

Circuitor

Protection and monitoring station

CBS-40A, CBS-400A



INSTRUCTION MANUAL

(M393B01-03-25A)





FORHOLDSREGLER FOR SIKKERHET

Følg advarslene beskrevet i denne manualen, som er merket med symbolene nedenfor.

**FARE**

Indikerer at det må rettes spesiell oppmerksomhet mot et bestemt punkt.

**MERK**

Angir at spesiell oppmerksomhet må rettes mot et bestemt punkt.

Hvis enheten må håndteres i forbindelse med installasjon, igangkjøring eller vedlikehold, skal følgende tas i betraktning:



Feil håndtering eller installasjon av enheten kan føre til personskade samt skade på enheten. Spesielt kan håndtering når spenning er påført medføre elektrisk støt som kan føre til dødsfall eller allvorlig personskade. Mangelfull installasjon eller vedlikehold kan også medføre brannfare. Les manualen nøye for enheten kobles til. Følg alle installasjons- og vedlikeholdsinstruksjoner gjennom hele enhetens levetid. Vær spesielt oppmerksom på installasjonskravene i National Electrical Code (NEC).

**Se bruksanvisningen før enheten tas i bruk.**

I denne manualen kan manglende overholdelse eller feil utførelse av instruksjoner som er merket med dette symbolet, føre til personskade eller skade på enheten og / eller installasjoner.

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REVISION LOG

Table 1: Revision log.

Date	Revision	Description
06/23	M393B01-03-23A	First Version
12/24	M393B01-03-24A	Changes in the following sections: 4.3. - 4.4. - 5.1. - 6. - 7. - Annex A
10/25	M393B01-03-25A	Changes in the following sections: Front cover - Symbols - 9.1.

SYMBOLS

Table 2: Symbols.

Symbol	Description
	In accordance with the relevant European directive.
	In accordance with UL certification.
	Device covered by European Directive 2012/19/EC. At the end of its useful life, do not discard of the device in a household refuse bin. Follow local regulations on electronic equipment recycling.
	Direct current.
	Alternating current.

Note: The images of the devices are for illustrative purposes only and may differ from the original device.

1.- VERIFICATION UPON RECEPTION

Upon receipt of the device, check the following points:

- a) The device meets the specifications described in your order.
- b) The device has not sustained any damage during transport.
- c) Perform an external visual inspection of the device prior to switching it on.
- d) Check that it has been delivered with the following:
 - An installation guide.



If any problem is noticed upon reception, immediately contact the transport company and/or **CIRCUTOR's** after-sales service.

2 - PRODUCT DESCRIPTION

The **CBS-40A /CBS-400A** is a type-A ultraimmunized earth leakage protection and monitoring station for 4 independent channels that is compatible with the earth leakage transformers in the **WGS/WGC** range.



The device features:

- **Display** for showing the parameters.
- **3 keys** to browse through the different screens and program the device.
- **4 trip relays.**
- **Digital pre-alarm output.**
- **Digital input** for test or remote control (**TRIP/RESET**).
- **3 DIN rail modules**, panel installation with front accessory.
- **RS-485 communications**, available on the **CBS-400A** model.

The **WGS/WGC** is a range of electronic, type A earth leakage protection and measuring transformers.

CIRCUTOR offers 12 models with transformers of different sizes.

3.- INSTALLATION OF THE DEVICE

3.1 - PRELIMINARY RECOMMENDATIONS



In order to use the device safely, personnel operating it must follow the safety measures that comply with the standards of the country where it is to be installed; operators must wear the required personal protective equipment (rubber gloves, approved facial protection and flame-resistant clothing) to prevent injuries from electric shock or arcs caused by exposure to current-carrying conductors, and they must heed the various warnings indicated in this instruction manual.

The **CBS-40A /CBS-400A** device must be installed by authorised and qualified staff.

The power supply plug must be disconnected and measurement systems switched off before handling, altering the connections or replacing the device. It is dangerous to handle the device while it is powered.

Cables must always be kept in perfect condition to avoid accidents or injury to personnel or installations.

Restrict the operation of the device to the specified measurement category, voltage or current values.

The manufacturer of the device is not responsible for any damage resulting from failure by the user or installer to heed the warnings and/or recommendations set out in this manual, nor for damage resulting from the use of non-original products or accessories or those made by other manufacturers.

Do not use the device to take any measurements if an anomaly or malfunction is detected.

Check the surrounding environment before starting to take measurements. Do not take any measurements in hazardous or explosive environments.



Before carrying out maintenance or repairs, or handling any of the device's connections, the device must be disconnected from all power sources, both from the device's own power supply and the measurement's.
Contact the after-sales service if you notice that the device is not working properly.

3.2.- INSTALLATION



When the device is on, its terminals, opening covers or removing elements may expose the user to parts that are hazardous to touch. Do not use the device until it is fully installed.

The device must be installed inside an electric panel or enclosure with DIN rail mounting (IEC 60715).

Note: Follow the instructions in **Figure 1** to correctly install the device on the DIN rail.

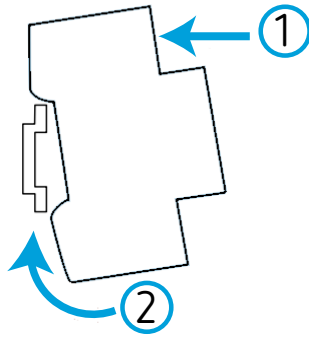


Figure 1: Installing the CBS-4xxA on the DIN rail.



The device has a LED (CPU) that indicates voltage presence. Even if the aforementioned LED is off, the user still needs to verify that the device is disconnected from any power supply.

The **CBS-40A / CBS-400A** has to be connected to a power circuit that is protected with a circuit-breaker or equivalent device to disconnect the device from the mains supply.

3.3 - PANEL MOUNTING ACCESSORY (72 x 72 mm)

Note: The 72 x 72 mm panel mounting accessory is sold separately.

CIRCUTOR has a panel mounting accessory for the **CBS-40A / CBS-400A** device so that it can be installed on 72 x 72 mm panels.

Figure 2 shows the installation of the panel mounting accessory to the **CBS-40A / CBS-400A**.



Disconnect all power supplies and measuring equipment from the device before installing the panel mounting accessory.

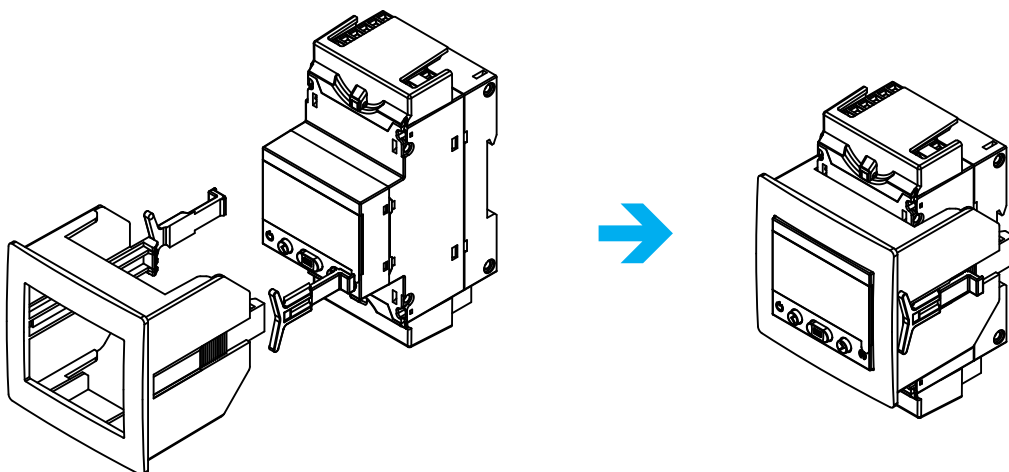


Figure 2: Installation of the panel mounting accessory.

Table 3: Technical features.

Technical features	
Protection degree	IP40
Enclosure	Self-extinguishing V0 plastic

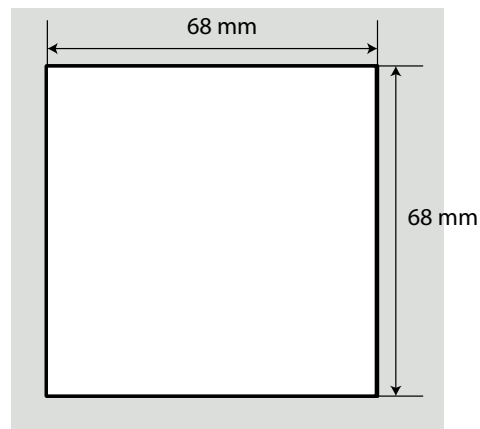


Figure 3: Panel cut-out.

3.4 - DEVICE TERMINALS

3.4.1. CBS-40A

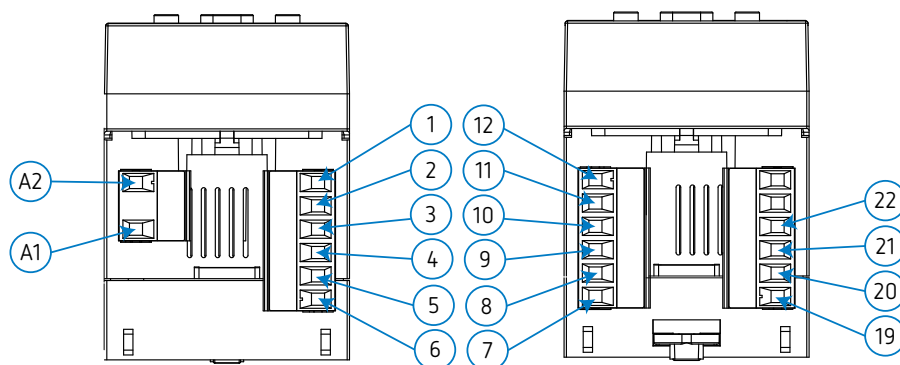


Figure 4: Terminals of the CBS-40A: Upper - Lower.

Table 4: List of CBS-40A terminals.

Device terminals	
A1: A1, Power supply	8: S2, Transformer connection WGS/WGC channel 1 and 2 (Common)
A2: A2, Power supply	9: S1, Transformer connection WGS/WGC channel 2
1: R1, Channel 1 Trip relay (NO)	10: S1, Transformer connection WGS/WGC channel 3
2: R2, Channel 2 Trip relay (NO)	11: S2, Transformer connection WGS/WGC channel 3 and 4 (Common)
3: C1, Trip relay (Common)	12: S1, Transformer connection WGS/WGC channel 4
4: R3, Channel 3 Trip relay (NO)	19: Pre-alarm output (NO)
5: R4, Channel 4 Trip relay (NO)	20: Pre-alarm output (Common)
6: C2, Trip relay (Common)	21: TRIP/RESET, Input for trigger or external reset
7: S1, Transformer connection WGS/WGC channel 1	22: TRIP/RESET, Input for trigger or external reset

3.4.2. CBS-400A

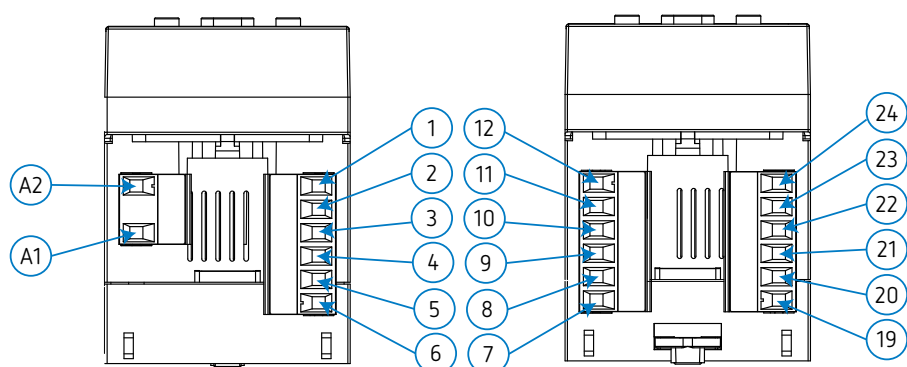


Figure 5: Terminals of the CBS-400A: Upper - Lower.

Table 5: List of CBS-400A terminals.

Device terminals	
A1: A1, Power supply	9: S1, Transformer connection WGS/WGC channel 2
A2: A2, Power supply	10: S1, Transformer connection WGS/WGC channel 3
1: R1, Channel 1 Trip relay (NO)	11: S2, Transformer connection WGS/WGC channel 3 and 4 (Common)
2: R2, Channel 2 Trip relay (NO)	12: S1, Transformer connection WGS/WGC channel 4
3: C1, Trip relay (Common)	19: Pre-alarm output (NO)
4: R3, Channel 3 Trip relay (NO)	20: Pre-alarm output (Common)
5: R4, Channel 4 Trip relay (NO)	21: TRIP/RESET , Input for trigger or external reset
6: C2, Trip relay (Common)	22: TRIP/RESET , Input for trigger or external reset S, GND for RS-485
7: S1, Transformer connection WGS/WGC channel 1	23: B-, RS-485
8: S2, Transformer connection WGS/WGC channel 1 and 2 (Common)	24: A+, RS-485

3.5 - WGS/WGC TRANSFORMERS

The transformer is designed for wall-mounting or DIN-rail assembly with an accessory for installation.

The **WGS/WGC** is a feed-thru busbar type transformer, where the conductor cables to be measured must pass through the inner hole or window of the transformer.

3.5.1. PANEL INSTALLATION

For panel installation, 4 clamping clips are provided with the transformer, see **Figure 6**.

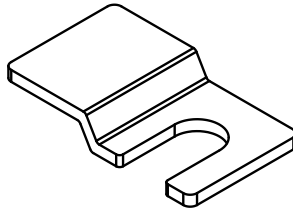


Figure 6: Clamping clip.

The clamping clips must be installed on the **WGS/WGC**, as shown in **Figure 7**.

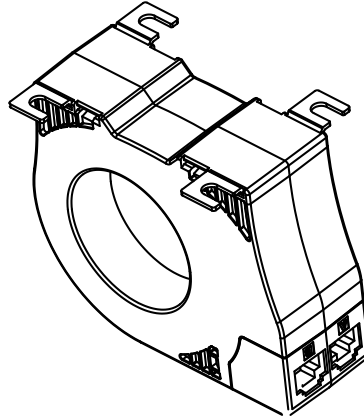


Figure 7: Position of the clamping clips.

3.5.2. INSTALLATION ON A DIN RAIL

For installation on a DIN rail, two support brackets are provided with the device, see **Figure 8**.

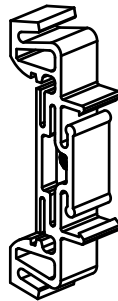


Figure 8: WGS/WGC support brackets.

