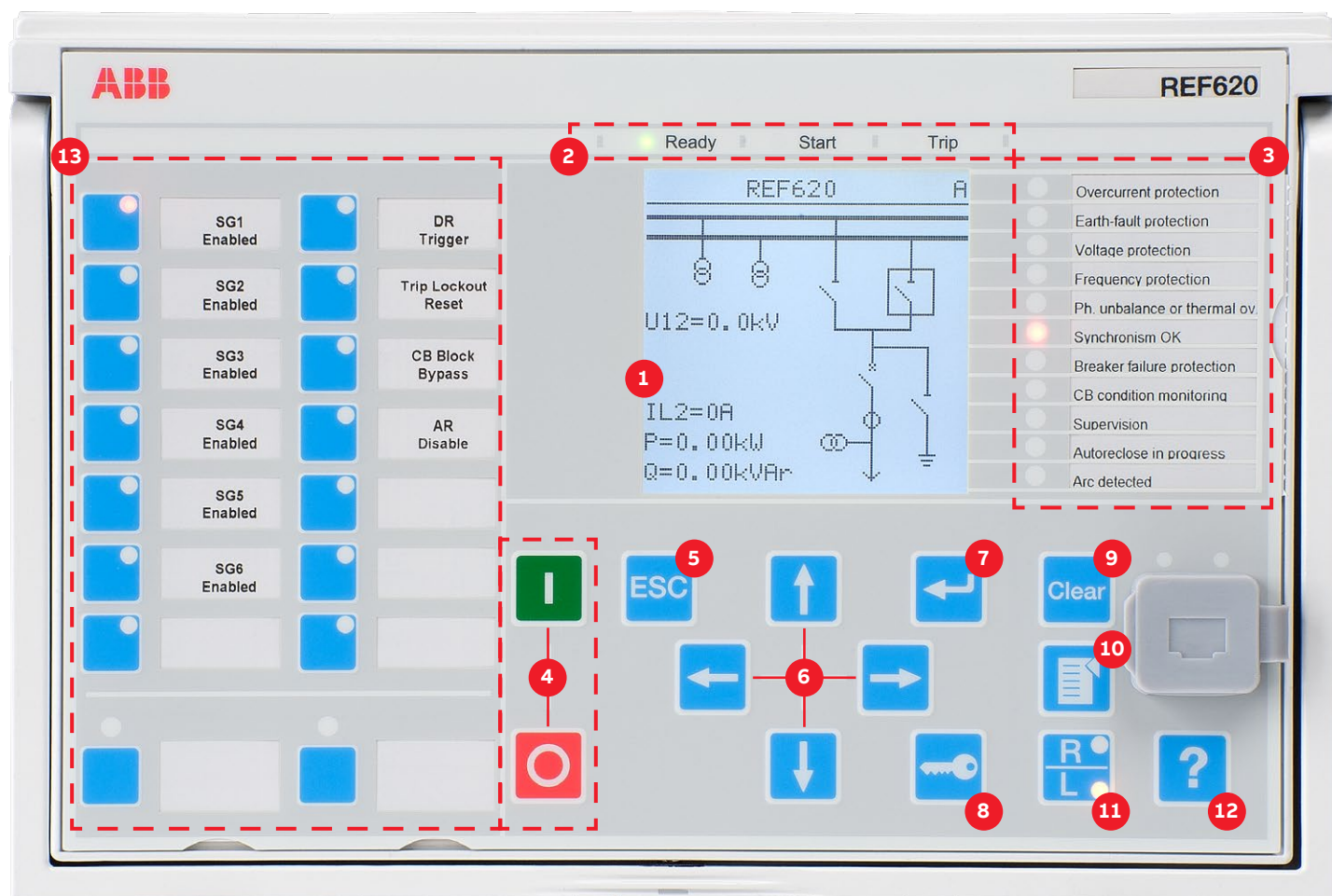


# Quick Start Guide


## Relion® 620 series














|    |   |  |
|----|---|--|
| 1  | <b>Display</b>  | Default view can be selected from e.g. single line diagram (SLD), measurements, events   |
| 2  | <b>Self-supervision and protection indicator LEDs</b> | Ready-LED steady: OK, Ready-LED flashing: Internal Relay Fault (IRF), Start-LED steady: protection started, Start-LED flashing: protection function blocked, Trip-LED: protection operated |
| 3  | <b>Programmable LEDs</b>                              | Can be programmed for alarming and indication as latched the signal. Flashing/steady features.   |
| 4  | <b>Control Circuit Breaker or disconnectors</b>       | Press open/close and confirm by pressing enter. If there is more than one controllable object select the object first with navigation buttons. Note: control has to be in Local mode.      |
| 5  | <b>Escape / Cancel</b>                                | Used for canceling actions and leaving setting mode without saving the values. Returns back to menu.   |
| 6  | <b>Navigation</b>                                     | Left = go back, Right = go further, Up = scroll up, Down = scroll down. Up/down can also be used when selecting controllable objects like breakers and switches in single line diagram.    |
| 7  | <b>Enter / Select</b>                                 | Entering to parameter setting mode and confirming new values   |
| 8  | <b>Authorization</b>                                  | If authorization is used you can log in or log out using this button   |
| 9  | <b>Clear</b>  | Clearing events and indications, see next page for further details   |
| 10 | <b>Menu</b>   | Switch views in between the main menu, single line diagram and measurements  |
| 11 | <b>Local / Remote</b>                                 | Changes the control between Local/Remote   |
| 12 | <b>Help</b>   | View help messages   |
| 13 | <b>Function buttons</b>                               | Can be configured as control buttons   |











# Using the local HMI

## Accessing main menu and local authorization



Press  to navigate between main menu, measurements and multiple single-line diagram pages.

