

E-POWER

ECM800 Series

Intelligent Motor Protection and Control Devices

➔ ECM801
ECM800



35mm DIN rail mounting
Reliable electromagnetic compatibility
Optional display module for local operation
Pluggable terminals, easy to install and maintain
Measurement, protection, control and communication

E-Power Technology Ltd.

<http://www.e-powertech.ca>

ECM800 series function configuration

= standard

= optional

Protection	ECM800	ECM801
Start overtime		
Overload		
Overcurrent		
Phase failure		
Current unbalance		
Short circuit		
Earth fault		
Underload		
External fault		
Leakage current		
Temperature (PTC/NTC)		
Overvoltage		
Undervoltage		
Under power		
Phase sequence error		
EEx e overload(tE)		
Analog input		
Motor Starting Control Mode	ECM800	ECM801
Protection mode		
Direct starter		
Reversing direct starter (Rev_DS)		
Star/delta starter with 2 relays (S/D Starter)		
Loop-open star/delta starter with 3 relays (S/D_3R_Open)		
Loop-close star/delta starter with 3 relays (S/D_3R_Close)		
Autotransformer starter with 2 relays (Autotf starter)		
Loop-open autotransformer starter with 3 relays (Autotf_3R_Open)		
Loop-close autotransformer starter with 3 relays (Autotf_3R_Close)		
Breaker direct starter		
DI	ECM800	ECM801
DIs in main module	8	9
Extended digital module can provide 11 DIs at the most.		

DO	ECM800	ECM801
DOs in main module	4	5
Extended digital module can provide 4 DOs at the most.		
Measurements	ECM800	ECM801
Three phases current		
Zero phase sequence current		
Current unbalance rate		
Three phase/phase voltage		
Active power, Reactive power		
Power factor		
Frequency		
Active energy		
Leakage current		
Communication	ECM800	ECM801
MODBUS-RTU		
The other MODBUS-RTU		
PROFIBUS-DP		
Analog Output	ECM800	ECM801
4 ~ 20mA analog output; Analog parameter can be programmed		
Analog Input	ECM800	ECM801
Extended analog module can provide 2 route of 4~20mA analog input at the most		
Trip Events	ECM800	ECM801
8 trip events including the trip reasons and the trip time can be stored.		
Statistic Information	ECM800	ECM801
Total running time		
Total stopped time		
Total stop operation times		
Total trip times		
Restart Function	ECM800	ECM801
In case of a voltage dip, motor can be restart after the restoration in certain cases.		

ECM801 Intelligent Motor Protection and Control Device

Description

ECM801 Intelligent Motor Protection and Control Device is designed on the basis of ECM800. And it is used to control the contactor in the AC circuit (rated voltage up to 660V). It integrates the measurement, protection, and control functions.

The device replaces the dispersive equipments in MCC and predigests the control circuit of motor to improve the reliability.

With advanced motor protection, control automation, communication and diagnostics, ECM801 will be the best device for protecting your motors.



Application

- Low voltage AC motors, motor control centers

Feature

- Integrates measurement, protection, control and communication
- Unique separation design, CTs are separated from main module.
- Provides 9 types of standard protection functions and 8 types of optional protection functions
- Provides 10 types of motor starting mode
- Statistic data from the motors, trip events logging
- LED indicators in main module
- Optional display module for local operation
- Pluggable terminals, easy to install and maintain
- Reliable electromagnetic compatibility
- 35mm DIN rail mounting

Communication

ECM801 supports MODBUS-RTU or PROFIBUS-DP communication protocol enabling easy direct integration into network for remote control.








Special debugging program for each ECM801 is available.



