

New Product News

Digital Multi function Protection relay and Controller F-MPC60G Series

(IEC standard compliant, low-voltage three-phase four-wire system applicable products)

Applicable to both three-phase three-wire system and three-phase four-wire system. Ideal for world wide applications.

■ Features

● Improved Visibility

Clear visibility and operability via color LCD.

● Equipped with Waveform Recording Function for System Failure

Incorporated a function for recording failure waveforms during protective operation. Calendar functions are newly added to support failure analysis.

● Supports Line Voltage and Phase Voltage Measurements

Supports VT voltage line voltage (AB, BC, CA) and phase voltage (AN, BN, CN) measurements when applying three-phase four-wire connections.

● Compliant with the IEC Standards

Complies with up-to-date contents of the standards. Supporting world wide matters is possible. (CE self-declared compliance)

● Maintains Compatibility with Existing Models

Succeed to some function of F-MPC60B Series such as same dimension, same terminal block and communication. You can use this model without any design change.

● Erroneous Breaking Prevention and Self-monitoring Functions

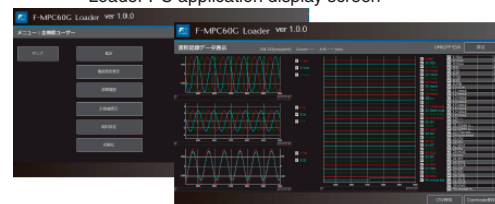
Duplicates CPU and analog circuit. AND output processing prevents erroneous breaking and constantly monitors the internal operating state even in the even of part failure.

● Evolution of Support Functions with the Loader Software

Equipped with "Relay test assist function (patent pending)" that directs and assists test conditions of selected protecting elements.



Loader PC application display screen



■ Ratings, types, product codes

Unit name	Control power supply input voltage	External interface	Type = product code
Three-phase four-wire connection compatible products	100 V DC (80 to 143 V DC) 100 V AC (85 to 132 V AC)	RS-485 / ModbusRTU 4 to 20 mA analog output	UM63FN-E□AK □: CT secondary rated current 1: 1 A, 5: 5 A

Note 1) Operation button color: IEC standard compliant products - ON (Close): Green; OFF (Open): Red.

■ Protective elements

Unit	Grounding method	Protection												
		50	51	51DT	51DT2	50G	51G	OCGA	27	27	59	47	46	OCA
Power receiving	Resistance grounding	○	○	○	○	○	○	○	○	○	○	○	○	○

Note: The number in the protection column indicates the device number of the protective relay. (According to ANSI/IEEE C37.2 and JEM1093.)

○ : Available

■ General Specifications

Item	Specifications
Control power supply	100 V DC (80 to 143 V DC), 100 V AC (85 V to 132 V AC) Standardized
Inrush current	13 A or less, 7 ms or less (100 V DC), 15 A or less, 4.5 ms or less (100 V AC, 50 Hz)
Power consumption (device)	DC input 15 W or less, AC input 20 VA or less
Internal fuse rating	3 A (built into control power supply)
Rated frequency	50/60 Hz (setting selection)
Rated current (CT secondary)	5 A AC or 1 A AC: Specified at time of ordering
Rated load VA (CT secondary)	0.5VA or below
Isolation resistance	Electric circuits - ground 100 MΩ or more (500 V DC megger) Between electric circuits 5 MΩ or more Between contact circuit terminals 5 MΩ or more

Item	Specifications
Overload capacity	CT circuit: [Continuous] Rated 4 times (20/4 A) [Short time] Rated 40 times (200/40 A) 1 second Once Rated 100 times (500/100 A) 100 ms Once
Structure	Front IP40, back IP20, terminal wiring IP10
Ambient temperature	Working guarantee: -10°C to -60°C (No condensation or freezing) *1 Characteristic guarantee: 0 to 40°C
Storage temperature	-20°C to 70°C (No condensation or freezing)
Relative humidity	20% to 90% RH (no dew condensation)
Usage atmosphere	No corrosive gas or excessive dust
Altitude	2000m or less
Grounding	Class D grounding (100 Ω or less)
Weight	1.5kg
Permissible instantaneous power failure time	20 ms (continuous operation); Indication will disappear.

*1 The working guarantee temperature is the temperature for which operation is guaranteed within twice the guaranteed accuracy value at the JEC characteristic guarantee temperature and within the impact accuracy of the JIS temperature.