If the local authorization has been enabled you must login before entering the menu. To login press  and select user level with  or . Confirm the selection with . Enter the password one digit at the time using  or  and moving to next digit with  or . Confirm the password with  or cancel using . To logout press  again.

## Changing parameters

Press  and select which setting value you want to change and press  to change it with  or  keys. If there is “#” mark at the same line with parameter value, you have to first select which setting group parameter you want to change. If there is no “#” mark you can change the value directly by pressing  and then select value with  or  and  or  keys. Confirm the selection with . After making changes to parameters they have to be stored to get them into use.

## Storing settings






Store the settings by going back to main menu by pressing  or using the  key. When IED asks confirmation to commit changes, answer “Yes”. Some changes require the IED to reboot before the changes can be taken into use. Reboot the IED by going to **Menu → Configuration → General → Software reset** or switching the auxiliary power off and back on.

## Changing the overcurrent start value

**Menu → Settings → Settings → select setting group, default 1** and press  → **Current Protection → PHLPTOC1 → Start value**

## Clearing events and indications

There are two ways to do this:

- Go to clear menu by pressing  or selecting **Clear** from the main menu. Then select what you want to clear and press , press  (Clear text will appear and Cancel will disappear) and then press .
- Press  hold for three seconds to clear indications and immediately after that three seconds again to clear LEDs.

## Checking IED order code, serial number, HW revision and software version

**Menu → Information → Product Identifiers**

## Display header area

The icon area at the upper right corner of the display shows the current action or user level. These are described below:

**S** = Parameters are being stored, **!** = Warning and/or indication  
**V** = Viewer, **O** = Operator, **E** = Engineer, **A** = Administrator

## Using the function buttons

The function buttons can be configured as control buttons. Configurations can be made with PCM600. Check the function button action from the label, before pushing the button. The action will take effect immediately when the button is pressed.

If function buttons are set to follow L/R restriction, the control must be set to Local for button to execute.