The steps to ensure proper installation are:

- 1 - Install the brackets in the **WGS/WGC**, **Step 1** in **Figure 9**.
- 2 - Install the **WGS/WGC** on the DIN rail, **Step 2** in **Figure 9**.

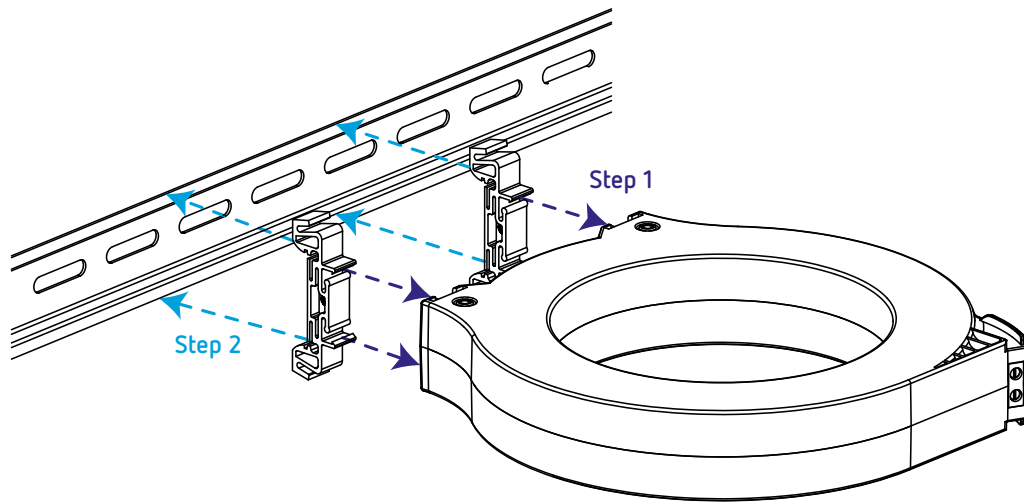


Figure 9: Installing a WGS/WGC on the DIN rail.

3.5.3. DISTRIBUTION OF THE CONDUCTORS IN THE WGS/WGC

All the active conductors that feed the loads or part of the installation where earth leakage protection or monitoring is required must pass through the **WGS/WGC** transformer associated with the **CBS-40A /CBS-400A**.

Active conductors are defined as the phases (**L1, L2 and L3**) and neutral. Never the protection cable (**PE or Earth**) (Figure 10).

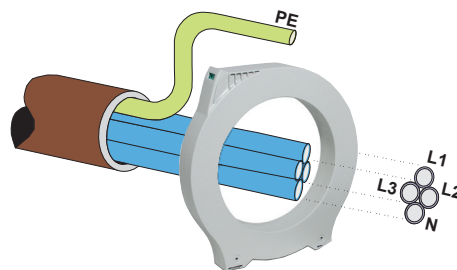


Figure 10: Distribution of the conductors.



Routing the Earth cable (**PE**) and the rest of the active conductors through the transformer disables earth leakage current measurement, and earth leakage protection and motorisation consequently cease to function.

In the event of having to route a cable hose containing all the conductors, including the earth conductor (**PE**), the **PE** conductor must be routed in the opposite direction to counteract the effects of its original path, see Figure 11.

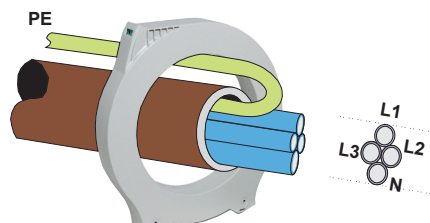


Figure 11: Conductor distribution (cable hose).

Conductor routing must be neat, centred and separated from the transformer's inner opening, Figure 12.

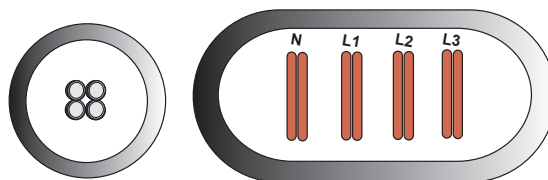


Figure 12: Correct distribution of conductors.



The inadequate arrangement of the conductors, as shown in **Figure 13**, as well as not following the recommendations indicated in **Figure 14**, can cause the transformer to lose its measurement efficiency and residual current protection. Unexpected disconnections may occur in the installation if the **WGS/WGC** is associated to a differential relay that actuates the circuit breaker.

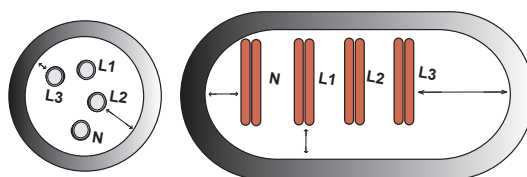


Figure 13: Incorrect distribution of conductors.

The elbows of the conductors passing through the **WGS/WGC** must be avoided, both at inlet (before feed-through) and outlet (after feed-through), **Figure 14**.

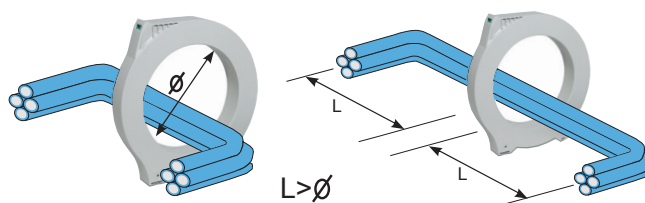


Figure 14: Avoid elbows in conductors.

3.6 - CONNECTION DIAGRAM

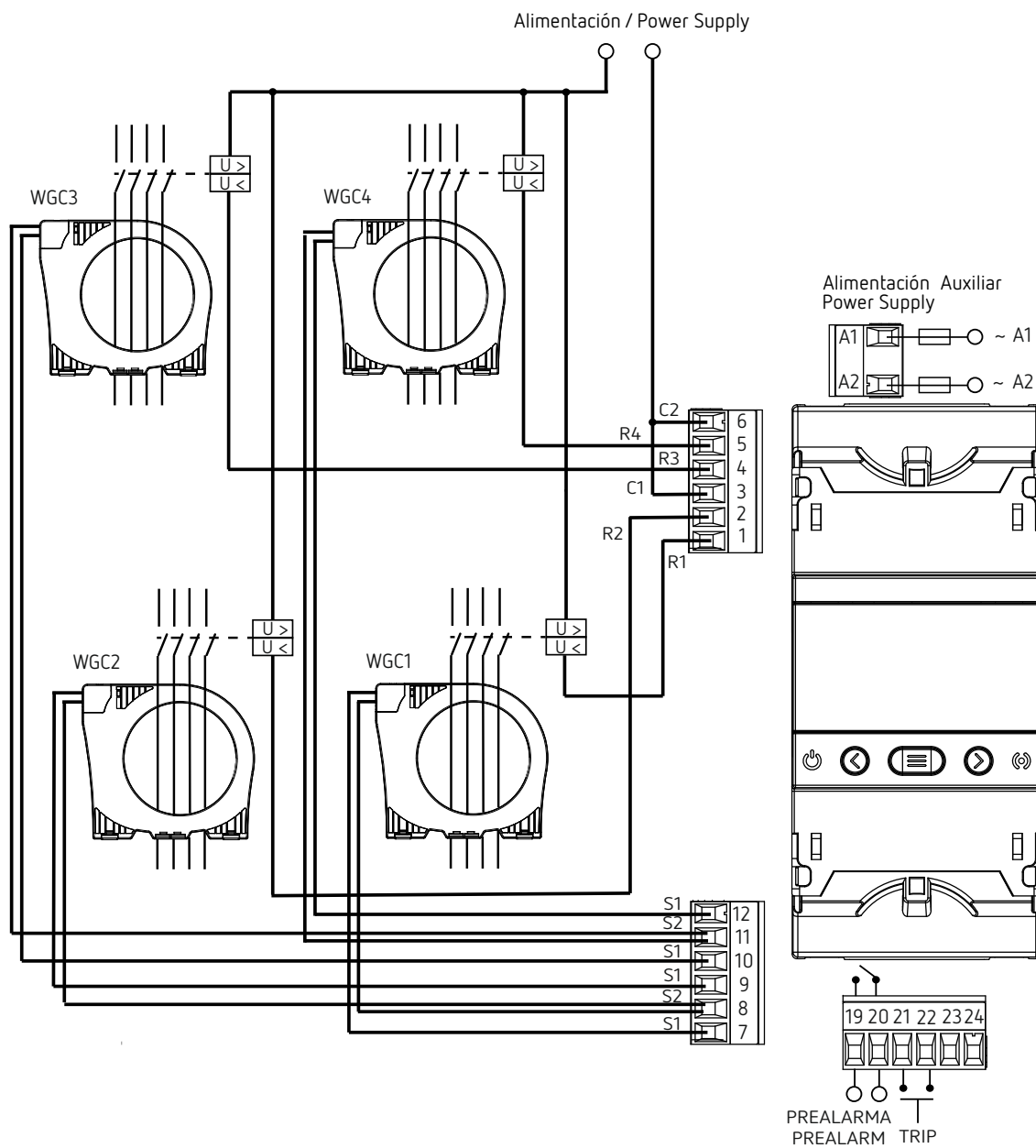


Figure 15: Connection diagram.

4.- OPERATION

4.1 - PRINCIPLE OF OPERATION

The **CBS-40A /CBS-400A** is a type-A ultraimmunized earth leakage protection and monitoring station for 4 independent channels that is compatible with the earth leakage transformers in the **WGS/WGC** range.

The device measures, calculates and displays the residual current of balanced or unbalanced three-phase industrial networks. The measurement is a true RMS value, through 4 differential current inputs, from an external toroidal measurement transformer of the **WGS/WGC** series.

The **CBS-40A/CBS-400A** allows the programming and adjustment of all the required parameters to obtain complete protection and control of the installation for each channel independently.

In normal operating conditions, the main values that determine the residual current protection of the installation, such as sensitivity, delay and instantaneous leakage current, are shown on the display.

In normal operating conditions, the display is shown in **White, Blue** if in configuration mode, **Yellow** if the pre-alarm has tripped, or **Red** for any event that causes a trip of the main relay, showing the reason.

Main characteristics:

- ✓ True root mean square value.
- ✓ Ultra-immunised type A differential.
- ✓ Immunity to transients.
- ✓ Filtering of the highest order high frequencies.
- ✓ Trip adjustment between 80 and 100% $I\Delta n$.
- ✓ Inverse curve.

4.2 - LED INDICATORS

The **CBS-40A/CBS-400A** device has 2 LEDs:

- **CPU**, indicates that the device is on.
- **STATE**, indicates the device status, see **Table 6**.

Table 6: State LED.

LED	Backlight	Description
Fast blinking	OFF	Device processing the signal.
Slow blinking	Yellow	Pre-alarm relay trip.
ON	Red	Deive triped due to leakage, transformer error, external trip or TEST of the trip relay.

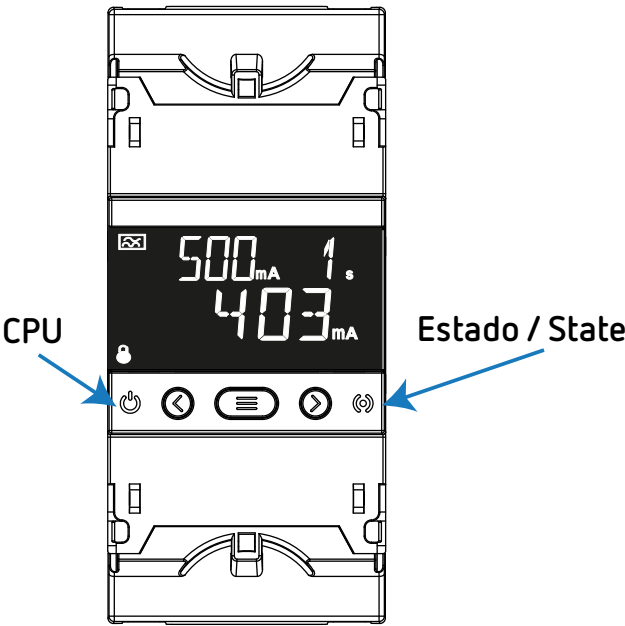


Figure 16: CBS-40A/CBS-400A LED indicators.

4.3 - DISPLAY

The device has a backlit LCD display that is split into two areas (Figure 17):

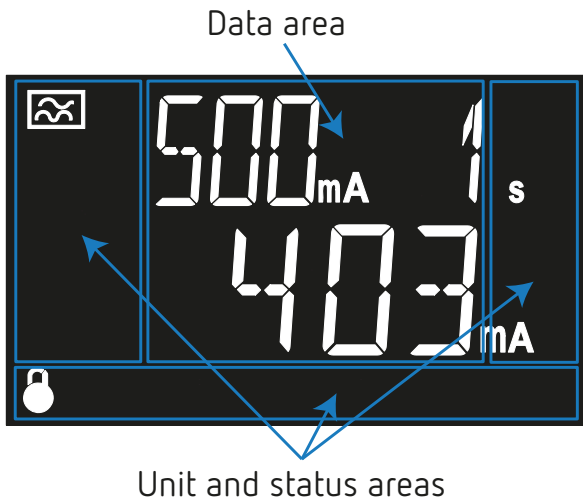


Figure 17: CBS-40A/CBS-400A display areas.

- ✓ The **data area**, which displays all the values measured by the device, as well as the sensitivity or delay settings.
- ✓ The **unit and device status area**, which displays the different statuses, units and device information (Table 7).

Table 7: Display icons.

Icon	Description	Icon	Description
	Type-A residual current protection		Pre-alarm activated.
	Programming screen.		A trip has been generated.

Table 7 (Continued): Display icons.

Icon	Description		
	Channel 1		Channel 2
	Channel 3		Channel 4
	All the channels		The relay works with positive polarity.
	The direct adjustments " 6 - DIRECT ADJUSTMENTS " are locked. On devices with version < v.1.0.2: The setup menu " 7 - CONFIGURATION " is locked and cannot be accessed. On devices with version ≥ v.1.0.2: The configuration menu can be accessed in reading mode. Go to the lock menu, " 5.4 - LOCK " to change the option.		

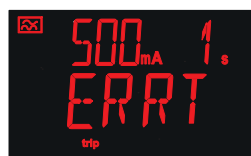
The device's display can change colour, indicating:



Blue:
Adjustment or configuration screen.



Yellow:
The pre-alarm has been activated.



Red:
 A relay has tripped due to leakage current, see "**5.2. - TRIP DISPLAY SCREENS**",
 An Individual test has been carried out, see "**5.3 - TEST SCREEN**".
 An error has been detected, see "**5.5 - ERROR SCREEN**"

4.4 - KEYBOARD FUNCTIONS

The CBS-40A / CBS-400A has 3 keys to browse through the different screens and program the device.

