EmpirBus NXT

DCM-11
DC Module
16 Multifunction Channels

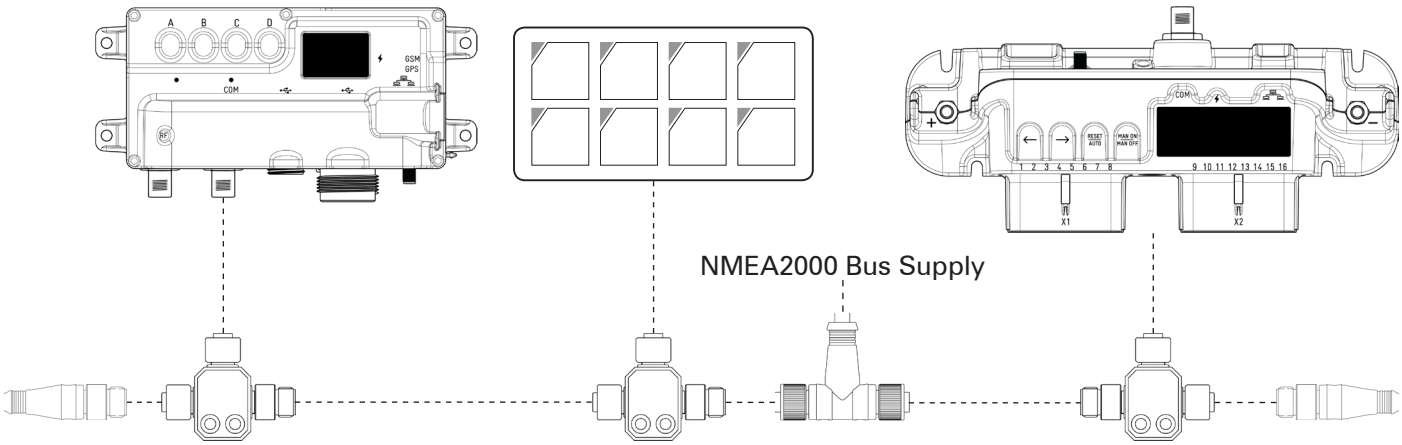
- NMEA 2000 DC Module
- 12/24VDC operation, 100A Rating, DC Reverse Polarity Protection
- IP65 Protection
- Modules are self adapting whilst in communication master once base address is set
- 16 Universal User Configurable Bi-Directional (I/O) Channels
- Channels configured as outputs feature
  - Electronic Over-current protection and undercurrent detection, programmable fuse characteristic, slow, normal or fast
  - Discrete 10A or 18A operation, parallel operation for increased capacity
    - I.E. two output combined provide 36A, electronically limited and protected
  - Manual Set / Reset of any channel direct from DC Module in real time
  - Soft start / Soft Stop / Versatile Dimming / Lighting Effects
  - Wiper Control, including parking, interval and multiple speed
  - Programmable Polarity Reversal (High Side & Low Side Switching)

- Channels Configured as inputs feature
  - Volt Free Inputs with running / error indication (20mA capability)
  - Multiplexed inputs – up to four switches per channel (no individual running / error indication)
  - Analogue inputs
    - Voltage Free
    - Voltage 0 – 32V
    - Current 4 – 20 mA
    - Resistance 0 – 1500 ohm

Description

The NXT DC Module (DCM-11) is an IP65 rated NMEA2000 device that is connected to the main DC Bus and provides inputs and outputs to the system. Physically the DCM is a compact, easily mounted, 16 channel device, featuring two 16 way Molex MX150L connectors which form the user interface, each channel has a both a positive and negative connection. The main DC Power is connected by two M6 studs. In addition there is also a slot for a GSM SIM Card, Ethernet connection and GSM Antenna. All output channels are electronically protected and feature undercurrent protection as well as soft start / stop and are capable of being electronically dimmed and of driving complex loads such as LED lighting or Windscreen Wipers directly. To increase output capacity outputs may be paralleled and to simplify installations both High Side and Low Side switching is possible.
With multiple input capabilities and ranges the DCM is an extremely versatile and cost effective means to interface signals to the system and when combined with the powerful NXT software complex monitoring and control systems are easily realized in practice.