## Monitored data

**Menu → Monitoring**

From here you can find a lot of information about the present status of IED and monitored data. For example physical input and output states, GOOSE counters, the states and I/O data of the function blocks and the counter values of MMS vertical communication. You can also find recorded data including the currents and voltages of the latest faults.




## Checking IED status (IRF)

**Menu → Monitoring → IED Status → Self-supervision**



## Changing the default view

**Menu → Configuration → HMI → Default View**

## Changing the display contrast

Hold  and press  or  to change the display contrast. If you want to store the contrast, go first in the menu and then go back to the default view, so that A (Administrator) appears to the right upper corner. If authentication is enabled you need to login and then change the contrast.

## Changing the language

**Menu → Language** or you can push  and  anywhere in the menu and language will be changed. English is always the default language and there can be maximum of two additional languages in the IED.

## Changing function block naming from IEC 61850 names to IEC 60617 or ANSI

**Menu → Configuration → HMI → FB Naming convention**

Complete customer documentation is available in the product pages that can be accessed through [abb.com/relion](http://abb.com/relion).

# Most common function blocks

The most common function blocks are listed below, please refer to the 620 series Technical Manual for the full list. The available function blocks varies depending on the selected IED and configuration used.

| Function   | IEC 61850 | IEC 60617   | ANSI          |
|--|-----------|-------------|---------------|
| <b>Protection</b>  |           |             |               |
| Three-phase non-directional overcurrent protection, low stage                      | PHLPTOC   | 3I>         | 51P-1         |
| Three-phase non-directional overcurrent protection, high stage                     | PHHPTOC   | 3I>>        | 51P-2         |
| Three-phase non-directional overcurrent protection, instantaneous stage            | PHIPTOC   | 3I>>>       | 50P/51P       |
| Three-phase directional overcurrent protection, low stage                          | DPHLPDOC  | 3I> →       | 67-1          |
| Three-phase directional overcurrent protection, high stage                         | DPHHPDOC  | 3I>> →      | 67-2          |
| Non-directional earth fault protection, low stage                                  | EFLPTOC   | Io>         | 51N-1         |
| Non-directional earth fault protection, high stage                                 | EFHPTOC   | Io>>        | 51N-2         |
| Non-directional earth fault protection, instantaneous stage                        | EFIPTOC   | Io>>>       | 50N/51N       |
| Directional earth fault protection, low stage                                      | DEFLPDEF  | Io> →       | 67N-1         |
| Directional earth fault protection, high stage                                     | DEFHPDEF  | Io>> →      | 67N-2         |
| Admittance based earth-fault protection  | EFPADM    | Yo> →       | 21YN          |
| Wattmetric based earth-fault protection  | WPWDE     | Po> →       | 32N           |
| Transient / intermittent earth-fault protection                                    | INTRPTEF  | Io> → IEF   | 67NIEFH       |
| Harmonics based earth-fault protection   | HAEPPTOC  | Io>HA       | 51NHA         |
| Negative-sequence overcurrent protection   | NSPTOC    | I2>         | 46            |
| Phase discontinuity protection   | PDNSPTOC  | I2/I1>      | 46PD          |
| Residual overvoltage protection  | ROVPTOV   | Uo>         | 59G           |
| Three-phase undervoltage protection  | PHPTUV    | 3U<         | 27            |
| Three-phase overvoltage protection   | PHPTOV    | 3U>         | 59            |
| Positive-sequence undervoltage protection  | PSPTUV    | U1<         | 47U+          |
| Negative-sequence overvoltage protection   | NSPTOV    | U2>         | 47O-          |
| Frequency protection   | FRPFRQ    | f>/f<,df/dt | 81            |
| Three-phase thermal protection for feeders, cables and distribution transformers   | T1PTTR    | 3Ith>F      | 49F           |
| Loss of phase (undercurrent)   | PHPTUC    | 3I<         | 37F           |
| Circuit breaker failure protection   | CCBRBRF   | 3I>/Io>BF   | 51BF/51NBF    |
| Three-phase inrush detector  | INRPHAR   | 3I2f>       | 68            |
| Master trip  | TRPPTRC   | Master Trip | 94/86         |
| Arc protection   | ARCSARC   | ARC         | 50L/50NL      |
| High impedance fault detection   | PHIZ      | PHIZ        | PHIZ          |
| Load shedding and restoration  | LSHDPFRQ  | UFLS/R      | 81LSH         |
| Multipurpose analog protection   | MAPGAPC   | MAP         | MAP           |
| Loss of load supervision   | LOFLPTUC  | 3I<         | 37M           |
| Motor load jam protection  | JAMPTOC   | Ist>        | 51LR          |
| Motor start-up supervision   | STTPMSU   | Is2t n<     | 49,66,48,51LR |
| Phase reversal protection  | PREVPTOC  | I2>>        | 46R           |
| Thermal overload protection for motors   | MPTTR     | 3Ith>M      | 49M           |
| Motor differential protection  | MPDIF     | 3dI>M       | 87M           |
| Voltage per hertz protection   | OEPVPH    | U/f>        | 24            |
| Three-phase thermal overload protection for power transformers, two time constants | T2PTTR    | 3Ith>T      | 49T           |
| Stabilized and instantaneous differential protection for 2-winding transformers    | TR2PTDF   | 3dI>T       | 87T           |
| Numerical stabilized low impedance restricted earth-fault protection               | LREFPNDF  | dIoHi>      | 87NL          |
| High impedance based restricted earth-fault protection                             | HREFPDIF  | dIoHi>      | 87NH          |