Function of the keys (Table 8):

Table 8: Function of the keys on display screens.

Key	Short keystroke	Long keystroke (3s)
	Previous screen	TEST the trip relay.
	Next screen	If there has been a trip, it RESET the relay.
	Access to the Lock/Unlock menu and device setup.	Access to Direct Adjustments on devices with version ≥ v.1.0.2

4.5 - RELAY

The CBS-40A /CBS-400A has 4 trip relays, **R1**, **R2**, **R3** and **R4** (Figure 18). See "**6.- DIRECT ADJUSTMENT**" and "**7.2.- TRIP RELAY**" to configure the relay trip parameters.

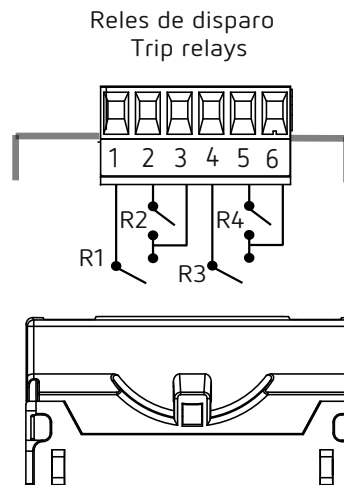


Figure 18: CBS-40A/CBS-400A relay.

4.6 - DIGITAL INPUT

The device has a digital input, **TRIP/RESET** (Figure 19), to do an trip or external reset. The digital input can be applied to all channels at the same time or only to certain channels, see section "**7.5.- DIGITAL INPUT**".

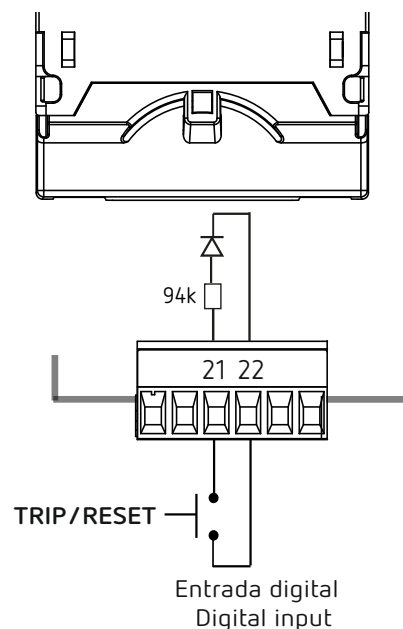


Figure 19: CBS-40A/CBS-400A Digital inputs.

The **TRIP/RESET** digital input works as a status input, that is, if the device is at rest and a voltage is applied to the digital input, the selected trip relay, **R_x**, trips. The device remains tripped while the digital input remains activated, **Figure 20**.

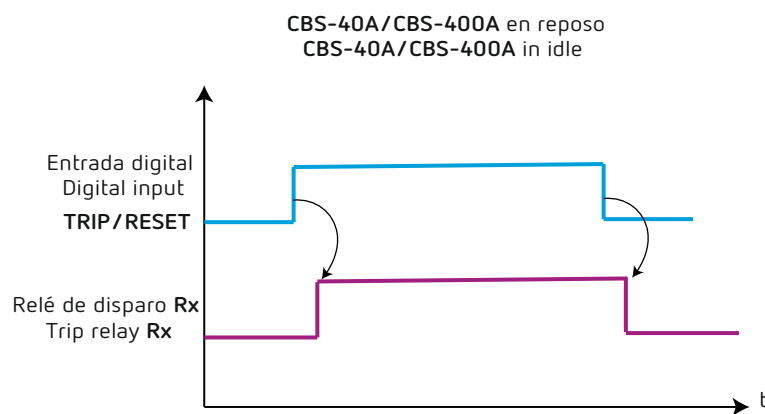


Figure 20: CBS-40A/CBS-400A in idle.

If the **Rx** trip relay is tripped, when a voltage is applied to the **TRIP/RESET** digital input, the **CBS-40A / CBS-400A** indicates that there has been a trip, and when the voltage is no longer applied to the digital input, the **Rx** relay resets, **Figure 21**.

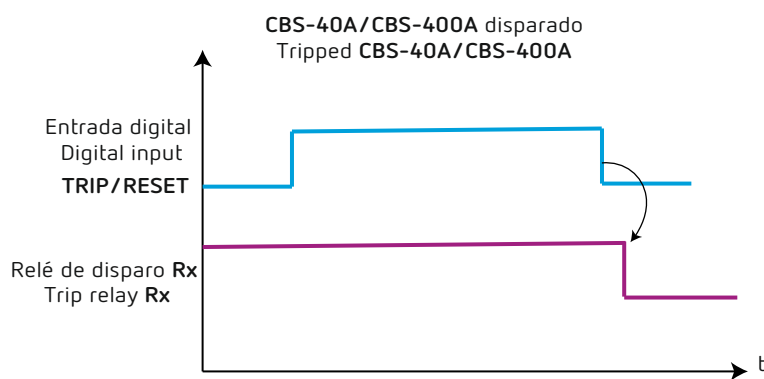


Figure 21: Tripped CBS-40A/CBS-400A.

4.7.- PRE-ALARM OUTPUT

The device has a pre-alarm output, (**Figure 22**).

See **"7.1.- PRE-ALARM OUTPUT"** to configure the pre-alarm output parameters.

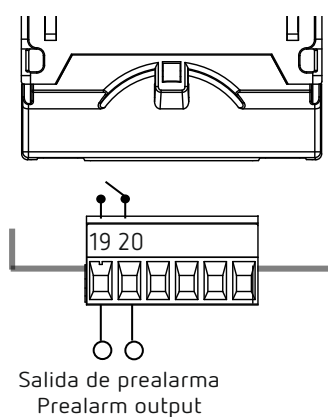


Figure 22: CBS-40A/CBS-400A pre-alarm output.

5 - DISPLAY

When starting the device, the home screen is displayed, showing the version of the device, **Figure 23**, and after 13 seconds the display screen is shown.

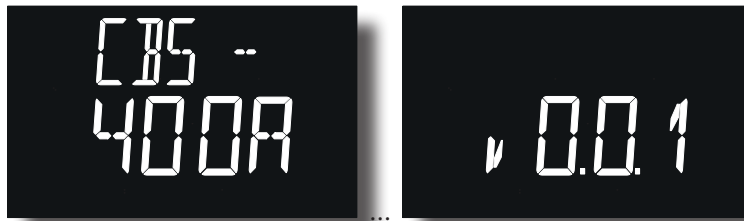


Figure 23: Home Screen.

Note: If the  key is pressed, the device goes directly to the display screen.

5.1 - DISPLAY SCREENS

The display screen for each of the channels shows the leakage current and the trip and delay current values, **Figure 24**.

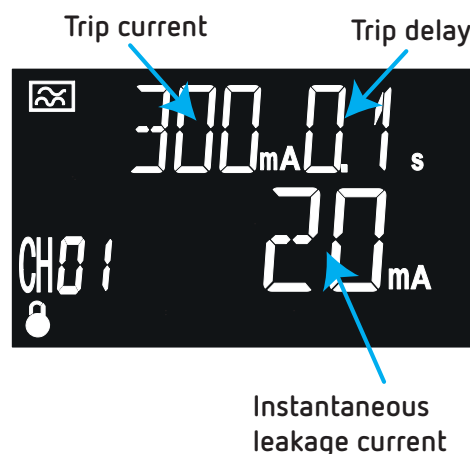
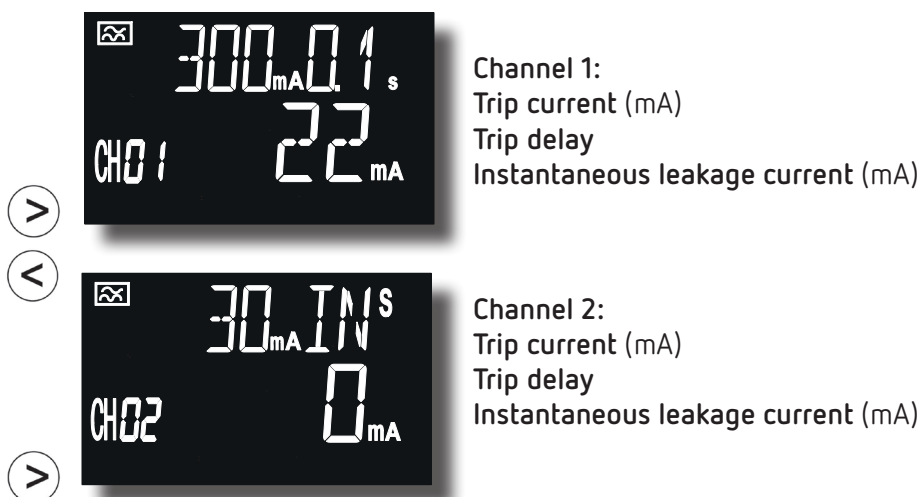


Figure 24: Channel display screen.

Use the keys  and  to browse through the different screens:





Channel 3:
Trip current (mA)
Trip delay
Instantaneous leakage current (mA)



Channel 4:
Trip current (mA)
Trip delay
Instantaneous leakage current (mA)



Access the general setup menu by pressing the key . (See "7 - CONFIGURATION")

Note: Devices with version < v.1.0.2: If the device is locked, , the menu cannot be accessed.

Devices with version ≥ v.1.0.2: If the device is locked, , the configuration menu is accessed in read mode, the parameters cannot be modified.

Note: If no key is touched for 1 minute, the device jumps to the Channel 1 display screen.



Access the lock menu by pressing the key . (See "5.4 - LOCK")

Note: If no key is touched for 1 minute, the device jumps to the Channel 1 display screen.

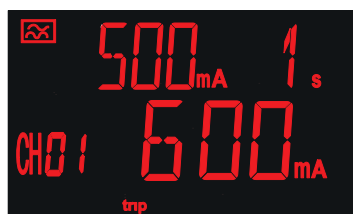


Screen with information on the device version. Press the key  to see the version of the CBS-40A/CBS-400A.

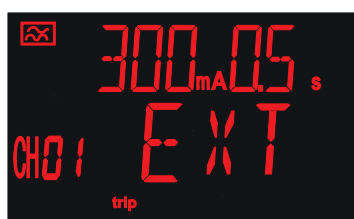


5.2 - TRIP DISPLAY SCREENS

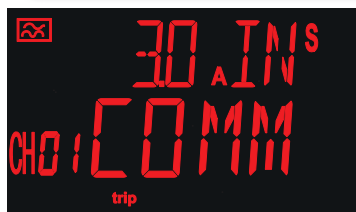
If a trip has been generated in one of the channels, the channel display screen turns red, the **Alarm** LED turns red and the current of the last cycle that triggered the relay of the corresponding channel is displayed.



Channel 1:
Trip current (mA)
Trip delay
Leakage current that tripped the relay (mA)



If a trip was generated using the **TRIP/RESET** input, it shows:
 Trip current (mA)
 Trip delay
 The text **EXT**, indicating that the trip was through the **TRIP/RESET** input.



If a trip has been generated by communications, it shows:
 Trip current (mA)
 Trip delay
 The text **COMM**, indicating that the trip has been through RS-485 communications.

By pressing the **>** **R** key for > 3s or performing an external reset from the **TRIP/RESET** input, the channel relay returns to its initial state and the channel screen is displayed in white.

5.3 - TEST SCREEN

It is possible to perform a test to check the correct operation of the one channel relay.

To do this, press the key **<** **T** for > 3s while the screen of the channel on which you want to perform the test is displayed.

If the relay has been tripped correctly, the screen in **Figure 25** is displayed. And the **Alarm** LED is lit in red.

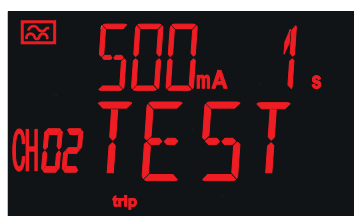


Figure 25: Test screen.

The relay is returned to its idle status by pressing the key **>** **R** for > 3s.

If the trip could not be carried out, the error screen (**Figure 26**) is displayed for 3s before returning to the channel display screen.

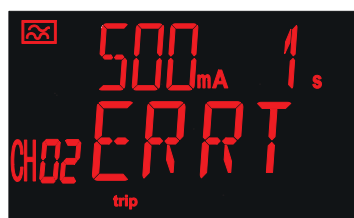


Figure 26: Test Error.

5.4 - LOCK

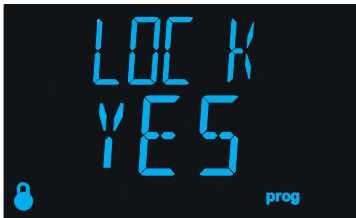
To enter the lock menu, we must display the Lock screen and press the key .



Figure 27: Lock menu.

The lock configuration screen is shown. If the device locks:

- The direct settings screens are locked ("6 - DIRECT ADJUSTMENTS") and the values cannot be modified.
- The setup menu ("7 - CONFIGURATION") is locked and cannot be accessed.



Use keys  and  to skip through the different options.

✓ Configuration values

Table 9: Configuration values: Lock.

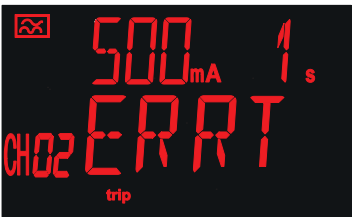
Lock	
Possible values	YES, the device is locked.
	NO, the lock on the device is deactivated.

Hold down the key  for > 3s, to validate the data and exit the programming.

Note: If no key is pressed for 1 minute, the device will lock automatically.

5.5 - ERROR SCREEN

If the device detects a problem in the transformer of one of the channels, the following screen is displayed:



The device has detected an error in the transformer.

6.- DIRECT ADJUSTMENTS

From the display screens of each of the channels, it is possible to configure the trip current and the delay of the connected transformer. To do this, press key .

For devices with version $<1.0.2$ press the  key to access.

For devices with version $\geq 1.0.2$ press the  > 3 s key to access.

