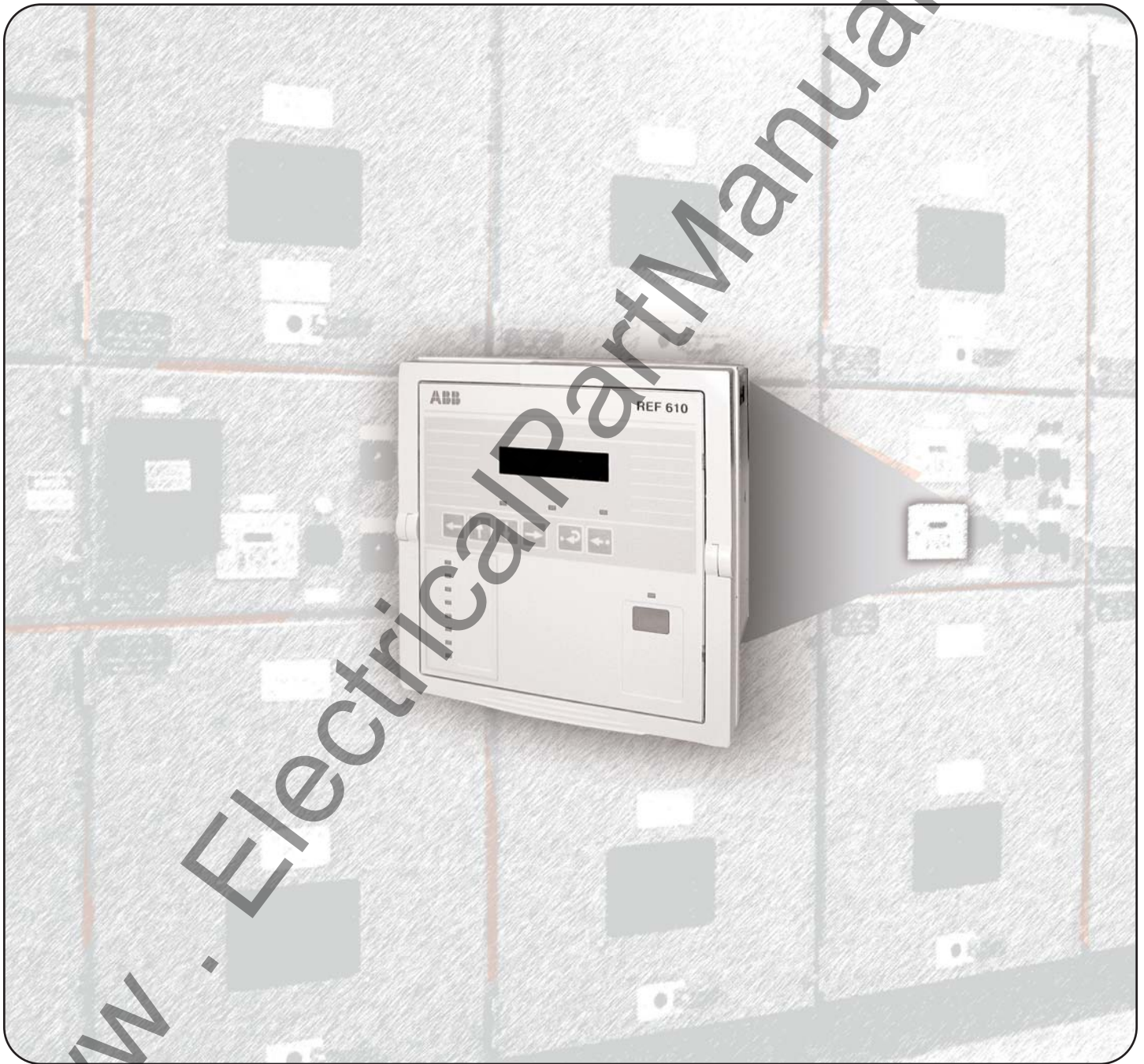


# REF 610 Feeder Protection

Compact & Flexible Feeder Protection Package

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**ABB**

# Maximizing Results with an Intelligent Investment

## Application

The REF 610 is a versatile multifunction protection device mainly designed to protect incoming and outgoing feeders in a wide range of utility and industrial applications. The relay is also ideal for back-up protection for lines, transformers, motors, generators etc. with its flexible functional capabilities.

## Remote Connectivity

The REF 610 comes equipped with optical wireless front communication capabilities and the ability to speak DNP 3.0, Modbus RTU/ASCII protocol from the rear port to allow for seamless integration into your protection, control and automation system.

