Product characteristics

Convenience

Comprehensive Digital Motor Protection Relay with the MCU (Microprocessor Control Unit)
Real-time processing and high precision

Applicable to Inverter Circuits
Thanks to its characteristics to harmonic noise, it can be applied to the inverter control circuits. The available frequency range is 20~200Hz. When the relative harmonic factor is over 30%, a harmonic filter should be installed (However, the ground fault function should be off).

Storage of Fault Events
Up to 5 fault events can be stored for easy fault history management.

One-Body Type and Separate Body Type
The display can be attached to the panel front so that current, operation time and settings can be checked without fetching the unit. With the display separated, the motor protection is available.

Communication support type
RS-485 MODBUS communication with various systems.The model with analogue signals (4~20mA) is compatible with transducer systems.

Various Reset Functions
Manual, automatic and electric reset functions are provided for customer convenience.

Date and Total Operating Time Setup
When a fault occurs, its date and time are stored for easy checkup. When the total operation time is over, it is displayed for changing motor bearings or supplying oil.

Password
Settings are protected with a password.

Total operating time and operating time setting
When the predefined operating time has elapsed, related information is displayed so that operators may replace the motor bearing and check the refueling cycle.

Quick Setup
All settings can be decided quickly on the display.

Wide Setting of Ground Fault Current Sensitivity 30mA~25A
Zero current sensing by zero sequence CT. zero current sensing by Residual circuit.

Reliability

Thermal Inverse Time, Inverse Time and Definite Time Modes
According to user's needs, the motor can be protected in the inverse time mode or definite time mode.

3-Phase Digital Ampere-Meter
3-phase current is displayed every two seconds for motor monitoring.

Wide Current Setting Range: 0.125~100A for One Model
With the slide S/W, the current setting range can be decided 0.5~10A or 5~100A. Depending on the number of CT penetration, even 0.125A current can be protected. (Wire penetration hole is required).

Overcurrent-51

By setting up an operating time in the 1-60 seconds unit on the basis of 6005 of rated current in consideration of a motor's starting time, it is possible to configure the overload characteristic curve of Class 1-60.

If Definite Time Characteristic is selected, the equipment starts to detect overcurrent after the set operating delay time (D-Time) regardless of a motor's generated heat. If overcurrent continues to be supplied after an operating time (O-Time), Trip occurs.

<Inverse Time Characteristic>   <Definite Time Characteristic>
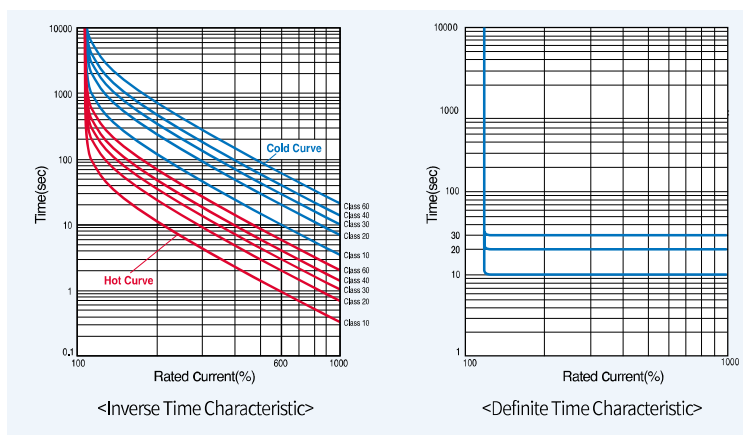
Stall/Locked Rotor-48/51LR

This function is used to prevent the loss and damage made by a motor's rotor stall, starting failure, and staring delay, and to detect an increased load current by overheat overload in operation or the case that load torque exceeds motor torque in order to block a circuit. Overcurrent function by starting current works after a set delay time

Under current-37

This function is used to monitor the no-load caused by the separation or damage of a motor's drive shaft, or to prevent a pump's idle rotation (no-load). It is possible to set up to 30~70% of rated current. It works within three seconds.