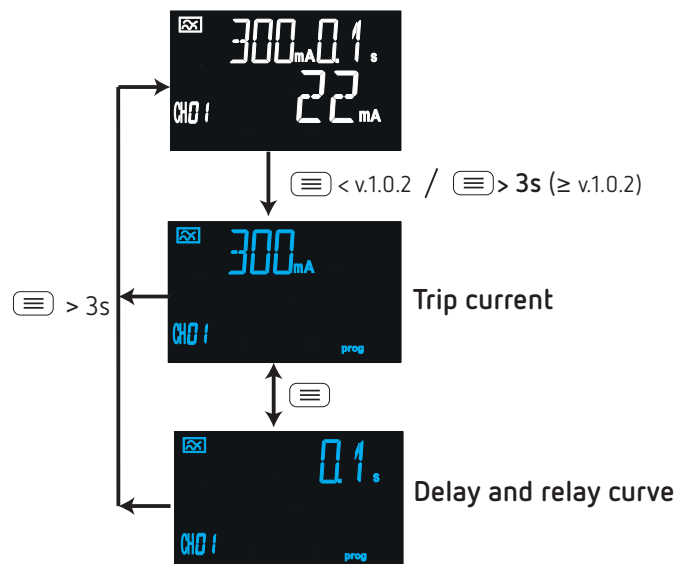


Figure 28: Direct adjustments for Channel x.

Note: If the device is locked, the direct settings cannot be modified and the screen shows the symbol . See ("5.4 - LOCK"), to modify the lock option.

Note: In "ANNEX A.- DIRECT SETTINGS" we can see the configuration tree.

6.1 - TRIP CURRENT

In this screen the trip current of the channel x relay is configured.



Use keys  and  to skip through the different options.

✓ Configuration values

Table 10: Configuration values: Trip current.

Trip current					
Possible values	30 mA	100 mA	300 mA	500 mA	1.0 A
	3.0 A	5.0 A ⁽¹⁾	10 A ⁽¹⁾	30 A ⁽¹⁾	

⁽¹⁾ Possible values if the trip current limit has been set to 30A ("7.2.3. - TRIP CURRENT LIMIT").

To skip to the next programming point, press once the key .

Hold down the key  for > 3s, to validate the data and exit the programming.

6.2 - DELAY AND RELAY CURVE

In this screen the delay in tripping the channel x relay or the type of trip curve is configured.



Use keys  and  to skip through the different options.

✓ Configuration values

Table 11: Configuration values: Delay and relay curve.

Delay and relay curve						
Possible values	0.1 s	0.2 s	0.3 s	0.4 s	0.5 s	0.8 s
	1 s	3 s	5 s	INS, curve INS	[S], curve SEL	

To return to the last programming point, press once the key .

Hold down the key  for > 3s, to validate the data and exit the programming.

7.- CONFIGURATION

To enter the configuration menu you must display the Setup screen and press the  key.

Note: Devices with version < v.1.0.2: If the device is locked, , the menu cannot be accessed.

Devices with version ≥ v.1.0.2: If the device is locked, , the configuration menu is accessed in read mode, the parameters cannot be modified.

The device configuration on the CBS-40A / CBS-400A is organised into 4 or 5 menus, Figure 29.

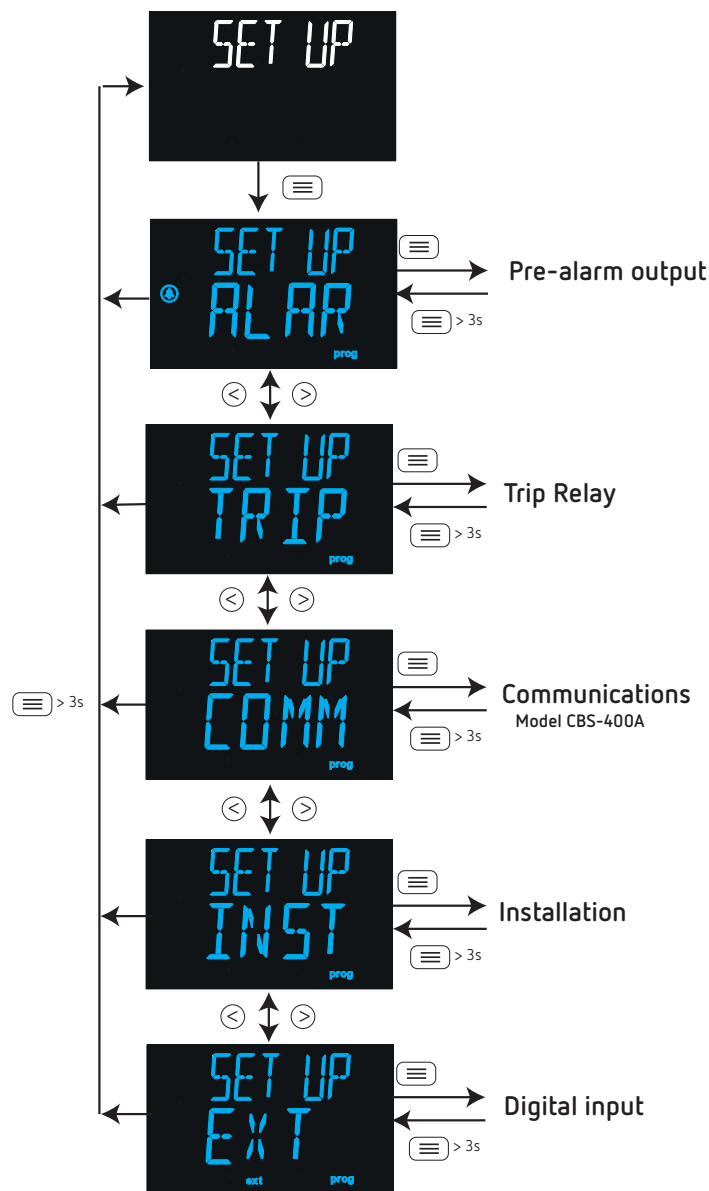


Figure 29: Configuration menu.

Note: In "ANNEX B.- CONFIGURATION MENU" we can see the configuration tree.

7.1 - PRE-ALARM OUTPUT

Figure 30 shows the home screen of the pre-alarm output configuration menu. Press the key  to access the menu.

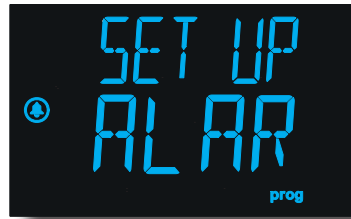


Figure 30: Pre-alarm menu.

Figure 31 shows the configuration menu of the pre-alarm output.

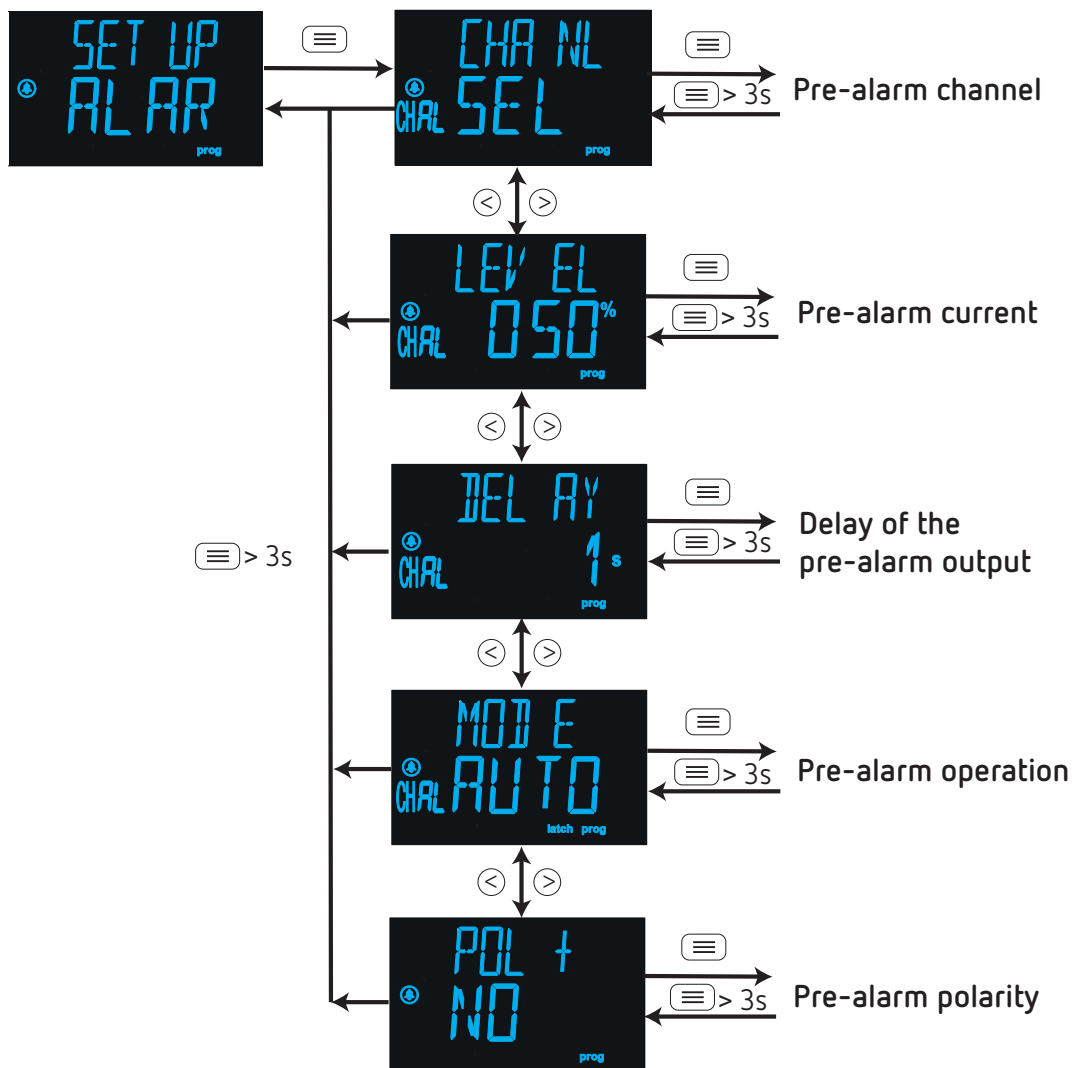


Figure 31: Pre-alarm relay configuration menu.

7.1.1.- PRE-ALARM CHANNEL

On this screen you select the channel on which the pre-alarm values are to be configured.



Press the key  to enter edit mode, the programming value flashes.

Use the keys  and  to skip through the different options.

✓ Configuration values

Table 12: Configuration values: Pre-alarm channel.

Pre-alarm channel	
Possible values	CHO 1 ... CHO4, Channel 1 ... 4
	CHAL, All the channels

Hold down the key  for > 3s to validate the data and exit edit mode.

To skip to the next programming point, press once the key .

7.1.2. - PRE-ALARM CURRENT

This screen is used to configure the current at which the pre-alarm will be activated according to the % of the relay's trip current.



Press the key  to enter edit mode, the programming value flashes.

Use the keys  and  to modify the value.

✓ Configuration values

Table 13: Configuration values: Pre-alarm current.

Pre-alarm current	
Minimum value	25%
Maximum value	100%

Hold down the key  for > 3s to validate the data and exit edit mode.

To skip to the next programming point, press once the key .

7.1.3. - DELAY OF THE PRE-ALARM OUTPUT

This screen is used to configure the delay of the pre-alarm output, in seconds.



Press the key  to enter edit mode, the programming value flashes.
Use the keys  and  to skip through the different options.

✓ Configuration values

Table 14: Configuration values: Delay of pre-alarm relay.

Delay of pre-alarm relay			
Possible values	1 s.	3 s.	5 s.

Hold down the key  for > 3s to validate the data and exit edit mode.
To skip to the next programming point, press once the key .

7.1.4. - PRE-ALARM OPERATION

This screen is used to configure the operation of the pre-alarm.



Press the key  to enter edit mode, the programming value flashes.
Use the keys  and  to skip through the different options.

✓ Configuration values

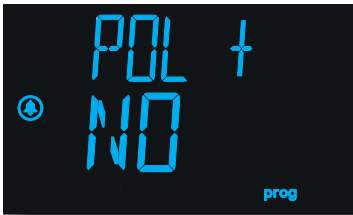
Table 15: Configuration values: Pre-alarm operation.

Pre-alarm operation	
Possible values	<i>DISA</i> , pre-alarm deactivated.
	<i>AUTO</i> , pre-alarm activated with latch deactivated; if the condition for the pre-alarm clears, the pre-alarm is disconnected.
	<i>MANU</i> , pre-alarm activated with latch activated, the pre-alarm clears when re-setting via the keyboard.

Hold down the key  for > 3s to validate the data and exit edit mode.
To skip to the next programming point, press once the key .

7.1.5.- POLARITY

The polarity of the pre-alarm output is configured in this section.



Press the key  to enter edit mode, the programming value flashes.
Use the keys  and  to skip through the different options.

✓ Configuration values

Table 16:Configuration values: Polarity.

Polarity	
Possible values	YES, The pre-alarm output works with positive polarity (the polarity of the contacts is reversed with respect to the standard polarity).
	NO, the pre-alarm output works with standard polarity.

Hold down the key  for > 3s to validate the data and exit edit mode.
To jump to the home screen of the pre-alarm menu, press the key  for > 3s

7.2.- TRIP RELAY

Figure 32 shows the home screen of the trip relay configuration menu. Press the key  to access the menu.



Figure 32: Trip relay menu.

Figure 33 shows the configuration menu of the trip relay.

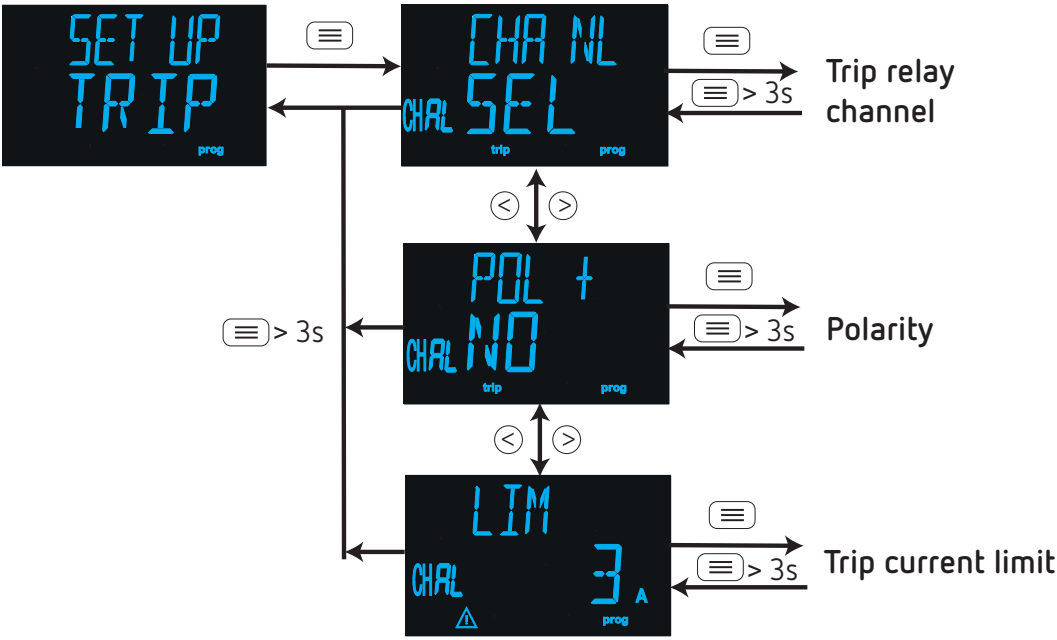


Figure 33: Configuration menu of the trip relay.

