DEIF

-power in control

CE

DATASHEET


Ultra Capacitor Module, UCM-90

- Easy installation
- Maintenance-free with long-life ultra capacitors
- Monitoring and surveillance of operation
- Balancing to save energy

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1. General information

1.1 Application and advantages

1.1.1 Application

The UCM-90 DC energy storage module uses Ultra Capacitors. In normal operation, these capacitors are charged thru the DEIF UCC-4 Ultra Capacitor Charger. If the supply to the charger is interrupted, the energy stored on the ultra capacitors is available to the load as a buffer. The energy storage modules continue to supply the load until it is discharged. The length of buffer time available is a function of the charge level of the capacitors and the discharge current.

The DEIF Ultra Capacitor system consists of 2 building blocks a charger the UCC-4 and 1 to 5 UCM-90 modules. The building blocks give a very high degree of system flexibility, both for performance and physical dimensions.

1.1.2 Advantages

- Maintenance-free with long-life ultra capacitors
- Microcontroller-supported monitoring of the ultra capacitors
- Operating status monitoring via signals to the charging unit
- Balancing to save energy
- Base-mounting (with 4 fixing holes)
- Overvoltage protection
- High temperature protection
- Reverse polarity protection
- Low cost
- High efficiency
- High reliability, long life
- 3-4-5 module fishplates for mechanical stabilization and wire fastening

2. Technical information

2.1 Data

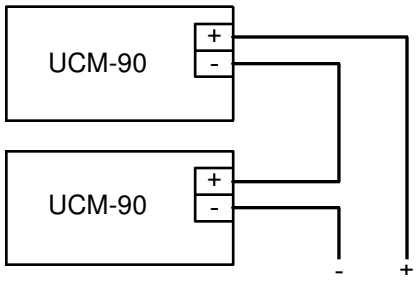
2.1.1 General

Cooling	Cooling Convection
Maintenance	None
Mounting	4 pcs. Ø9 mm holes for screw mounting. 3-5 modules connect by fish plates to make stabile construction to reduce Vibration, bump and shock impact.
Distance for convection	≥00 mm
Connection terminals	**Spring loaded connectors, screw secured** UCM: 2.5 mm² Control terminal connections X1: 6 mm² Load terminal connections
Energy capacity **(Fully charged)**	12 Wh = 43,5 kJ (V = 90 V DC)
Capacitance	10 F
Internal resistance	< 120 mΩ (ESR)

2.1.2 Input specifications

Nominal input voltage	90 V DC
Input voltage range	0…93 V DC
Max. Charging current	10 A DC

2.1.3 Output specifications

Output voltage	0…90 V DC
Series operation	The UCM-90 can be connected in series so the voltage can be 90…450 V DC. With the UCC-4 charger the system is designed to work with 1 to 5 UCM 90 modules.  90(1), 180(2), 270(3), 360(4), 450(5) VDC
Output current	0…35 A DC
Max peak current 3 s	40 A DC
Max peak current 1 s	76 A DC

2.1.4 Control specifications

Control voltage	5 V DC
Control circuit input current	< 100 mA DC
Digital output voltage	5 V DC max. 7 mA
NTC temperature sensor	R: 10.0 kΩ +/- 3 % at 25 ˚C B constant: B25/B85=3435K +/- 1%

