

MiCOM P120/P121/P122/P123

INTRODUCTION

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1. INTRODUCTION

The overcurrent relays of the **MiCOM P120 range** are AREVA T&D universal overcurrent relays. **MiCOM P120, P121, P122 and P123** relays have been designed to control, protect and monitor industrial installations, public distribution networks and substations, and to be used as back-up protection for EHV and HV transmission networks.

2. HOW TO USE THIS MANUAL

This manual provides a description of **MiCOM P120, P121, P122 and P123** functions and settings. The goal of this manual is to allow the user to become familiar with the application, installation, setting and commissioning of these relays.

This manual has the following format :

<i>P12x/EN IT</i>	<i>Introduction</i> Contents of the manual and general introduction to the MiCOM P120 range of relays covered in the Guide.
<i>P12x/EN IN</i>	<i>Handling, installation and case dimensions</i> Precautions to be taken when handling electronic equipment.
<i>P12x/EN FT</i>	<i>User Guide of MiCOM P120, P121, P122 and P123 relays</i> A detailed description of the features of MiCOM P120 range of relays.
<i>P12x/EN TD</i>	<i>Technical data and curve characteristics</i> Comprehensive details on nominal values, setting ranges, specifications and curves characteristics.
<i>P12x/EN CM</i>	<i>Commissioning and Maintenance Guide</i> Guide to commissioning, problem solving and maintenance of MiCOM P120, P121, P122 and P123 .
<i>P12x/EN CO</i>	<i>Connection diagrams for MiCOM P120/P121 and P122/P123</i>
<i>P12x/EN RS</i>	<i>Commissioning test records</i>
<i>P12x/EN VC</i>	<i>Hardware/Software version history</i>
<i>P12x/EN CT</i>	<i>Communication mapping data bases</i>

3. INTRODUCTION TO THE MiCOM P120, P121, P122 & P123 RELAYS

The range of **MiCOM** protection relays is built on the success of the MIDOS, K and MODN ranges by incorporating the last changes in digital technology. Relays from the MiCOM P120 range are fully compatible and use the same modular box concept.

MiCOM P120, P121, P122 and P123 relays provide comprehensive overcurrent phase and earth fault protection for utilities networks, industrial plants and networks as well as for other applications where overcurrent protection is required. The earth fault protection is sensitive enough to be applied in electrical networks where the earth fault current is low.

In addition to its protective functions, each relay offers control and recording features. They can be fully integrated to a control system so protection, control, data acquisition and recording of faults, events and disturbances can be made available.

The relays are equipped on the front panel with a liquid crystal display (LCD) with 2 x 16 back-lit alphanumerical characters, a tactile 7 button keypad (to access all settings, clear alarms and read measurements) and 8 LEDs that indicate the status of **MiCOM P120, P121, P122 and P123** relays.

In addition, the use of the RS485 communication port makes it possible to read, reinitialise and change the settings of the relays, if required, from a local or remote PC computer loaded with MiCOM S1 software.

Its flexibility of use, reduced maintenance requirements and ease of integration allow the MiCOM P120 range to provide an adaptable solution for the problems of the protection of electric networks.

4. MAIN FUNCTIONS

The following table shows the functions available for the different models of the **MiCOM P120 range** of relays.

Functions	ANSI Code	MiCOM P120	MiCOM P121	MiCOM P122	MiCOM P123
Single-phase overcurrent	50/51 or 50N/51N	X			
Three-phase overcurrent	50/51		X	X	X
Earth fault overcurrent	50N/51N	X	X	X	X
Restricted Earth fault	64N	X	X	X	X
Thermal overload (True RMS)	49			X	X
Undercurrent	37			X	X
Negative sequence overcurrent	46			X	X
Broken conductor detection				X	X
Cold load pickup				X	X
Instantaneous/start contact		X	X	X	X
Latching output contacts	86	X	X	X	X
Setting groups		1	1	2	2
Circuit breaker failure detection	50BF			X	X
Trip circuit supervision				X	X
Circuit Breaker monitoring and control				X	X
Blocking logic		X	X	X	X
Selective relay scheme logic				X	X
Multi-shot autoreclose	79				X
Clock phase and anti-clock phase rotation operation				X	X
Switch on to fault (SOTF)					X
CB control Local/Remote					X
Measurements (True RMS)		X	X	X	X
Peak and rolling values				X	X
Event records				X	X
Fault records				X	X
Instantaneous records				X	X
Disturbance records				X	X
RS 232 front communication				X	X
RS 485 rear communication (Modbus RTU, IEC 60870-5-103, Courier, DNP3.0)		X	X	X	X

5. TABLE OF EQUIVALENCE

The following section describes the models of the **MiCOM P120** range together with other existing relays in the AREVA T&D' catalogue :

K range	MIDOS range	TROPIC2 range	MiCOM range
KCGG 110, 122 KCGU 110	MCAG 11, 12 MCGG 22 MCSU MCTD 01 MCTI 14	TA 1xxx, 1220B TAH 111x TAS 1xxx	P120
KCGG 11x, 12x, 13x, 14x KCGU 11x, 14x	MCAG 1x, 3x MCGG 22, 42, 5x MCGG 6x, 82 MCSU MCTD 01 MCTI 14, 34, 44	TA 1xxx, 2xxx, 3xxx TA 2220B TA 521x, 5320R TAS 1xxx, 2xxx, 3xxx TAS 5xxx, 6xxx	P121
KCGG 11x, 12x, 13x, 14x KCGU 11x, 14x	MCAG 1x, 3x MCGG 22, 42, 5x MCGG 6x, 82 MCSU MCTD 01 MCHD 04 MCTI 14, 34, 44 MCTI 15, 35	TA 1xxx, 2xxx, 3xxx TA 2220B TA 521x, 5320R TAS 1xxx, 2xxx, 3xxx TAS 5xxx, 6xxx TAT xxx TR 1x, TR 2x	P122
KCGG 120, 130, 140 KCGG 141, 142 KCGU 140 KVTR	MCAG 1x, 3x MCGG 22, 42, 5x MCGG 6x, 82 MCSU MCTD 01 MCHD 04 MCND 04 MCTI 14, 34, 44 MCTI 15, 35 MVAX 12, 21, 31, 91 MVTR 51, 52	TA 1xxx, 2xxx, 3xxx TA 2220B TA 521x, 5320R TAS 1xxx, 2xxx, 3xxx TAS 5xxx, 6xxx TAT xxx TR 1x, TR 2x TOLD TE 3000	P123

FUNCTIONAL EQUIVALENCE TABLE BETWEEN AREVA T&D' **MiCOM P120** RANGE OF RELAYS AND
THE FORMER AREVA T&D OR GEC-ALSTHOM RANGE OF RELAYS

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