7.2.1.- TRIP RELAY CHANNEL

In this screen, the channel on which the trip relay values are to be configured is selected.



Press the key to enter edit mode, the programming value flashes.
Use the keys and to skip through the different options.

✓ Configuration values

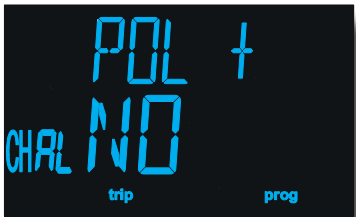
Table 17: Configuration values: Trip relay channel.

Trip relay channel	
Possible values	CH01 ... CH04, Channel 1 ... 4 CHAL, All the channels

Hold down the key for > 3s to validate the data and exit edit mode.
To skip to the next programming point, press once the key .

7.2.2 - POLARITY

The polarity of the trip relay is configured in this section.



Press the key  to enter edit mode, the programming value flashes.
Use the keys  and  to skip through the different options.

✓ Configuration values

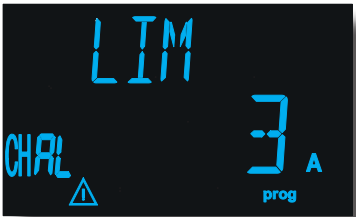
Table 18:Configuration values: Polarity.

Polarity	
Possible values	YES, The trip relay works with positive polarity. The + icon is shown on the display.
	NO, the trip relay works with standard polarity.

Hold down the key  for > 3s to validate the data and exit edit mode.
To skip to the next programming point, press once the key .

7.2.3. - TRIP CURRENT LIMIT

In this section, the trip current limit is set, which can be programmed as a direct setting on the device (see "6.1 - TRIP CURRENT").



Press the key  to enter edit mode, the programming value flashes.
Use the keys  and  to skip through the different options.

✓ Configuration values

Table 19:Configuration values: Trip current limit.

Trip current limit		
Possible values	3 A	30 A

Hold down the key  for > 3s to validate the data and exit edit mode.
To jump to the home screen of the trip relay menu, press the key  for > 3s.

7.3.- COMMUNICATIONS

Note: Menu only available on the **CBS-400A** model.

Figure 34 shows the initial screen of the RS-485 communications menu. Press the key  to access the menu.



Figure 34: Communications menu.

Figure 35 shows the RS-485 communications configuration menu.

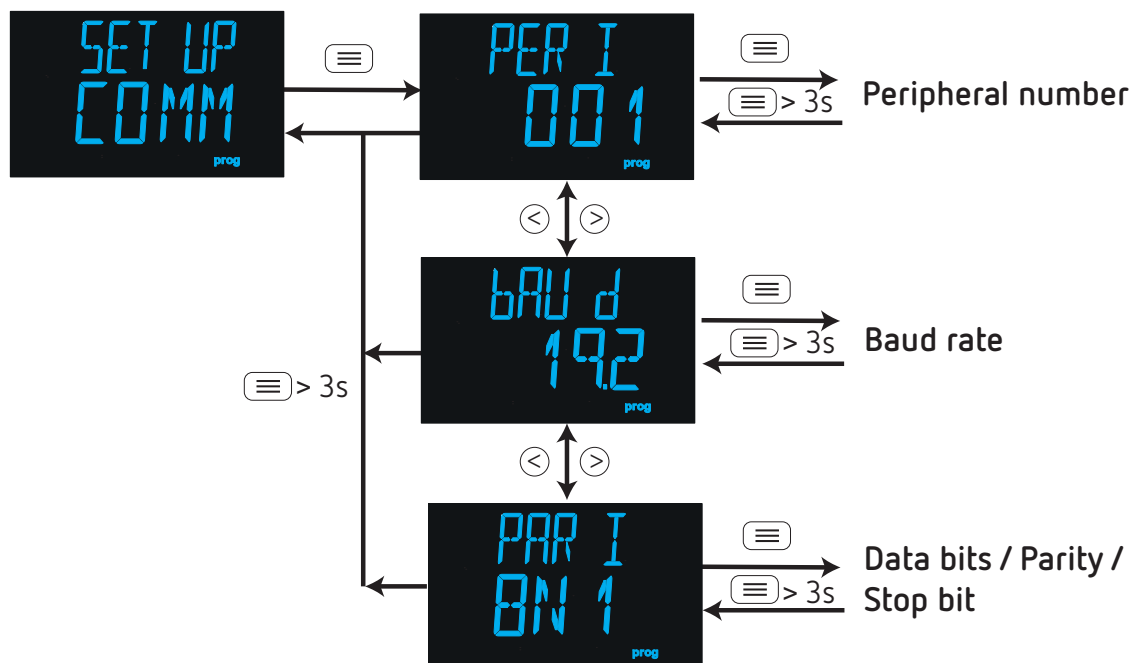


Figure 35: RS-485 communications configuration menu.

7.3.1.- PERIPHERAL NUMBER

In this section, the device's peripheral number for RS-485 communications is selected.



Press the key  to enter edit mode, the programming value flashes.

Use the keys  and  to skip through the different options.

✓ Configuration values

Table 20: Configuration values: Peripheral number.

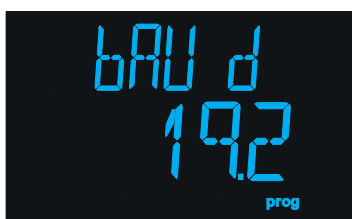
Peripheral number	
Minimum value	1
Maximum value	247

Hold down the key  for > 3s to validate the data and exit edit mode.

To skip to the next programming point, press once the key .

7.3.2.- BAUD RATE

In this screen, the baud rate of the RS-485 communications is set up.



Press the key  to enter edit mode, the programming value flashes.

Use the keys  and  to skip through the different options.

✓ Configuration values

Table 21: Configuration values: Baud rate.

Baud rate			
Possible values	4.8, 4800 bps	9.6, 9600 bps	19.2, 19200 bps
	38.4, 38400 bps	57.6, 57600 bps	115.2, 115200 bps

Hold down the key  for > 3s to validate the data and exit edit mode.

To skip to the next programming point, press once the key .

7.3.3.- DATA BITS / PARITY / STOP BIT

In this section, the data and stop bits and the parity of the RS-485 communications are selected.



Press the key  to enter edit mode, the programming value flashes.

Use the keys  and  to skip through the different options.

✓ Configuration values

Table 22: Configuration values: Data bits / Parity / Stop bits.

Data bits / Parity / Stop bits	
Possible values	<i>BN 1</i> , 8 data bits, no parity, 1 stop bit.
	<i>BE 1</i> , 8 data bits, even parity, 1 stop bit.
	<i>BO 1</i> , 8 data bits, odd parity, 1 stop bit.
	<i>BN 2</i> , 8 data bits, no parity, 2 stop bits.
	<i>BE 2</i> , 8 data bits, even parity, 2 stop bits.
	<i>BO 2</i> , 8 data bits, odd parity, 2 stop bits.

Hold down the key  for > 3s to validate the data and exit edit mode.

To jump to the initial screen of the communications menu, press the key  for > 3s.

7.4.- INSTALLATION

Figure 36 shows the initial screen of the installation status menu.

Press the key  to access the menu.



Figure 36: Installation menu.

Figure 37 shows the installation status menu.

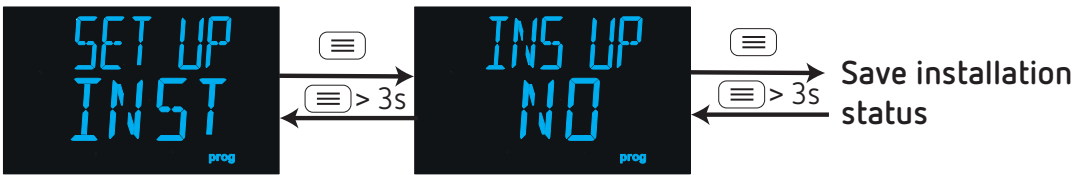


Figure 37: Installation status configuration menu.

7.4.1.-SAVE INSTALLATION STATUS

If a change has been made to the installation of the transformers, for example the Channel 1 transformer has been removed, it is necessary to update this modification from this screen.



Press the  key to enter editing mode, the programming value flashes.
Use the keys  and  to skip through the different options.

✓ Configuration values

Table 23: Configuration values: Save installation status.

Save installation status	
Possible values	YES, The device saves the status of the current installation.
	NO, The device does not save the installation status.

Hold down the key  for > 3s to validate the data and exit edit mode.
To jump to the initial screen of the installation menu, press the key  for > 3s.

7.5.- DIGITAL INPUT

Figure 38 shows the initial screen of the digital input menu.
Press the key  to access the menu.



Figure 38: Digital input menu.

Figure 39 shows the digital input menu.

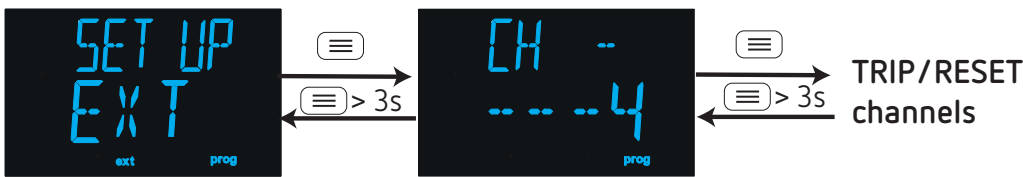


Figure 39: Digital input configuration menu.

7.5.1.-TRIP/RESET CHANNELS

In this section, the channels on which the digital input, **TRIP** (trigger) or **RESET** (external reset) will be applied, are selected.



Press  key to enter edit mode, channel 1 status flashes.
Use the keys  and  to skip through the different options.

✓ Configuration values

Table 24: Configuration values: TRIP / RESET channels.

TRIP / RESET channels	
Possible values	--, The digital input does not act on channel 1 ... 4
	1,2,3,4 The digital input acts on channel 1 ... 4

Press  key to jump to the next channel status.

Hold down the key  for > 3s to validate the data and exit edit mode.
To jump to the initial screen of the digital input menu, press the  key for > 3s.

8.- CBS-400A: RS-485 COMMUNICATIONS

The **CBS-400A** has an RS-485 communications port. The device is equipped with the **MODBUS RTU** communication protocol as standard.

8.1.- CONNECTIONS

The RS-485 cable must be wired using twisted pair cable with mesh shield (minimum 3 wires), with a maximum distance of 1200 meters between the **CBS-400A** and the master unit. In this bus we can connect a maximum of 32 devices.

For communication with the master unit, we must use a smart RS-232 to RS-485 network protocol converter.

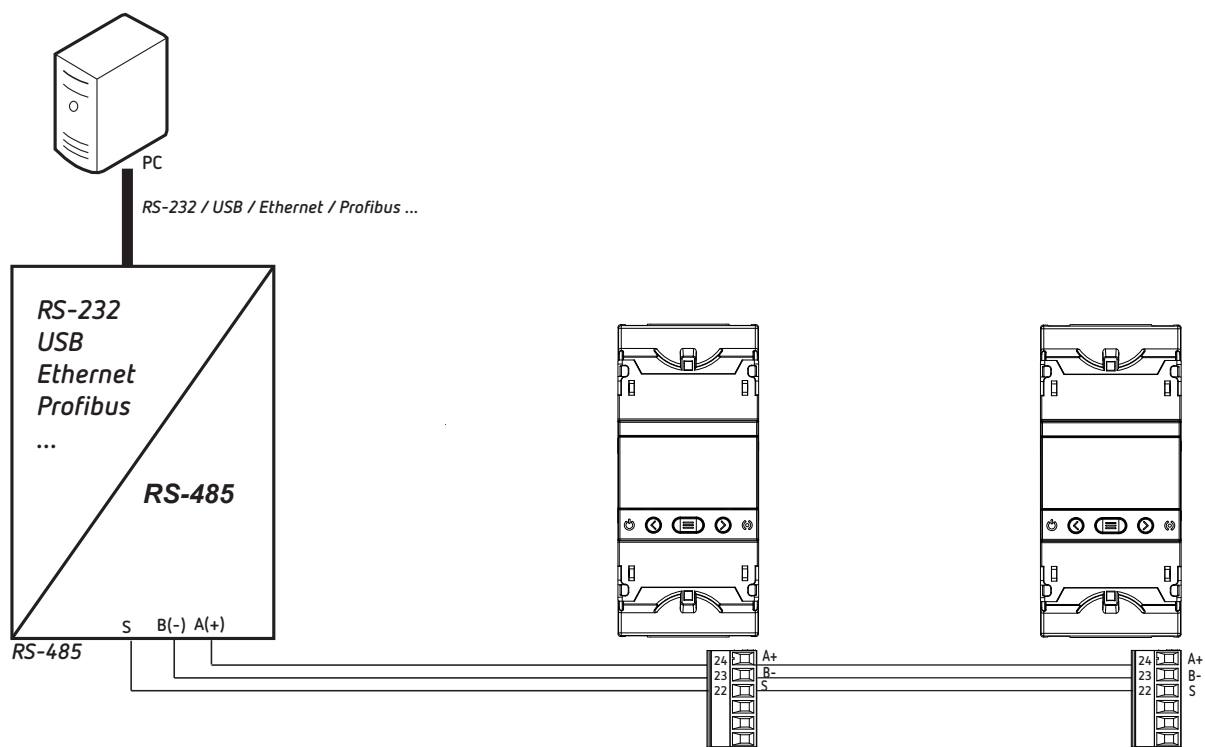


Figure 40: RS-485 connection diagram.

Note: Default values of the RS-485 communication: **115200 bps, no parity, 8 data bits and 1 stop bit.**

8.2.- MODBUS PROTOCOL

Within the Modbus protocol, the **CBS-400A** uses the RTU (Remote Terminal Unit) mode. The Modbus functions implemented in the device are as follows:

Function 0x01: Reading a relay.

Function 0x02: Reading input status.

Functions 0x03 and 0x04: Reading integer registers.

Function 0x05: Writing a relay.

Function 0x10: Writing multiple registers.

8.3.- MODBUS COMMANDS

All **MODBUS** map addresses are in Hexadecimal format.