Performance Index

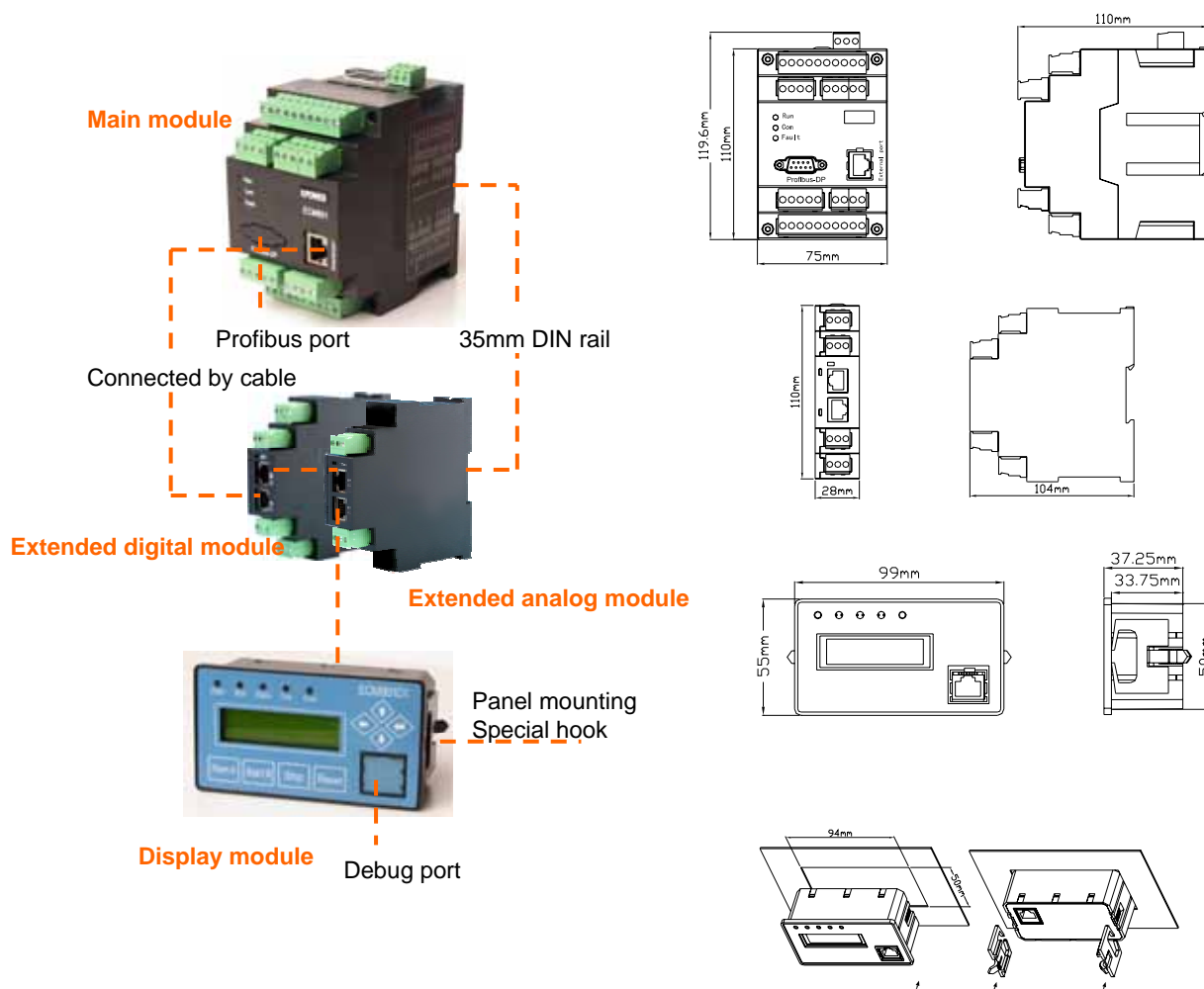
- Power frequency withstand voltage: AC2kV/ min. ~1mA
- Insulation resistance > 50M
- Impulse withstand voltage: 5kV (peak), 1.2/50uS
- Digital input: standard 9 routes, can be extended to 20 routes. ECM801 provides internal 30VDC power supply for digital input.
- Relay output: 5 relays, 4NO, 1NC, can be extended to 9 routes.
- Output capacity of control relay:
AC type: 250VAC/12A, 380VAC/5A
DC type: 220VDC/3A
- Output capacity of signal relay:
250VAC/10A or 30VDC/5A
- Analog output load resistance: 350
- Power supply input: 85~265VAC, 80~ 300VDC
- Communication protocol: RS485 port/ MODBUS protocol, or PROFIBUS-DP protocol
- Electrical fast transient/burst immunity test: IEC61000-4-4, Level 4
- Surge immunity test: IEC61000-4-5, Level-3
- Electrostatic discharge immunity test: IEC61000-4-2, Level 3
- Radiated immunity test: IEC61000-4-3, Level 3
- Operating temperature: -20~ 55 , humidity: 10~90%, non-condensing
- Storage temperature: -40~70 , humidity: 10~95%, non-condensing