# Most common function blocks

| Function                                   | IEC 61850 | IEC 60617      | ANSI           |
|--|-----------|----------------|----------------|
| <b>Protection</b>                          |           |                |                |
| Three-phase current measurement            | CMMXU     | 3I             | 3I             |
| Sequence current measurement               | CSMSQI    | I1, I2, I0     | I1, I2, I0     |
| Residual current measurement               | RESCMMXU  | I <sub>o</sub> | I <sub>n</sub> |
| Three-phase voltage measurement            | VMMXU     | 3U             | 3V             |
| Residual voltage measurement               | RESVMMXU  | U <sub>o</sub> | V <sub>n</sub> |
| Sequence voltage measurement               | VSMSQI    | U1, U2, U0     | V1, V2, V0     |
| Three-phase power and energy measurement   | PEMMXU    | P, E           | P, E           |
| Load profile                               | LDPMSTA   | LOADPROF       | LOADPROF       |
| Frequency measurement                      | FMMXU     | f              | f              |
| <b>Control</b>                             |           |                |                |
| Circuit-breaker control                    | CBXCBR    | I ↔ O CB       | I ↔ O CB       |
| Disconnecter control                       | DCXSWI    | I ↔ O DCC      | I ↔ O DCC      |
| Earthing switch control                    | ESXSWI    | I ↔ O ESC      | I ↔ O ESC      |
| Disconnecter position indication           | DCSXSWI   | I ↔ O DC       | I ↔ O DC       |
| Earthing switch position indication        | ESSXSWI   | I ↔ O ES       | I ↔ O ES       |
| Auto-reclosing                             | DARREC    | O → I          | 79             |
| Synchronism and energizing check           | SECRSYN   | SYNC           | 25             |
| Emergency start-up                         | ESMGAPC   | ESTART         | ESTART         |
| Tap changer position indication            | TPOSSLTC  | TPOSM          | 84M            |
| Tap changer control with voltage regulator | OLATCC    | COLTC          | 90V            |
| <b>Logging functions</b>                   |           |                |                |
| Disturbance recorder                       | RDRE      | DR             | DFR            |
| Fault recorder                             | FLTMSTA   | FR             | FR             |
| Sequence event recorder                    | SER       | SER            | SER            |

Complete customer documentation is available in the product pages that can be accessed through [abb.com/relion](http://abb.com/relion).

For more information, please contact

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