8.3.1.- VARIABLES OF THE DEVICE

Function **0x04** is used for these parameters

Table 25: Modbus Memory Map: Device parameters (Table 1).

Parameter	Format	Address				Units
		Channel 1	Channel 2	Channel 3	Channel 4	
Instantaneous leakage current	Unit [16]	0FA0	0FA1	0FA2	0FA3	mA
Trip current	Unit [16]	0FC8	0FC9	0FCA	0FCB	mA

Table 26: Modbus Memory Map: Device parameters (Table 2).

Parameter	Format	Address	Value
Model ID: Residual Current Equipment Type	ARRAY	1388 - 1389	"MRCD"
Model ID: Measurement Type	ARRAY	138A	"A"
Model ID: No. of measurement channels	Unit [16]	138B	1
ID no. of device	Unit [32]	35E8 - 35E9	-
Serial no. of device	Unit [16]	364C ... 3652	-
Firmware version (part 1)	Unit [16]	361A	-
Firmware version (part 2)	Unit [16]	361B	-
Firmware version revision	Unit [16]	361C	-

Function **0x02** is used for these parameters.

Table 27: Modbus Memory Map: CBS-400A status (Table 1).

Parameter	Format	Address				Value
		Channel 1	Channel 2	Channel 3	Channel 4	
Internal error detected in channel device	bool	0000	0028	0050	0078	0: Not detected 1: Detected
Pre-alarm triggered by leakage current	bool	0001	0029	0051	0079	0: Disabled 1: Activated
Device tripped	bool	0002	002A	0052	007A	0: Without tripped 1: Tripped
Device tripped by leakage current	bool	0003	002B	0053	007B	
Device tripped by error at the WGS/WGC	bool	0004	002C	0054	007C	
Channel tripped by test	bool	0005	002D	0055	007D	
Channel tripped by TRIP input	bool	0006	002E	0056	007E	
Channel tripped by communications	bool	0007	002F	0057	007F	0: Not detected 1: Detected
WGS/WGC of the channel is not detected	bool	0008	0030	0058	0080	
The channel relay has not been reconnected	bool	0009	0031	0059	0081	
Device locked and channel relay cannot be reconnected	bool	000A	0032	005A	0082	

Table 28: Modbus Memory Map: CBS-400A status (Table 2).

Parameter	Format	Address	Value
An internal error detected in the CBS-400A device	bool	07CF	0: Not detected 1: Detected

8.3.2.- TRIPPING DUE TO TEST OR COMMUNICATIONS

The Functions 0x01 and 0x05 are implemented for these parameters.

Table 29: Modbus Memory Map: Tripping due test or communications.

Tripping due test or communications							
Parameter	Format	Address				Valid data range	Default value
		Channel 1	Channel 2	Channel 3	Channel 4		
Trip by TEST	bool	07D0	07D1	07D2	07D3	FF00: Activate the TEST 0000: Finish the TEST	0000
Trip by communications	bool	07F8	07F9	07FA	07FB	FF00: Channel trip 0000: Channel reset	0000

8.3.3.- DEVICE CONFIGURATION VARIABLES

The following functions are used for these variables:

Function 0x03: Reading of registers

Function 0x10: Writing multiple registers.

8.3.3.1.- Trip configuration

Table 30: Modbus Memory Map: Trip configuration.

Trip configuration							
Configuration parameter	Format	Address				Valid data range	Default value
		Channel 1	Channel 2	Channel 3	Channel 4		
Delay and relay curve	Unit [16]	3778	3782	C364	C36E	1: Curve INS, 2: Curve SEL, 100 ms, 200 ms, 300 ms, 400 ms, 500 ms, 800 ms, 1000 ms, 2000 ms, 3000 ms, 5000 ms	1
Trip current	Unit [16]	3779	3783	C365	C36F	30 mA, 100 mA, 300 mA, 500 mA, 1000 mA, 3000 mA, 5000 mA, 10000 mA, 30000 mA	30 mA

8.3.3.2.- Pre-alarm output configuration

Table 31: Modbus Memory Map: Pre-alarm output configuration.

Prealarm output configuration							
Configuration parameter	Format	Address				Valid data range	Default value
		Channel 1	Channel 2	Channel 3	Channel 4		
Pre-alarm current	Unit [16]	377A	3784	C366	C370	25 ... 100 %	50 %
Pre-alarm operation	Unit [16]	377B	3785	C367	C371	0: Deactivated 1: Activated with deactivated latch 2: Activated with activated latch	1

Tabla 31 (Continuation): Modbus Memory Map: Pre-alarm output configuration.

Prealarm output configuration							
Configuration parameter	Format	Address				Valid data range	Default value
		Channel 1	Channel 2	Channel 3	Channel 4		
Pre-alarm output delay	Unit [16]	377C	3786	C368	C372	1000 ... 5000 ms	1000 ms
Configuration parameter	Format	Address				Valid data range	Default value
Pre-alarm polarity	Unit [16]	380E				0: standard polarity 1: positive polarity	0

8.3.3.3.- Trip relay configuration

Table 32: Modbus Memory Map: Trip relay configuration.

Trip relay configuration							
Configuration parameter	Format	Address				Valid data range	Default value
		Channel 1	Channel 2	Channel 3	Channel 4		
Polarity	Unit [16]	37DC	37DD	37DE	37DF	0: standard polarity 1: positive polarity	0
Trip current limit	Unit [16]	377D	3787	3791	C373	0: 30 A 1: 3 A	0
Enable remote trip	Unit [16]	377E	3788	3792	379C	0: Disabled 1: Activated	0

8.3.3.4.- RS-485 Communications

Table 33: Modbus Memory Map: RS-485 Communications.

RS-485 Communications				
Configuration parameter	Format	Address	Valid data range	Default value
Peripheral number	Unit [16]	36B0	1 ... 247	1
Baud rate	Unit [32]	36B1 - 36B2	4800, 9600, 19200, 38400, 57600, 115200	115200
Data format	Unit [16]	36B3	0: 8N1, 1: 8E1, 2: 8O1 3: 8N2, 4: 8E2, 5: 8O2	0

9- TECHNICAL FEATURES

9.1 - CBS-40A / CBS-400A

AC Power supply	
Rated voltage	110 ... 230 V / 230 V~ ⁽²⁾
Frequency	50... 60 Hz
Consumption	7.5 VA
Installation category	CAT III 300V

⁽²⁾ Applicable to devices with codes P12A700000007 and P12A710000007.

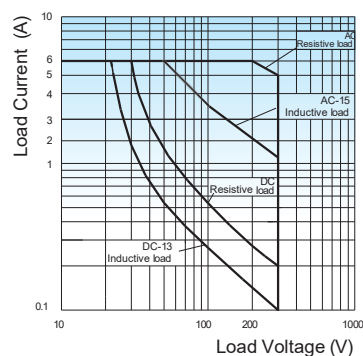
Monitoring features	
Protection Type	Type A ultaimmunised
Sensitivity ($I\Delta n$)	0.03 - 0.1 - 0.3 - 0.5 - 1 - 3 - 5 - 10 - 30 A
Adjustable trigger delay	INS - [S] - 0.1 - 0.2 - 0.3 - 0.4 - 0.5 - 0.8 - 1 - 3 - 5 s
Rated frequency of the monitored circuit	50 / 60 Hz
Rated residual non-operating current	0.8 $I\Delta n$ ⁽³⁾
Rated short-time withstand current (I_{cw})	32 kA / 1s
Conditional short-circuit differential current ($I\Delta c$)	1500 A
Uimp of the voltage source	4 kV (CAT III)

⁽³⁾ Feature not applicable to devices with codes P12A700000007 and P12A710000007.

Relay outputs	
Quantity	4
Maximum voltage open contacts	230 V ~ $\pm 15\%$
Maximum current	6 A
Maximum switching power	1500 VA
Electrical life (250V ~ / 5A)	60x10 ³ Cycles
Mechanical life	10x10 ⁶ Cycles

Relay characteristic curve:

BREAKING CAPACITY TRIP CURVE



Pre-alarm output	
Type	Optoisolated
Voltage range	9 ... 48 Vac/ dc
Maximum current	0.1 A
TRIP / RESET input	
Type	Potential free
Insulation	3 kV
Input impedance	94 K Ω

RS-485 communications (CBS-400A Model)			
Communication protocol	Modbus RTU		
Baud rate	4800 - 9600 - 19200 - 38400 - 57600 - 115200 bps		
Data bits	8		
Stop bits	1 - 2		
Parity	without, even, odd		
User interface			
Display	LCD custom (negative)		
Keyboard	3 keys		
LED	2 LED		
Environmental features			
Operating temperature	-10 °C ... +60 °C		
Storage temperature	-20 °C ... +70 °C		
Relative humidity (without condensation)	5 ... 95%		
Maximum altitude	2000 m		
Protection degree IP	IP30, Front: IP40		
Protection degree IK	IK08		
Pollution degree	2		
Use	Indoor		
Mechanical features			
			
Terminals: A1, A2, 1 ... 12, 19 ... 24	2.5 mm ²	≤ 0.4 Nm, M2.5	Flat
Cable from WGS/WGC to CBS-40A / CBS-400A			
Maximum length	5 m		
Dimensions	Figure 41 (mm)		
Weight	CBS-40A	224 g	
	CBS-400A	224 g	
Enclosure	Self-extinguishing V0 plastic		
Standards			
Low-voltage switchgear and control gear. Part 2: Circuit-breakers. Annex M: Modular Residual Current Devices			IEC 60947-2-M
Electrical accessories - Residual current monitors (RCMs) - Part 1: RCMs for household and similar uses			IEC 62020-1
Environmental testing -- Part 2-1: Tests - Test A: Cold (IEC 60068-2-1:2007)			UNE-EN 60068-2-1
Environmental testing -- Part 2-2: Tests - Tests B: Dry heat. (IEC 60068-2-2:2007)			UNE-EN 60068-2-2
Environmental testing - Part 2-78: Tests - Test Cab: Damp heat, steady state			UNE-EN 60068-2-78
Ground-Fault Sensing and Relaying Equipment			UL1053 ⁽⁴⁾

⁽⁴⁾ Applicable to devices with codes P12A700000007 and P12A710000007.

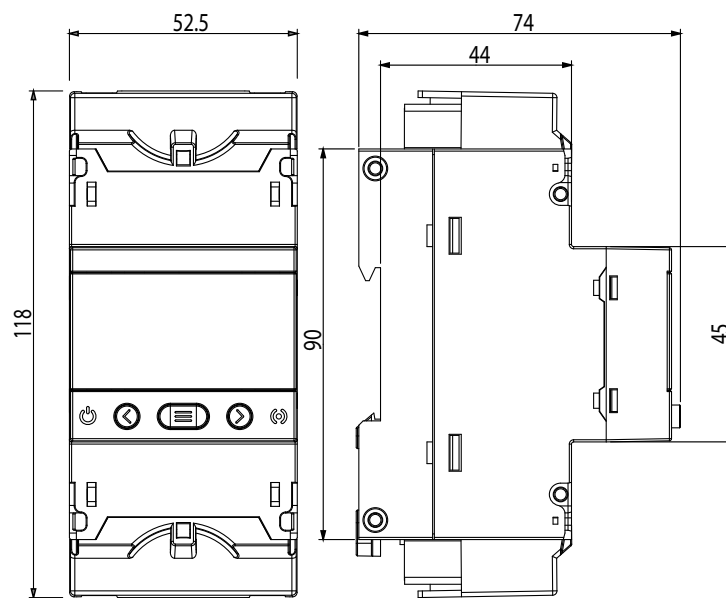


Figure 41: Dimensions of CBS-40A/CBS-400A.

9.2 - WGS/WGC

Measurement circuit	
Type	Passant
Network frequency	45... 60 Hz
Assigned transformation ratio (Kn)	30 / 0.06 A

Differential Current measurement circuit		
Scale range	Scale found	Display resolution
30 mA	75 mA	± 1 mA
300 mA	750 mA	± 1 mA
3 A	7.5 A	± 0.1 A
30 A	75 A	± 0.1 A

Model	Nominal current (In)	I _{max} /I _{Δn} ⁽⁵⁾
WGS 20	< 63 A	240 A / 30 mA
WGC 25	< 63 A	240 A / 30 mA
WGS 30	63... 80 A	480 A / 30 mA
WGC 35	63... 80 A	480 A / 30 mA
WGC 55	80... 160 A	500 A / 30 mA
WGC 80	160... 250 A	900 A / 300 mA
WGC 110	250... 400 A	1500 A / 500 mA
WGC 140	400... 600 A	2000 A / 1000 mA
WGC 180	600... 800 A	3600 A / 1000 mA
WGC 220x105	1000... 1250 A	7500 A / 3000 mA
WGC 350x150	1500... 2000 A	10000 A / 3000 mA
WGC 500x200	2500... 4000 A	10000 A / 3000 mA

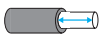
⁽⁵⁾ I_{max}: Maximum transient current (peaks)

I_{Δn}: Adjusted tripping current at the earth leakage relay.

Electrical insulation	
Maximum operating voltage	0.72 kV
Isolation voltage	3 kV
Installation category	CAT III

Environmental features	
Operating temperature	-10 °C ... +60 °C
Storage temperature	-20 °C ... +70 °C
Relative humidity (non-condensing)	5 ... 95%
Maximum altitude	2000 m
Protection rating	Case: IP40 - Terminals: IP20

Mechanical features		
Primary connection		
Model	Windows	Conductors section (3F+N)
WGS 20	20	4 x 6 mm ²
WGC 25	25	4 x 6 mm ²
WGS 30	30	4 x 10 mm ²
WGC 35	35	4 x 25 mm ²
WGC 55	55	4 x 70 mm ²

(Continued) Mechanical features			
WGC 80	80	4 x 120 mm ²	
WGC 110	110	4 x 240 mm ²	
WGC 140	140	8 x 185 mm ²	
WGC 180	180	8 x 240 mm ²	
WGC 220x105	220 x 115	4 x 100 x 10 mm ²	
WGC 350x150	350 x 150	8 x 100 x 10 mm ²	
WGC 500x200	500 x 200	16 x 100 x 10 mm ²	
Secondary connection			
S1, S2	5 mm	1.5 mm ²	M5
DIN rail attachment	With accessory PA-TC/WG		
Enclosure	Polycarbonate V0 self-extinguishing		

Standards	
Instrument transformers -- Part 1: General requirements	IEC 61869-1
Instrument transformers - Part 2: Additional requirements for current transformers	IEC 61869-2
Insulation coordination for equipment within low-voltage systems - Part 3: Use of coating, potting or moulding for protection against pollution	IEC 60664-3

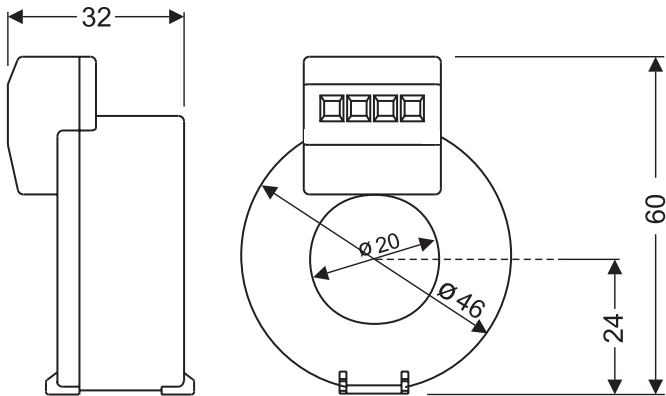


Figure 42: WGS 20 dimensions (in mm).