ECM801-- Components

Main Module	Measurements, control, protection and communication functions etc	
Display Module	Read parameters from main module, set parameters to main module, or send control command to main module.	
CT Module	The CT module is used to measure the current of motor. It is independent from main module and connected with main module with cables.	
Digital Module	The number of DI and DO can be added via the extended digital module.	
Analog Module	The analog current input and the temperature resistance input can be added via the extended analog module.	
Power Supply Module	If a system has AC and DC power supply to the device at the same time or the restart function is needed, the power supply module can be selected.	
Leakage Current Transformer	The leakage current transformer is used to measure leakage current of a motor circuit. It is needed, if the leakage current protection function is selected.	

Note: The main module and CT module are necessary. The other modules can be selected according to requirements.

Dimension and Installation



How to choose the rated current of ECM801 to match your motors?

Rated Power of Motor (kW)	External CTs	Rated Current of ECM801
0.1 --1.1	None	2A
1.1 --3.1	None	6.3A
3.1 --11	None	25A
11 --45	None	100A
45 --132	None	250A
132 -- 264	None	500A
Above 264kW	None	820A

Order Information

ECM801-- -- -- -- (main unit)

: Rated Current				: Other Protection Function	
2	2A	250	250A	C	<i>Leakage Current Protection</i>
6.3	6.3A	500	500A	X	<i>EEx e Overload Protection</i>
25	25A	820	820A	V	<i>Voltage Protection</i>
100	100A			: Accessorial Function	
: Communication Protocol				A	<i>One 4-20mA Analog Output</i>
N	No communication			E	<i>Trip Events</i>
M	MODBUS-RTU			S	<i>Statistic Information</i>
P	PROFIBUS-DP			R	<i>Restart Function</i>
F	Two MODBUS-RTU			: Control Relay Type	
				Z	220VDC/3A

Notes:

1. The basic protection function include start overtime protection, overload protection, overcurrent protection, phase failure protection, current unbalance protection, earth fault protection, short circuit protection, underload protection, external error input protection.
2. The functions dedicated with italics can be selected together.
3. The leakage current protection needs an additional leakage CT.
4. Voltage protection function includes overvoltage, undervoltage, underpower, phase sequence error protection. If voltage protection function or restart function are selected, voltage measurement function will be active automatically.
5. If temperature protection function or analog input protection function is needed, the extended analog module EA1 should be selected.
6. If the control circuit is DC system, the "Z" item can be selected.

Accessorial Modules

Display Module	ECM801D1	Display panel for local control.
Extended Digital Module	ED1	4DI, 4DO
	ED2	8DI, 2DO
	ED3	11DI
Extended Analog Module	EA1	One 4~20mA analog input, one PTC/NTC input (temperature protection)
	EA2	Two 4~20mA analog input
Power Supply Module	PL1	When the system voltage is interrupted, it provides power to ECM801 to work for 3~6s. It is proper for 220VAC or 220VDC input.
	PL2	It is proper for 380VAC input.
	PL3	When the system voltage is interrupted, it provides power to ECM801 to work for 9s. It is proper for 220VAC input.
Leakage CT	LCT100	The inside diameter is 50mm. It is proper for motor with rated current 10~100A.
	LCT250	The inside diameter is 75mm. It is proper for motor with rated current 100~250A.
	LCT400	The inside diameter is 100mm. It is proper for motor with rated current 250~400A.
	LCT630	Foursquare CT . It is proper for motor with rated current >400A.

Typical Connection