2.1.5 Other

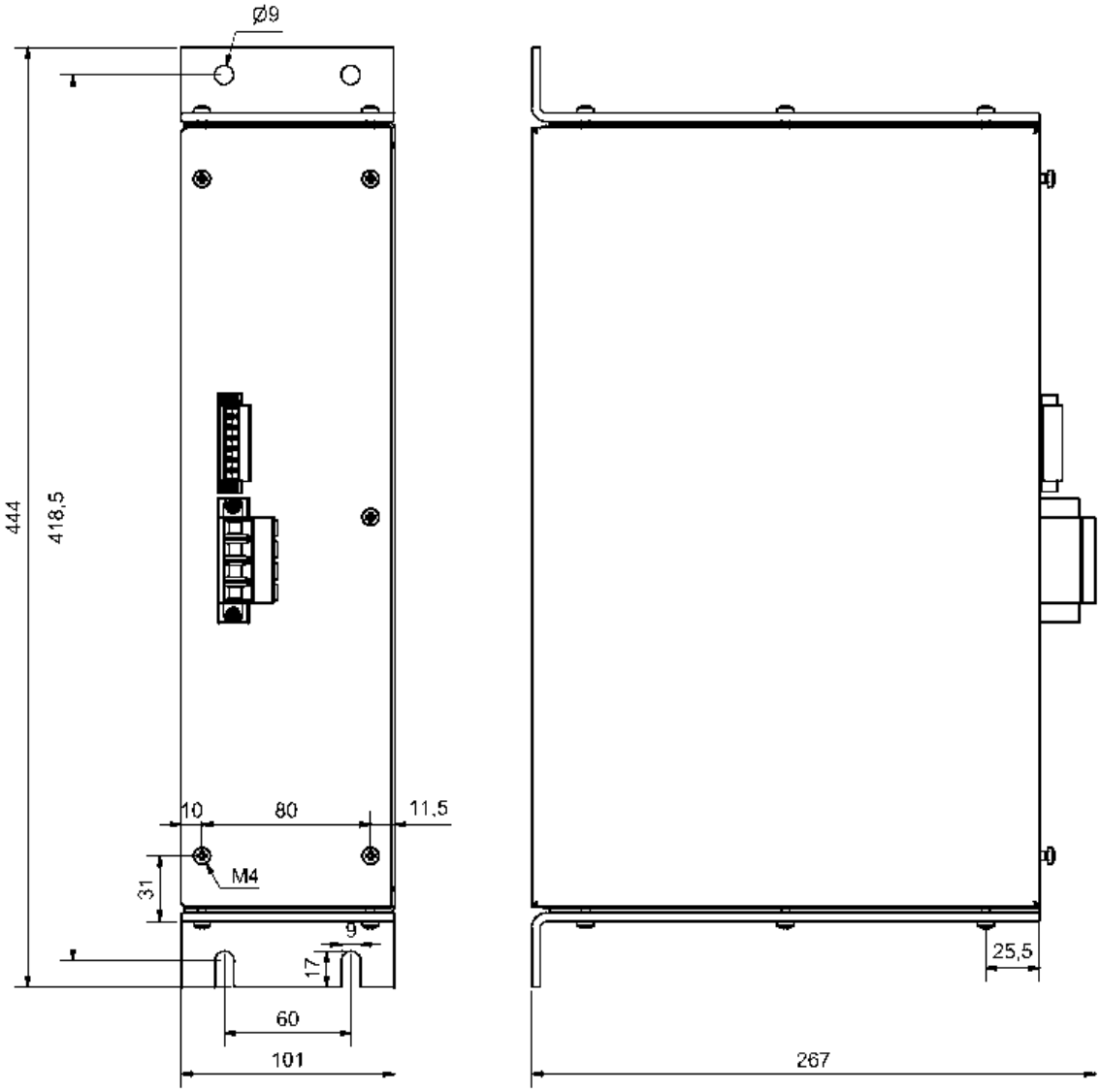
Efficiency	0.90%	
EMC	**Electromagnetic compatibility (EMC)**	EN 61000-6-2/4
	Electrostatic discharge (ESD): Contact: 7.2 kV Air: 9.6 kV	EN 61000-4-2
	Radiated E-field emission: 30...230 MHz: 40 dB (µ V/m) 230...1000 MHz: 47 dB (µ V/m)	IEC 60255-25
	Conducted emission: IEC 60255-26 **Fast transients (burst):** Power: 2.4 kV_p Signal: 1.2 kV_p	IEC 60255-22-4, GL, LR, DNV, EN 61000-4-4
	Slow transients (surge): Power: DM 2 kV_p, CM 4 kV_p Signal: CM 2 kV_p Frequency: CM 1,2 kV_p	IACS E10, IEC60533, EN 60945, IEC 60255-26, EN 61000-4-5
	RF E-field (electric) immunity: 80...2000 MHz: 12 V/m 2...3 GHz: 10 V/m	IEC 60255-26, EN60945, GL, LR, BV, DNV, EN 61000-4-3
	RF conducted immunity 0.15...80 MHz: 12 V_{RMS}	IEC 60255-26, EN 60945, GL, LR, BV, DNV, EN 61000-4-6
	Power frequency H-field (magnetic) immunity: Field: 400 A/m	IEC 60051, EN 61000-4-8
Safety	Safety IEC EN 60950/IEC EN 61010-1	
Temperature	-30...60 °C (operating, free convection) -40...65 °C (storage)	IEC 60068-2-1 IEC 60068-2-2
Humidity	-95 % R.H. (non-condensing)	
Protection	Class I	
Degree of protection	IP 20	IEC/EN 60529
Altitude	< 2000 meters	
[1)]Vibration	3…13.2 Hz: 2 mm_{pp} 13.2…100 Hz: 0.7 g 3…13.2 Hz: 6 mm_{pp} 13.2…50 Hz: 2.1 g	IEC 60068-2-6 & DNV Class A IEC 60068-2-6 & DNV Class C
[1)]Bump	20 g, 16 ms, half sine 1000 bumps in each direction. 2 directions in each axis. A total of 6000 bumps.	IEC 60068-2-27 IEC 60255-21-2(class 2)
[1)]Shock (Base mount)	10 g, 11 ms, half sine 30 g, 11 ms, half sine 50 g, 11 ms, half sine Tested with 3 impacts in each direction in all 3 axes. A total of 18 impacts per test.	IEC 60255-21-2 Response (class 2) IEC 60255-21-2 Withstand (class 2) IEC 60068-2-27

1) Note! Min. 3 UCM with mounted fishplates.

3. Mechanical specifications

Case	Chassis: 1.5 mmPainted steel. , Dark blue RAL 5002 Mounting-angels: 4 mm, pre zinked
Weight	9.3 kg (20.5 lbs)
Dimensions (WxHxD)	101 mm (3.98”) x 444 mm (17.48”) x 267 mm (10.51”)
Accessories	Fishplates: 3, 4 or 5 UCM module bars for mechanical stability, 2 for each system.

3.1 Dimensions



All dimensions are in mm.

4. Ordering information

4.1 Order specifications

UCM-90, DEIF no. 1240040003

Fishplate for 3 UCM-90, DEIF no. 1123340009
Fishplate for 4 UCM-90, DEIF no. 1123340010
Fishplate for 5 UCM-90, DEIF no. 1123340011

Note! 2 fishplates needed for each system