## Complete Protection Solution

The large number of integrated protection functions, including three phase overcurrent elements, two ground overcurrent elements as well as thermal protection, makes the REF 610 a complete protection package against phase and ground faults.

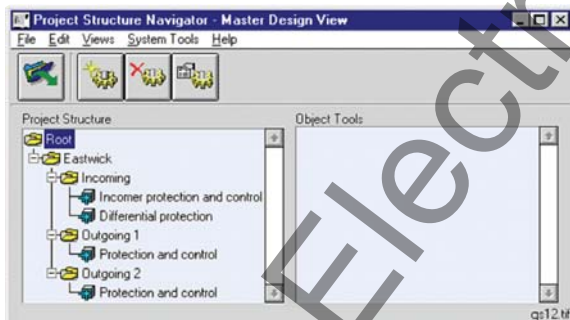
With a high Mean Time Between Failures (MTBF), the unique design of the REF 610 also allows near to zero Mean Time To Repair (MTTR).

## Flexible Case Design

The new "plug n play" design provides easy installation, commissioning and maintenance of the device. The REF 610 comes standard with an accessory free clip mount design allowing for quick and easy installation on a 19" rack or optional mounting kit designs are available to fit various other mounting configurations. The device is also equipped with an adjustable frame feature allowing the user to angle the case for easy viewing and access of information from the HMI when its mounted in high or low positions.

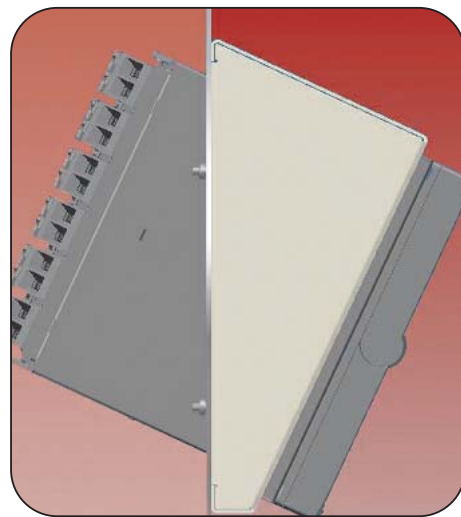
## State of the Art Arc Protection

The optional arc-protection for detection of arc situations in air insulated metal-clad switchgear can be used to increase the protection of both incoming and outgoing feeders and also enhance personnel safety.



