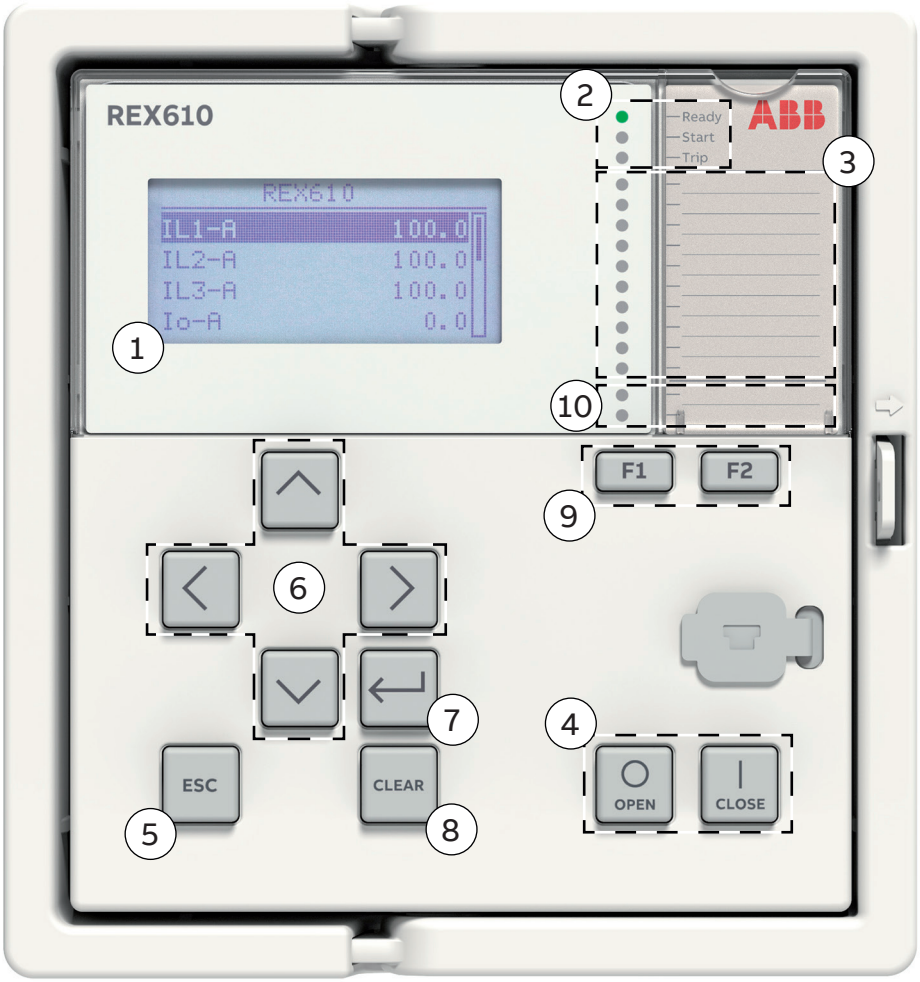
Quick Start Guide

Relion® REX610



1	**Display**	Default view can be selected between main menu and measurements
2	**Self-supervision and protection indicator LEDs**	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	**Programmable LEDs**	Can be programmed for alarming and indication as latched the signal. Flashing/steady features
4	**Control Circuit Breaker**	Press open/close and confirm by pressing enter. Note: control has to be in Local mode.
5	**Escape / Cancel**	Used for canceling actions and leaving setting mode without saving the values. Returns back to menu.
6	**Navigation**	Left = go back, Right = go further, Up = scroll up, Down = scroll down.
7	**Enter / Select**	Entering to parameter setting mode and confirming new values
8	**Clear**	Clearing events and indications, see next page for further details
9	**Function buttons**	Can be configured as control buttons
10	**Function key LEDs**	

Using the local HMI

Accessing main menu and local authorization
To use the LHMI, logging in and authorization are required. Password authorization is enabled by default and is recommended to keep it enabled. It can be disabled via the LHMI.
To disable password authorization, set the Local override parameter to “True”. To enable password authorization, select **Main menu/Configuration/Authorization/Passwords**. Set the Local override parameter to “False”. Press ↵ to activate the login procedure. Press ^ or v to enter the username character by character. Confirm the selection with ↵. Enter the password when prompted character by character. Activate the digit to be entered with < and >. Enter the character with ^ and v. Press ↵ to confirm the login. To cancel the procedure, press ESC.