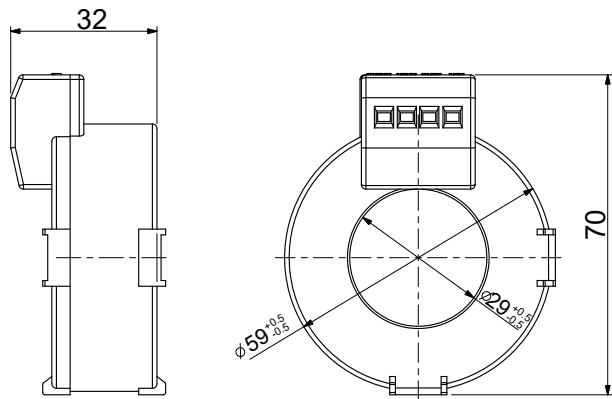


Figure 43: WGS 30 dimensions (in mm).

Table 34: WGS 20 and WGS 30 Weight.

Weight	
Model	Weight
WGS 20	61 g
WGS 30	71 g

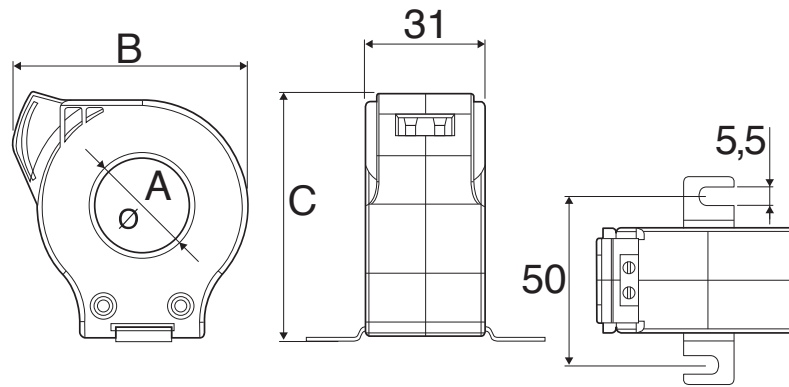


Figure 44: WGC 25 and WGC 35 dimensions (in mm).

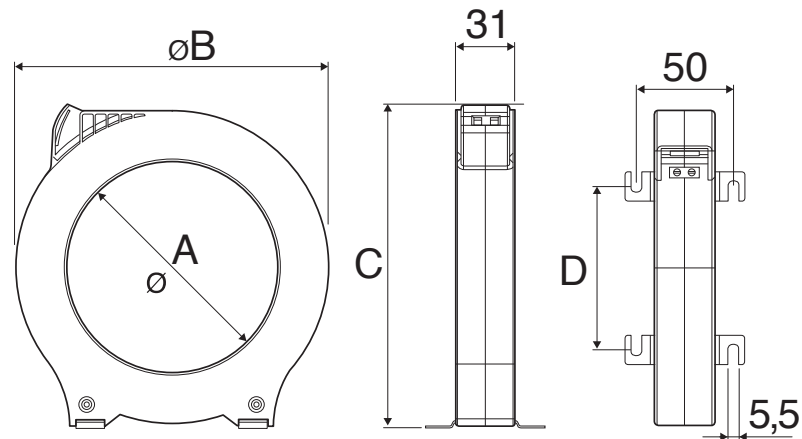


Figure 45: WGC 55, WGC 80, WGC 110, WGC 140 and WGC 180 dimensions (in mm).

Table 35: WGC 55, WGC 80, WGC 110, WGC 140 and WGC 180 dimensions.

Dimensions and Weight					
Model	A	B	D	D	Weight
WGC 25	25 mm	60.5 mm	64 mm	-	80 g
WGC 35	35 mm	70.5 mm	75.5 mm	-	120 g
WGC 55	55 mm	92 mm	98 mm	38 mm	160 g
WGC 80	80 mm	124.5 mm	130 mm	60 mm	300 g
WGC 110	110 mm	163 mm	168 mm.	84.5 mm	420 g
WGC 140	140 mm	201 mm	206 mm	110 mm	760 g
WGC 180	180 mm	252 mm	256 mm	144 mm	1.480 kg

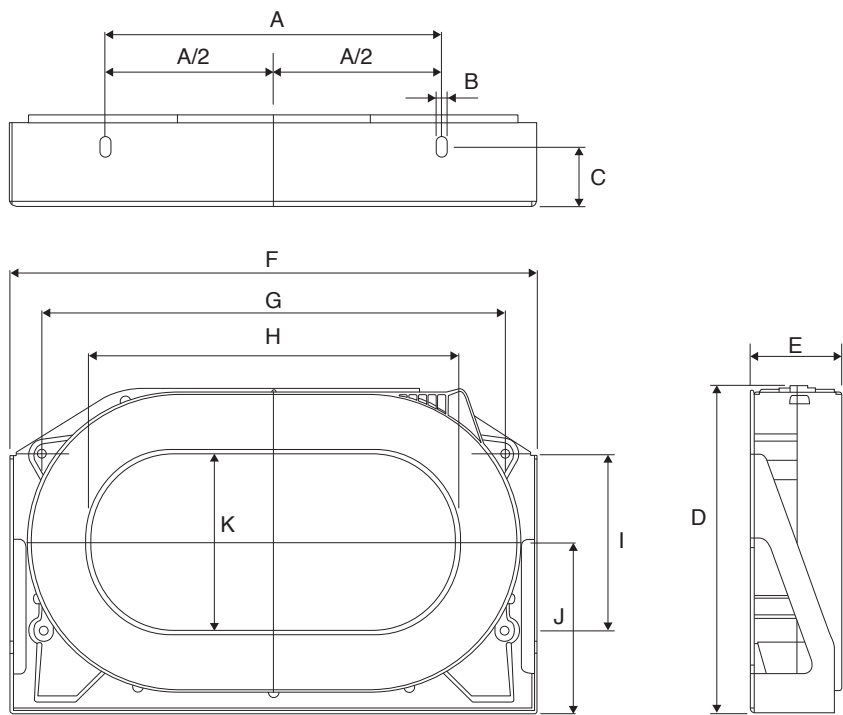


Figure 46: WGC 220x105, WGC 350x150 and WGC 500x200 dimensions (in mm.).

Table 36: WGC 220x105, WGC 350x150 and WGC 500x200 dimensions.

Dimensions (in mm) and Weight												
Model	A	B	D	D	E	F	G	H	I	J	K	Weight
WGC 220x105	200	7	35	195	54,2	314	275	220	105	102	105	3.740 kg
WGC 350x150	340	7	30	279	50,2	479	430	350	165	143	150	7.800 kg
WGC 500x200	460	7	40	306	64	614	550	500	180	155	200	11.300 kg

10.- VEDLIKEHOLD OG TEKNISK SERVICE

Ved spørsmål om enhetens drift eller ved eventuelle feil, kontakt FUNCTION AS tekniske support.

Function AS

Jørgen Kanitz gate 28, N-1337 Sandvika
(+47) 66 77 57 50
support@function.no
www.function.no

11.- REKLAMASJON

11.1. Mangler som oppdages, eller burde ha vært oppdaget, ved leveransens mottakelse, skal straks reklameres til Selger. Det skal reklameres straks mangelen oppdages. Reklamasjonen skal bekreftes skriftlig og skal inneholde oppgave over mangelens art og omfang.

11.2. Reklamerer ikke Kjøper som bestemt i pkt 11.1, til tross for at han har oppdaget mangelen eller burde ha oppdaget den, taper han retten til å påberope seg mangelen.

11.3. Erstatning for reklamert vare faktureres som vanlig ordre. Selger vil vurdere reklamasjonens berettigelse, og eventuelt utstede kreditnota på den reklamerte varens verdi eller deler av denne.

Reklamasjon gjelder følgelig ikke for feil som oppstår i følgende tilfeller:

- Overspenninger og/eller elektriske forstyrrelser i strømforsyningen
- Vannpåvirkning, dersom produktet ikke har tilstrekkelig IP-klassifisering
- Utilstrekkelig ventilasjon og/eller for høye temperaturer
- Feil installasjon og/eller manglende vedlikehold
- Reparasjoner eller modifikasjoner utført av kjøper uten produsentens godkjenning

12 - EU DECLARATION OF CONFORMITY

CIRCUTOR, S.A.U. – Vial Sant Jordi, s/n
08232 Viladecavalls (Barcelona) Spain
(+34) 937 452 900 – info@circutor.com



DECLARACIÓN UE DE CONFORMIDAD

La presente declaración de conformidad se expide bajo la exclusiva responsabilidad de CIRCUTOR con dirección en Vial Sant Jordi, s/n – 08232 Viladecavalls (Barcelona) España

Producto:

Relé de protección diferencial tipo A

Serie:

CBS-40A, CBS-400A

Marca:

CIRCUTOR

EL objeto de la declaración es conforme con la legislación de armonización pertinente en la UE, siempre que sea instalado, mantenido y usado en la aplicación para la que ha sido fabricado, de acuerdo con las normas de instalación aplicables y las instrucciones del fabricante

2014/35/EU: Low Voltage Directive 2014/30/EU: EMC Directive
2011/65/EU: RoHS2 Directive 2015/863/EU: RoHS3 Directive

Está en conformidad con la(s) siguiente(s) norma(s) u otro(s) documento(s) normativos(s):

IEC 60947-2:2016 Ed 5.0 Annex M I E C 6 2 0 2 0 : 2 0 2 0
IEC 63000:2016+AMD1:2022

Año de marcado "CE":

2023



EU DECLARATION OF CONFORMITY

This declaration of conformity is issued under the sole responsibility of CIRCUTOR with registered address at Vial Sant Jordi, s/n – 08232 Viladecavalls (Barcelona) Spain

Product:

Type-A Earth leakage current protection relay

Series:

CBS-40A, CBS-400A

Brand:

CIRCUTOR

The object of the declaration is in conformity with the relevant EU harmonisation legislation, provided that it is installed, maintained and used for the application for which it was manufactured, in accordance with the applicable installation standards and the manufacturer's instructions

2014/35/EU: Low Voltage Directive 2014/30/EU: EMC Directive
2011/65/EU: RoHS2 Directive 2015/863/EU: RoHS3 Directive

It is in conformity with the following standard(s) or other regulatory document(s):

IEC 60947-2:2016 Ed 5.0 Annex M I E C 6 2 0 2 0 : 2 0 2 0
IEC 63000:2016+AMD1:2022

Year of CE mark:

2023

Viladecavalls (Spain), 18/1/2024
Chief Executive Officer: Joan Comellas Cabeza



DECLARATION UE DE CONFORMITÉ

La présente déclaration de conformité est délivrée sous la responsabilité exclusive de CIRCUTOR dont l'adresse postale est Vial Sant Jordi, s/n – 08232 Viladecavalls (Barcelona) Espagne

Produit:

Relais de protection d'intensité de courant différentiel type A

Série:

CBS-40A, CBS-400A

Marque:

CIRCUTOR

L'objet de la déclaration est conforme à la législation d'harmonisation pertinente dans l'UE, à condition d'avoir été installé, entretenu et utilisé dans l'application pour laquelle il a été fabriqué, conformément aux normes d'installation applicables et aux instructions du fabricant

2014/35/EU: Low Voltage Directive 2014/30/EU: EMC Directive
2011/65/EU: RoHS2 Directive 2015/863/EU: RoHS3 Directive

Il est en conformité avec la(les) suivante(s) norme(s) ou autre(s) document(s) réglementaire(s):

IEC 60947-2:2016 Ed 5.0 Annex M I E C 6 2 0 2 0 : 2 0 2 0
IEC 63000:2016+AMD1:2022

Année de marquage « CE »:

2023



KONFORMITÄTSERKLÄRUNG UE

Vorliegende Konformitätserklärung wird unter alleiniger Verantwortung von CIRCUTOR mit der Anschrift, Vial Sant Jordi, s/n – 08232 Viladecavalls (Barcelona) Spanien, ausgestellt

Produkt:

Differenzstrom-Überwachungsrelais Typ A

Série:

CBS-40A, CBS-400A

Marke:

CIRCUTOR

Der Gegenstand der Konformitätserklärung ist konform mit der geltenden Gesetzgebung zur Harmonisierung der EU, sofern die Installation, Wartung und Verwendung der Anwendung seinem Verwendungszweck entsprechend gemäß den geltenden Installationsstandards und der Vorgaben des Herstellers erfolgt.

2014/35/EU: Low Voltage Directive 2014/30/EU: EMC Directive 2011/65/EU: RoHS2 Directive 2015/863/EU: RoHS3 Directive

Es besteht Konformität mit der/den folgender/folgenden Norm/Normen oder sonstigem/sonstiger Regelwerk/Regelwerken

IEC 60947-2:2016 Ed 5.0 Annex M I E C 6 2 0 2 0 : 2 0 2 0
IEC 63000:2016+AMD1:2022

Jahr der CE-Kennzeichnung:

2023

DECLARAÇÃO DA UE DE CONFORMIDADE

A presente declaração de conformidade é expedida sob a exclusiva responsabilidade da CIRCUTOR com morada em Vial Sant Jordi, s/n – 08232 Viladecavalls (Barcelona) Espanha

Produto:

Relé de monitorização de intensidade de corrente diferencial tipo A

Série:

CBS-40A, CBS-400A

Marca:

CIRCUTOR

O objeto da declaração está conforme a legislação de harmonização pertinente na UE, sempre que seja instalado, mantido e utilizado na aplicação para a qual foi fabricado, de acordo com as normas de instalação aplicáveis e as instruções do fabricante.