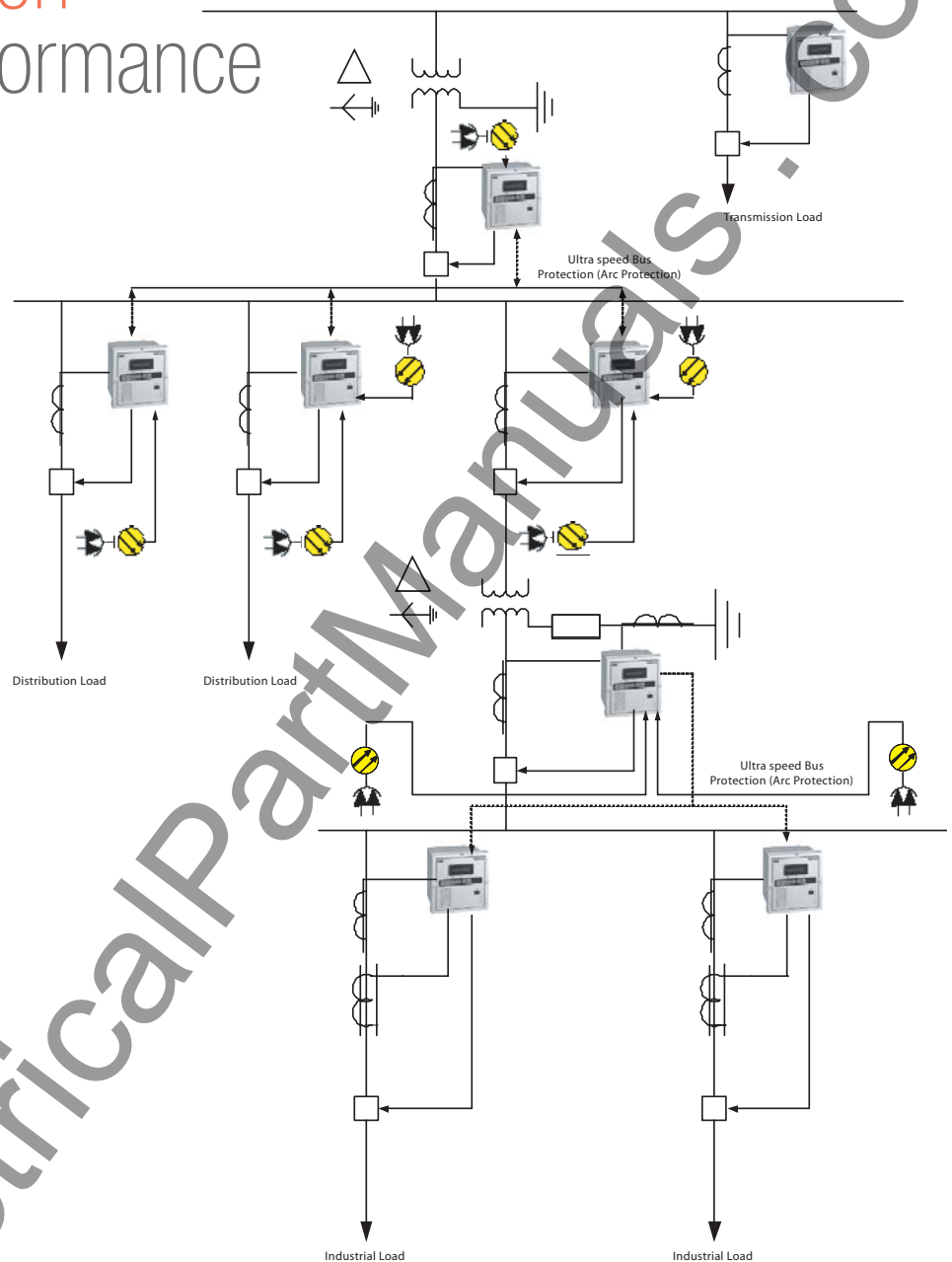
CAP Tools 501

With the CAP 501 communication software tool users are allowed to easily interface with the device.



"Tiltable" case design

# Flexible Protection for Superior Performance



## Specifications

### Protection Functions

Thermal overload protection	49
Definite-time or Inverse-time	
Arc protection	50 / 50 NL
Overcurrent protection	
High-set OC protection	50/51
Short-circuit protection	50
Non-directional ground-fault protection	51N
High-set ground-fault protection	50N/51N
Negative sequence protection	46
Auto-reclosing with three shots	79
Circuit-breaker failure protection	62BF
Trip circuit supervision	

### Communication

DNP 3.0  
Modbus<sup>®</sup> (RTU/ASCII)  
SPA-bus slave  
IEC 60870-5-103  
Time Synchronization

### Monitoring

Sequence of Events, (SOE)  
with up to 100 events  
Disturbance Recording  
Self Supervision System

### Hardware

Input/Outputs:

- (5) Contact Outputs
- (3) Trip Contact Outputs
- (2) Non-trip Contact Outputs
- (2) Contact Inputs
- (3) Optional Contact Inputs
- (3) Optional Contact Outputs

Mounting Kits:

- 19" Rack Mount
- Semi-flush
- Wall Mount

# Ordering Information

## REF610A55HCNP

Communication module:	P	= plastic fiber
	M	= plastic fiber with input for arc protection
	G	= plastic and glass fiber
	K	= plastic and glass fiber with input for arc protection
	R	= RS-485
	T	= RS-485 with input for arc protection
	D	= RS-485 including DNP 3.0 protocol
	E	= RS-485 including DNP 3.0 protocol and input for arc protection
	N	= none
I/O extension module:	H	= 3xSO and 3xDI (1 10/125/220/250 V dc)
	I	= 3xSO and 3xDI (24/48/60/110/125/220/250 V dc)
	N	= none
Power supply:	H	= 100-240 V ac/110-250 Vdc, 2xDI (110/125/220/250 V dc), 3xPO, 2xSO
	L	= 24-60 V dc 2xDI (24/48/60/110/125/220/250 V dc, 3xPO, 2xSO
	*	SO: Non-trip contact outputs
	**	DI: Contact inputs
	***	PO: Trip contact outputs

## New Industry Standard

ABB is focused and committed to delivering the innovative solutions you need at the highest standard of quality and reliability in the industry. We show this commitment by proudly offering:

- Industry best 12-year warranty
- Mean time failure rate of over 150 years
- Multiple Environmental Overstress Testing (MEOST) from  $-65^{\circ}\text{C}$  to  $+140^{\circ}\text{C}$



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