Protective relay specifications

Item	Voltage/current operation value setting range	Operating time (timer) setting range	Characteristic	
			Operation value	Operating time
50INST (instantaneous)	CT secondary rated current 1.0 to 20.0 times, LOCK	(Fixed)	± 5%	40ms or below
51DT (time limit)	CT secondary rated current 0.2 to 20.0 times, LOCK	0, 0.05 to 5.00 s	± 5%	1 s or less ±50 ms 1 s or more ±5%
51DT2 (time limit)	CT secondary rated current 20 to 1000%, LOCK	0, 0.05 to 10.00 s	± 5%	1 s or less ±50 ms 1 s or more ±5%
51OC (inverse time limit)	CT secondary rated current 10 to 240%, LOCK	Time magnification 0.2 to 20.0 times (Min. 150 ms)	± 5%	Setting value 300%: ±12% Setting value 500%: ±7% Setting value 1000%: ±5%
OCA (overcurrent pre-alarm)	Rated 10 to 100%, LOCK	10 to 200 s	± 10%	± 5%
50G (instantaneous / time limit)	Rated 0.1 to 8.0 times, LOCK	0.0 to 180.0 s	± 5%	± 5%
51G (Inverse time limit selection)	Rated 0.02 to 1.00 times, LOCK	Time magnification 0.5 to 50.0 times (Min. 150 ms)	± 5%	Setting value 300%: ±12% Setting value 500%: ±7% Setting value 1000%: ±5%
	Rated 0.02 to 1.00 times, LOCK	0.10 to 600.00 s	± 5%	± 5%
OCCA (zero-phase pre-alarm)	51G operating current setting value 50 to 100%, LOCK	0.10 to 600.00 s	± 10%	± 5%
59 (OV)	VT secondary: 60 to 150 V, LOCK	0.0 to 60.0 s	± 5%	± 5%
27 (UV)	VT secondary: 10 to 110 V 52a coordination on10 to on110 V, LOCK	0.0 to 60.0 s	± 5%	± 5%
27-2 (UV2)	VT secondary: 10 to 110 V, LOCK	0.0 to 60.0 s	± 5%	± 5%
Open phase	—	—	Unbalance rate 50 to 80% or more	2 s ±1 s
Reverse phase	—	—		0.5s or below

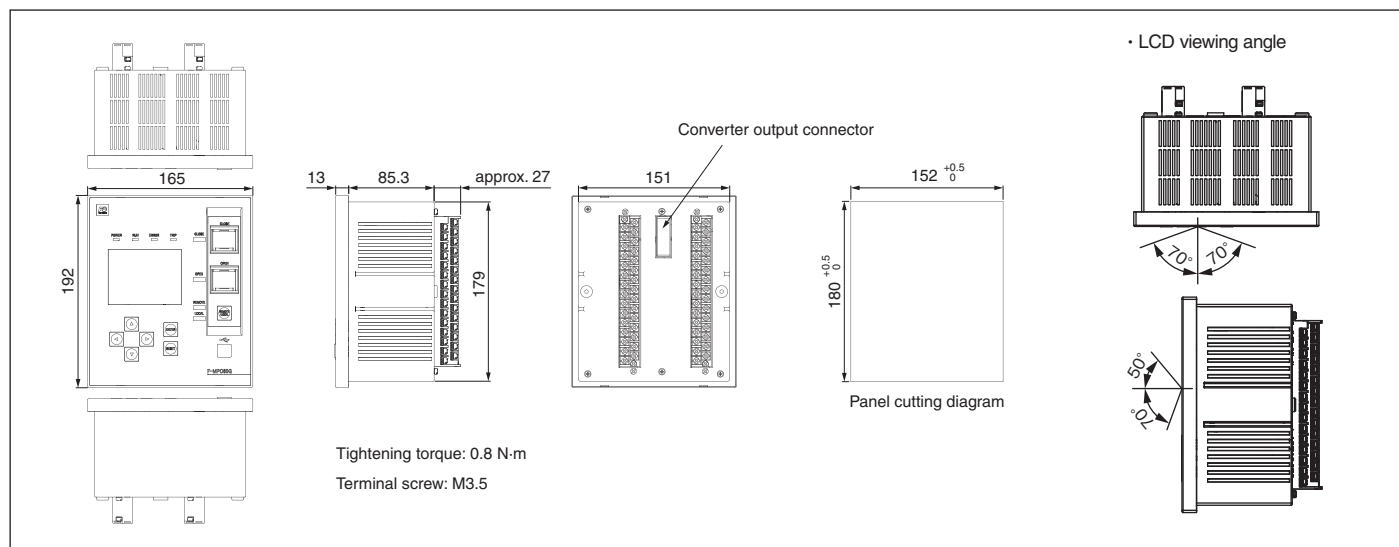
Note1 : Selectable operating characteristics : IEC SI, IEC VI, IEC LT, IEC EI, I²T, IEEE MI, IEEE VI, IEEE EI

Note2 : Selectable operating characteristics : IEC SI, IEC VI, IEC LT, IEC EI, IEEE MI, IEEE VI, IEEE EI

Measurement element

Unit	Grounding method	Measurement
Power receiving	Resistance grounding	Current (A), voltage (V), power (W), reactive power (var), power factor (PF), frequency (F), zero-phase current (I ₀), electric energy (Wh), reactive electric energy (varh), demand current (DA), demand power (DW), demand max. current (DA _{max}), demand max. power (DW _{max}), demand min. voltage (V _{min}), max. zero-phase current (I ₀ max), harmonics current (HI), harmonics voltage (HV)

Dimensions (mm)



Fuji Electric FA Components & Systems Co., Ltd.

5-7, Nihonbashi Odemma-cho, Chuo-ku, Tokyo, 103-0011, Japan

URL <http://www.fujielectric.co.jp/fcs/eng>