

W700

Recloser Controller



Hardware

CPU

Cortex M7

Memory

Non Volatile Memory : 2*16 Mbytes Flash Memory

16-bit A/D Converter

Sampling Rate : 128 Samples / Cycle

HMI

Display

160*160 Graphic Lcd (B/W)

Keyboard

17 Button

Indicator

40 LED Indicator

Communication Port

Serial Port

Front Panel : HMI Connection

Side Panel : DNP3.0, IEC60870-5-101, AES 128

Ethernet

DNP3.0, IEC 60870-5-104, HMI Connection, AES 128

RS485

Modbus RTU

Digital Input

10 Points

Open, Close, Mechanical Locked, Gas Low, Door Open, etc.

Opto-Isolation

Debounce

Chattering

Digital Output

5 Points

Open, Close, Auxiliary, Alarm

Dry Relay

Analog Input

10 Points

6 Voltage (A,B,C/R,S,T)

4 Current (A,B,C,N)

Network Frequency

50/60 HZ

Rated Voltage

1.7 – 40000 V

Rated Current

1-20 A

Measurement

Voltage

Source, Load
Phase, Line, Average
RMS, Fundamental Harmonic & 2nd Harmonic

Current

Phase, Neutral, Calculated Neutral, Average
Fundamental Harmonic & 2nd Harmonic

Power Active

Phase, Total

Power Reactive

Phase, Total

Power Apparent

Phase, Total

Power Factor

Phase, Average

Phasor

Frequency

Temperature

Power Quality Monitoring

Sag, Swell, Interruption Detection

Status
Events : Time stamp, Magnitude, Duration
Counters : Statistics For Each Phase, Duration Classified by IEEE 1159.
Accumulated Interruption Time
Waveform Recording On Events

THD

Voltage
Current

Sequence Components

Voltage
Current

Harmonics

Components Up to 40th Harmonics (Odd/Even)

Displacement Power Factor

Phase, Average

Demand

Fixed Window, Sliding

Maximum Demand Profile

Time Tag

Reset Time

Manual: HMI
Scheduled: Daily, Weekly, Monthly, Yearly

Parameter

Phase Current, Neutral
Active Power (Phase, Total)
Reactive Power (Phase, Total)

Energy Metering

4-Quadrant Metering, Import / Export Active Energy, Inductive / Capacitive Energy

Reset

Manual : HMI

Event/Fault Recording

Event History Buffers Are Categorized by Group

I/O Events, Function Events, System Events

Fault Current Events, Fault Location

PQM Events

Demand I,P,Q

Counter : Switch Open, Fault, Restart

Fault waveform Recording

8 Faults, 6 PQM Waveforms Can be Stored On Non Volatile Memory

1 Manual Triggered Waveform

Events by Threshold Setting

Counter

Load Profile

Status Monitoring

Open/Close

Mechanical Locked

Gas pressure Low

Door Open

External AC Power

Fault Indicators

Ia, Ib, Ic, In

SEF

Over Voltage

Under Voltage

Frequency

Live Line

Source, Load

Phase Sync

Recloser Status

Reset

Cycle

Lockout

Analog Hi/Low Alarm

Digital Input/Output

Controller Status(Battery & Battery Charger Test Result)

Battery Low

Battery Fail

Battery Over voltage

Battery Charger Failed

Grounded Battery

Battery Voltage

Battery Test

Control Status

Operator Place (Local / Remote)

Control Lock / Unlock

Recloser On/Off

Protection On/Off

Ground Protection On/Off

SEF On/Off

Hot Line Tag On/Off

Switch Control

Operator Place : Remote, Local (Front Panel/PC Tool)

Interlocks : Control Lock, Gas Low, Mechanical Lock, Current Switch

Close interlock Conditions (Selective) : Live Load, Phase Sync. Fail

SBO (Select Before Operate)

Secure Switch Operation

SBO Timeout (Settable)

Protection Function

Inverse Over Current

Fast and Delayed TC Trip Elements.

67 Types Of Built In TC Curves (IEC, ANSI, Recloser Curves) and 4 Customized TC Curves Definite Time

Phase

Negative

Earth

Definite Over Current

Phase

Negative

Earth

Instantaneous Over Current (2 Elements)

Phase

Negative

Earth

SEF (Sensitive Earth Fault) Detection

IEF (Intermittent Earth Fault)

Broken Conductor

Synchronism Check

Over Voltage

Under Voltage

Ground Over Voltage

Over Frequency

Under Frequency

Hot Line Tag

Direction Detection

Phase

Negative

Earth

Cold Load

Inrush Restraints

Sequence Coordination

Auto Reclosing Sequence

Phase

Negative

Earth

2nd Harmonic Detection

Open Line Detection

Automation

Auto Sectionalizing

Loop Automation

Automatic Source Transfer Switch

Auxiliary Function

PC Software For Setting & Maintenance

Waveform Evaluation Software

Firmware Upgradable

Accuracy

Voltage

$\pm 0.5\%$ or $\pm 0.1\text{kv}$

Current

$\pm 0.5\%$ or $\pm 1\text{A}$

Power Factor

$\pm 0.5\%$

Power (Active, Reactive, Apparent)

$\pm 1\%$

Energy (Active, Reactive)

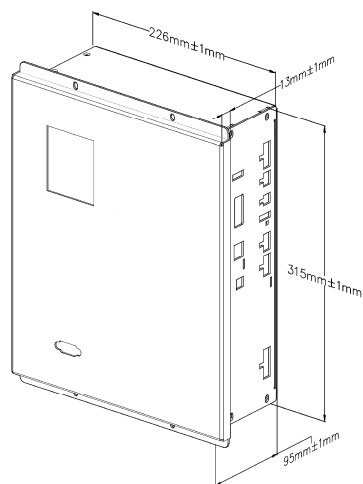
$\pm 2\%$

Frequency

$\pm 0.02\%$

Installation

Front Panel Mount



Environment Conditions

Operating temperature

$-25 \sim +70\text{ }^\circ\text{C}$

Humidity $< 95\%$ RH

Altitude $< 2000\text{m}$

Standard

Insulation resistance	IEC 60255-27
Impulse voltage	IEC 60255-27
Insulation surface	IEC 60255-27
Electrostatic discharge immunity test	IEC 61000-4-2
Radiated, radio-frequency, electromagnetic field immunity	IEC 61000-4-3
Fast transient noise	IEC 61000-4-4
Impulse Surge	IEC 61000-4-5
Immunity to conducted disturbances, induced by radio-frequency fields	IEC 61000-4-6
Power frequency magnetic field immunity test	IEC 61000-4-8
Damped oscillatory wave immunity test	IEC 61000-4-18
Voltage dips, short interruptions and voltage variations on DC	IEC 61000-4-29
Shock	IEC 60068-2-27
Vibration	IEC 60068-2-6
NPS (Negative Phase Sequence)	IEC 60255-151
SEF (Sensitive Earth Fault)	IEC 60255-151
Phase Sync	IEC 60255-151
Digital Output Test	
Select Before Operate (SBO)	IEEE C37.1
Monitor output command	IEEE C37.1
Test the activation time of a digital output	IEEE C37.1
Debounce	IEEE C37.1
Chattering	IEEE C37.1
Burden	IEEE C37.1
Over Input Signal Rating	IEEE C37.1
Maximum Operating Common mode Voltage	IEEE C37.1
Common mode Rejection Ratio	IEEE C37.1
Positive Ground Protection	IEEE C37.1
Reverse Polarity	IEEE C37.1
Over load Protection	IEEE C37.1
Short Circuit Protection	IEEE C37.1
CISPR22	