
  - Exit
- 7. Control — Exit
  - 1. Test
  - 2. Reset
  - 3. Test com — Exit
    - 1. Chan.: — 1 ..12
- 8. Ext. devices — Exit
  - 1. ___
  - ↓
  - 90. ___
- 8. Info — RCMS info
- Exit