Changing parameters
Press > and select which setting value you want to change and press ↵ to change it with ^ or v 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 v 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 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 CLEAR 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 CLEAR and 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 dislay 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. Once configured, the LED label card has to be printed / marked appropriately against the function key LEDs. 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`

Adjusting the display contrast
Adjust the display contrast anywhere in the menu structure to obtain optimal readability. To increase the contrast, press simultaneously ESC and ^. To decrease the contrast, press simultaneously ESC and v. The selected contrast value is stored in the non-volatile memory if you are logged in and authorized to control the protection relay. After an auxiliary power failure, the contrast is restored.

Changing the language
Select Main menu/Language and press ↵. Change the language using ^ or v. Press to confirm the selection. Commit the changes. To change the language using a shortcut, press ESC and < simultaneously anywhere in the menu.

Changing function block naming from IEC 61850 names to IEC 60617 or ANSI
`Menu → Configuration → HMI → FB Naming convention`

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 description	IEC 61850 identification	IEC 60617 identification	ANSI/IEEE C37.2 device number
Protection			
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
Three-phase directional overcurrent protection, low stage	DPHLPDOC	3I> ->	67P/51P-1
Three-phase directional overcurrent protection, high stage	DPHHPDOC	3I>> ->	67P/51P-2
Three-phase thermal protection for feeders, cables and distribution transformers	T1PTTR	3Ith>F	49F
Loss of phase, undercurrent	PHPTUC	3I<	37
Non-directional earth-fault protection, low stage	EFLPTOC	Io>	51G/51N-1
Non-directional earth-fault protection, high stage	EFHPTOC	Io>>	51G/51N-2
Non-directional earth-fault protection, instantaneous stage	EFIPTOC	Io>>>	50G/50N
Directional earth-fault protection, low stage	DEFLPDEF	Io> ->	67G/N-1 51G/N-1
Directional earth-fault protection, high stage	DEFHPDEF	Io>> ->	67G/N-1 51G/N-2
Negative-sequence overcurrent protection	NSPTOC	I2>M	46M
Phase discontinuity / Single phasing protection for motor	PDNSPTOC	I2/I1>	46PD
Three-phase overvoltage protection	PHPTOV	3U>	59
Three-phase undervoltage protection	PHPTUV	3U<	27
Residual overvoltage protection	ROVPTOV	Uo>	59G/59N
Multipurpose protection	MAPGAPC	MAP	MAP
Three-phase inrush detector	INRPHAR	3I2f>	68HB
Circuit breaker failure protection	CCBRBRF	3I>/Io>BF	50BF
Master trip	TRPPTRC	Master Trip	94/86
Supervision			
Trip circuit supervision	TCSSCBR	TCS	TCM
Current circuit supervision	CCSPVC	MCS 3I	CCM
Fuse failure supervision	SEQSPVC	FUSEF	VCM, 60
Condition monitoring			
Circuit-breaker condition monitoring	SSCBR	CBCM	52CM
Measurement			
Three-phase current measurement	CMMXU	3I	IA, IB, IC
Three-phase voltage measurement	VMMXU	3U	VA, VB, VC
Residual current measurement	RESCMMXU	Io	IG
Residual voltage measurement	RESVMMXU	Uo	VG/VN
Sequence current measurement	CSMSQI	I1, I2, I0	I1, I2, I0
Disturbance recorder (common functionality)	RDRE	DR	DFR
Control			
Circuit-breaker control	CBXCBR	I <-> O CB	52
Disconnector position indication	DCSXSWI	I <-> O DC	29DS
Earthing switch position indication	ESSXSWI	I <-> O ES	29GS
Autoreclosing	DARREC	O -> I	79

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