2014/35/EU: Low Voltage Directive 2014/30/EU: EMC Directive 2011/65/EU: RoHS2 Directive 2015/863/EU: RoHS3 Directive

Está em conformidade com a(s) seguinte(s) norma(s) ou outro(s) documento(s) normativo(s):

IEC 60947-2:2016 Ed 5.0 Annex M I E C 6 2 0 2 0 : 2 0 2 0
IEC 63000:2016+AMD1:2022

Ano de marcação "CE":

2023

Viladecavalls (Spain), 18/1/2024
Chief Executive Officer: Joan Comellas Cabeza

CIRCUTOR, S.A.U. – Vial Sant Jordi, s/n
08232 Viladecavalls (Barcelona) Spain
(+34) 937 452 900 – info@circutor.com

DICHIARAZIONE DI CONFORMITÀ UE

La presente dichiarazione di conformità viene rilasciata sotto la responsabilità esclusiva di CIRCUTOR, con sede in Vial Sant Jordi, s/n – 08232 Viladecavalls (Barcelona) Spagna

prodotto:

Relè di protezione e monitoraggio di intensità di corrente differenziale tipo A

Serie:

CBS-40A, CBS-400A

MARCHIO:

CIRCUTOR

L'oggetto della dichiarazione è conforme alla pertinente normativa di armonizzazione dell'Unione Europea, a condizione che venga installato, mantenuto e utilizzato nell'ambito dell'applicazione per cui è stato prodotto, secondo le norme di installazione applicabili e le istruzioni del produttore.

2014/35/EU: Low Voltage Directive 2014/30/EU: EMC Directive 2011/65/EU: RoHS2 Directive 2015/863/EU: RoHS3 Directive

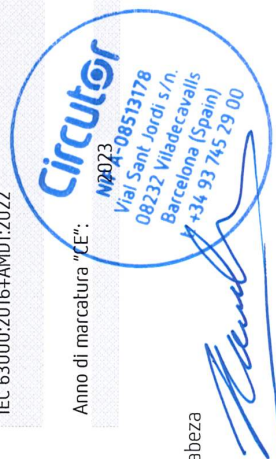
È conforme alle seguenti normative o altri documenti normativi:

IEC 60947-2:2016 Ed 5.0 Annex M I E C 6 2 0 2 0 : 2 0 2 0
IEC 63000:2016+AMD1:2022

Anno di marcatura "CE":

2023

Viladecavalls (Spain), 18/1/2024
Chief Executive Officer: Joan Comellas Cabeza



CIRCUTOR, S.A.U. – Vial Sant Jordi, s/n
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DEKLARACJA ZGODNOŚCI UE

Niniejsza deklaracja zgodności zostaje wydana na wyłączną odpowiedzialność firmy CIRCUTOR z siedzibą pod adresem: Vial Sant Jordi, s/n – 08232 Viladecavalls (Barcelona) Hiszpania

produkt:

przełącznik monitorujący natężenie prądu różnicowego typu A

Seria:

CBS-40A, CBS-400A

marka:

CIRCUTOR

Przedmiot deklaracji jest zgodny z odpowiednimi wymaganiami prawodawstwa harmonizacyjnego w Unii Europejskiej pod warunkiem, że będzie instalowany, konserwowany i użytkowany zgodnie z przeznaczeniem, dla którego został wyprodukowany, zgodnie z mającymi zastosowanie normami dotyczącymi instalacji oraz instrukcjami producenta

2014/35/EU: Low Voltage Directive 2014/30/EU: EMC Directive 2011/65/EU: RoHS2 Directive 2015/863/EU: RoHS3 Directive

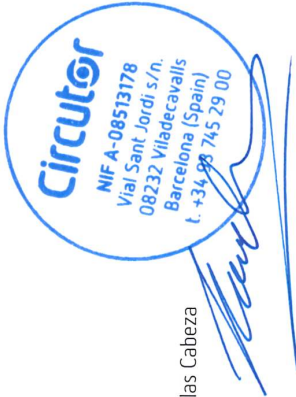
Jest zgodny z następującą(y)mi normą(ami) lub innym(i) dokumentem(ami) normatywnym(i):

IEC 60947-2:2016 Ed 5.0 Annex M I E C 6 2 0 2 0 : 2 0 2 0
IEC 63000:2016+AMD1:2022

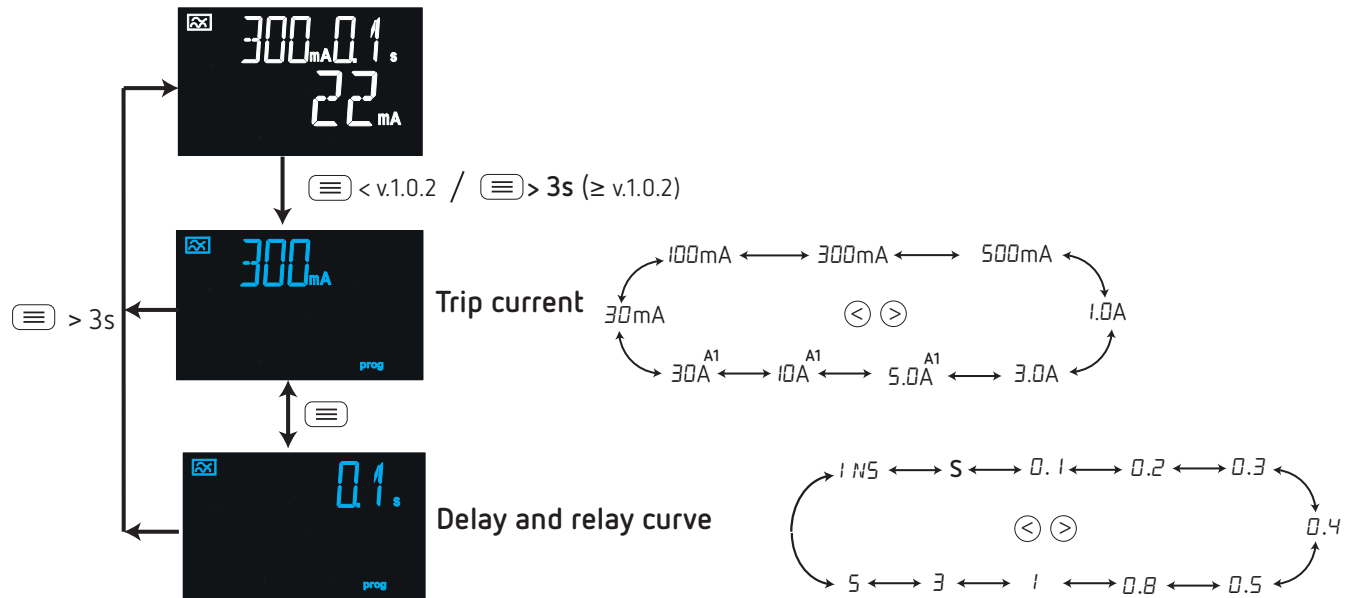
Rok oznakowania "CE":

2023

Viladecavalls (Spain), 18/11/2024
Chief Executive Officer: Joan Comellas Cabeza

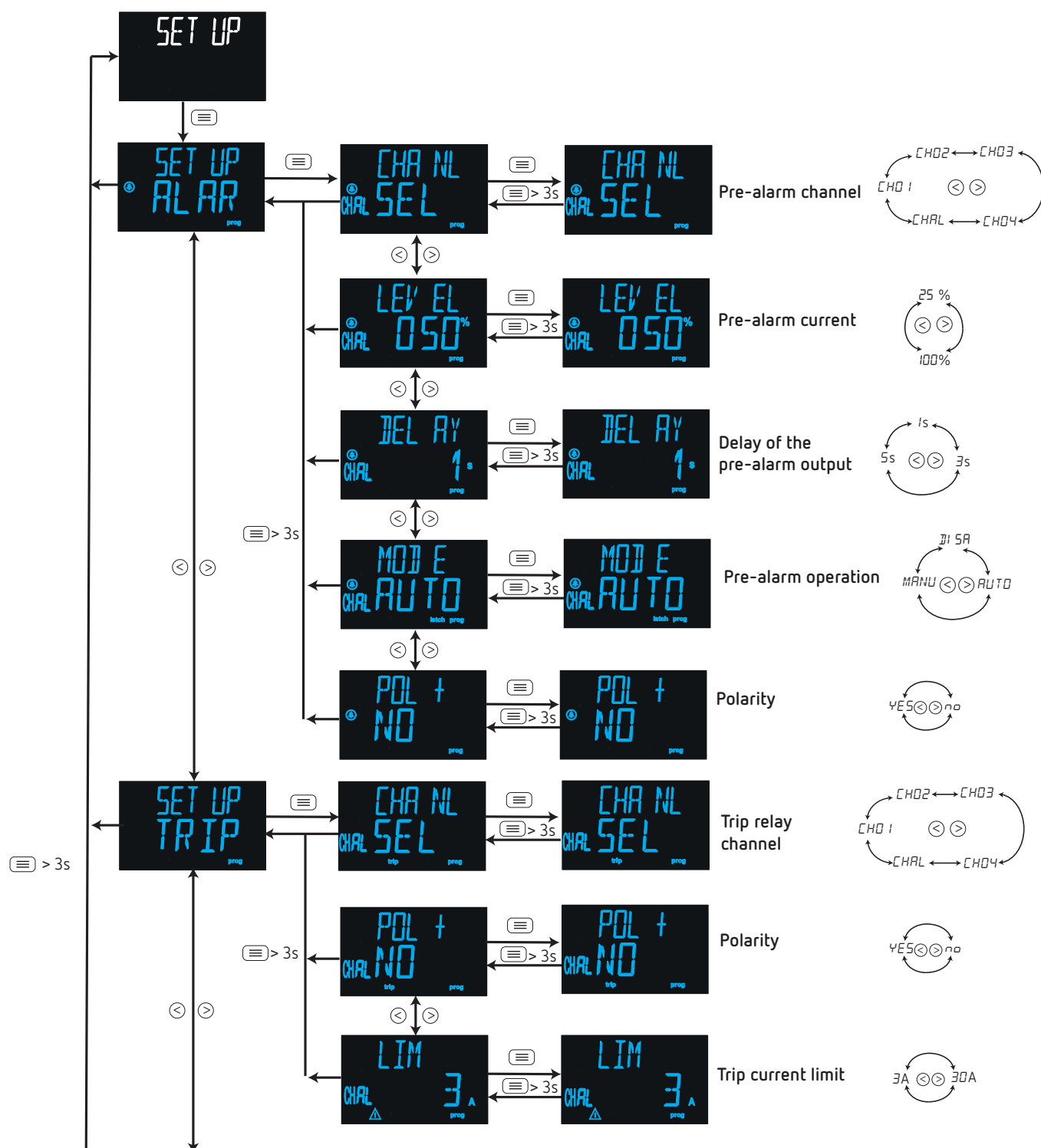


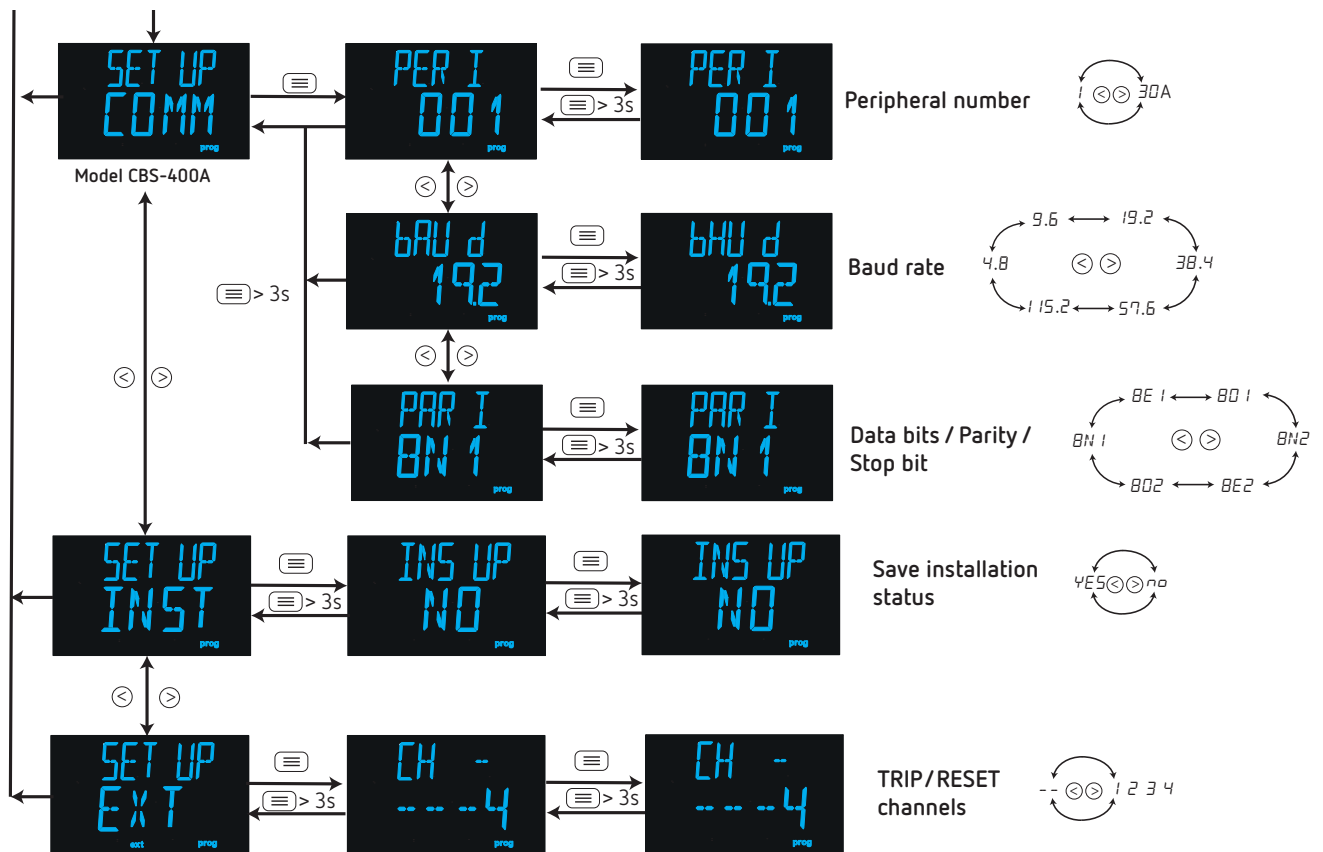
ANNEX A - DIRECT SETTINGS



(A1) Possible values if the trip current limit has been set to 30A. ("7.2.3 - TRIP CURRENT LIMIT")

ANNEX B - SETUP MENU







Function AS

Jørgen Kanitz gate 28 N-1337

Sandvika

(+47) 66 77 57 50

support@function.no

www.function.no