Phase fail/Phase unbalance-47P

If phase failure occurs, a motor fails to start. A motor in operation stops due to shortage of torque or has overheat due to continuous reverse phase current.
IMP calculates phase unbalance of three-phase current. It is possible to select one of the two cases: if the calculated result is 70% or more, this function is executed within 1.5 seconds; if phase unbalance factor is 10-70%, trip occurs within three seconds.

* In a single-phase motor, turn OFF phase fail and phase unbalance protection function.
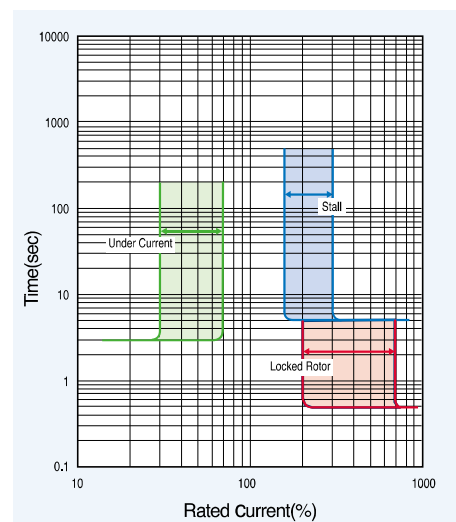
Reverse phase

This function is used to prevent a motor's reverse rotation. After the phase difference of three-phase current inputs is compared, this function is executed within 0.1 second if the phase sequence changes. Reverse phase is checked only if a motor starts up. In a single-phase motor, turn OFF this function.

Ground fault-51G

This function is used to detect ground fault leakage current. In other words, it aims to prevent leakage-induced ground fault and secondary accidents (short circuit and electric shock).
It is possible to set up a current sensitivity and an operating time differently depending on grounding system or protection purpose.
It is possible to set a current sensitivity to 30mA~25A and an operating time to 0.05~1.0 second.

Rated specifications & model numbering system

Rated specifications

Protection		Over current, Lock/Stall, Phase failure, Phase unbalance, Reverse phase, Under current, Ground fault, Short circuit
Connection method		Extention type
Operating Time Characteristics		Heat accumulation inverse time / inverse time / definite time
Rated current		0.5~10A/5~100A (Separate)
Display		4digit, 7-Segment
Operating power		AC/DC 85~245V (50Hz/60Hz)
Return method	Auto	1~20min
	Manual / Electrical	On/Off Selectable
Installation / installation method		Display can be installed separately, 35mm DIN rail / Screw installation
Tolerance	Current	±5%
	Time	±5%
	4~20mA Output	±5%
Time setting	Startup delay	1~200sec
	Operation delay	1~60sec
Aux. contact	Configuration	3-SPST(Power supply 1a1b, instantaneous operation 1a) Note1)
	Capacity	3A/250VAC Resistive Load
	Contact minimum load	10mA / 5VDC
ZCT Input		200mA/100mV (Exclusive ZCT) Note2)
Environment	Operation	-10~55°C
	Storage	-20~70°C
	Relative humidity	within 80% RH, no condensation
Insulation Resistance		100Mohm/500VDC
Power consumption		1.2X50us 5kV Prototype waveform supply
Fast Transient		2kV/1Min
Power consumption		Below 3W

Note) 1. See No. 17-19 of A-Group in Setting menu.
2. It is used if zero current detection type is selected.
3. This product is designed for protecting a low-voltage motor with 1,000V or less. Therefore, it should not be used in high voltage lines.

Integral type

Extention type

Model numbering system

IMP — **C** — **A420** — **10A** — **110/220**

Factors Protected	
C	Current

Communication	
NO	None
A420	4~20mA Output
M485	Modbus/RS-485

Current adjustment range	
10	0.5~10A
100	5~100A

Control Voltage	
110/220	AC/DC85~245V
24/36	AC/DC24~36V