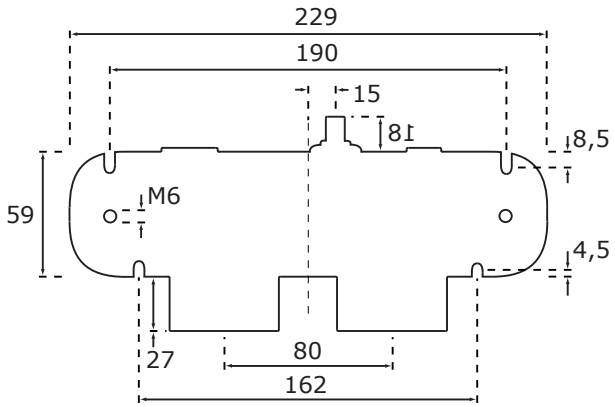
Connection example NMEA2000

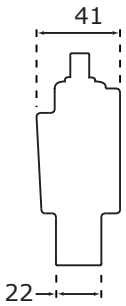


Specifications

Output:	High side	4 ch	3–18A
	High side	12 ch	3–10A
	Fuse type	Fast/normal	
	Common	16 ch	0,1A
	Low side	16 ch	0,5A
Digital input:			
12V power peak/average:			170mA/1mA
24V power peak/average:			340mA/2mA
Over current protection limit for LED:			20mA
Analog input:	Volt	0–32V +/-1%	
	Current	4–20mA +/-1%	
	Resistance	0–1500 ohm +/-5%	
Communication:	CAN-bus NMEA 2000		
Power supply:	Maximum current		100A
	Power consumption		0,25mA
	Supply voltage		12V: 9-16VDC
			24V: 9-32VDC
Connector:			
NMEA 2000	Micro 5pin M12 Male		
Channels	Molex MX150L 16 circuits		
Powersupply	M6 bolt		
Ethernet	RJ45		
Antennas	SMA female		
Ambient temp.:	-20 to +70 degrees Celsius		
Enclosure:	Ingress Protection IP65		
Dimensions:	230 x 106 x 38 mm		
Weight:	0,4 kg		
Regulation comp:	ABYC, RoHS		

Dimensions





(mm) drawing is not to scale

Version.2011.11.11

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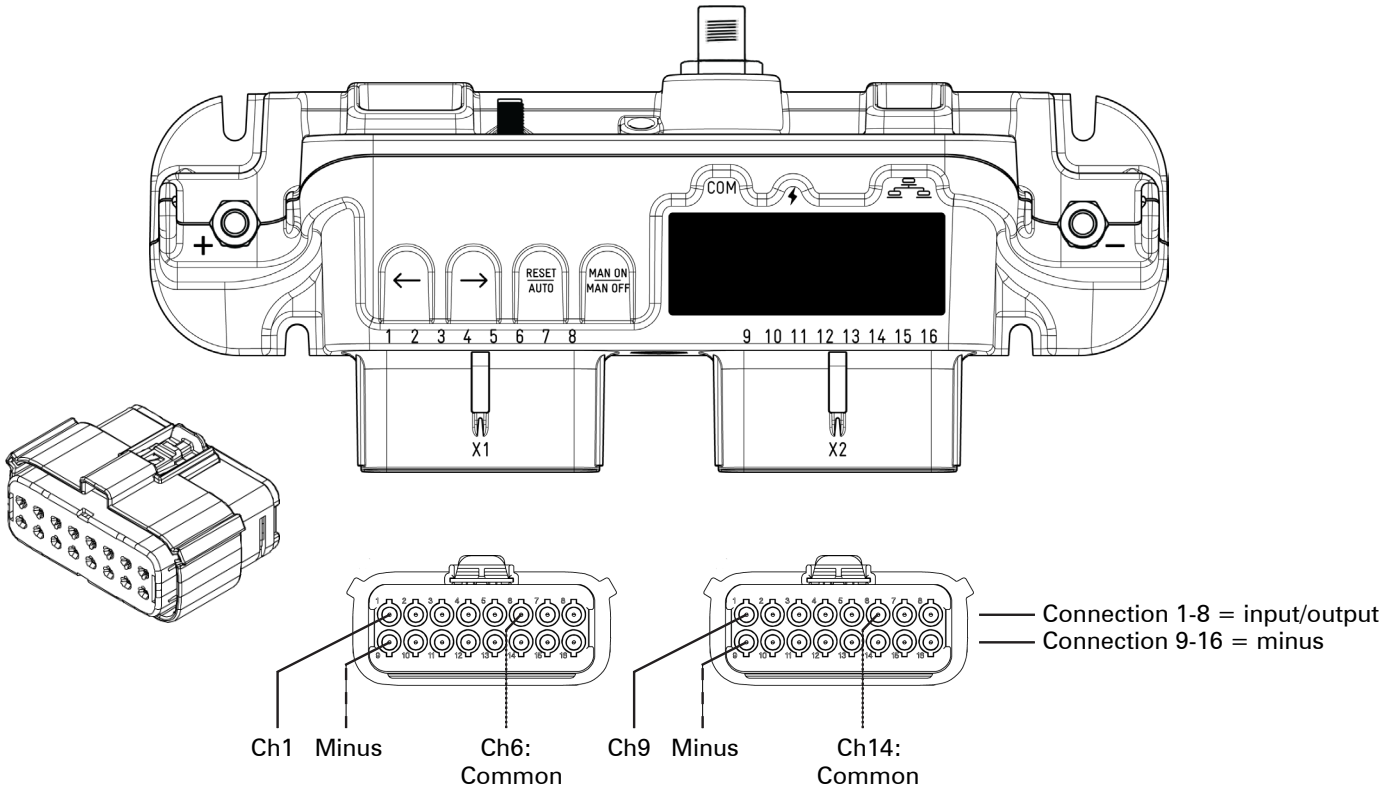

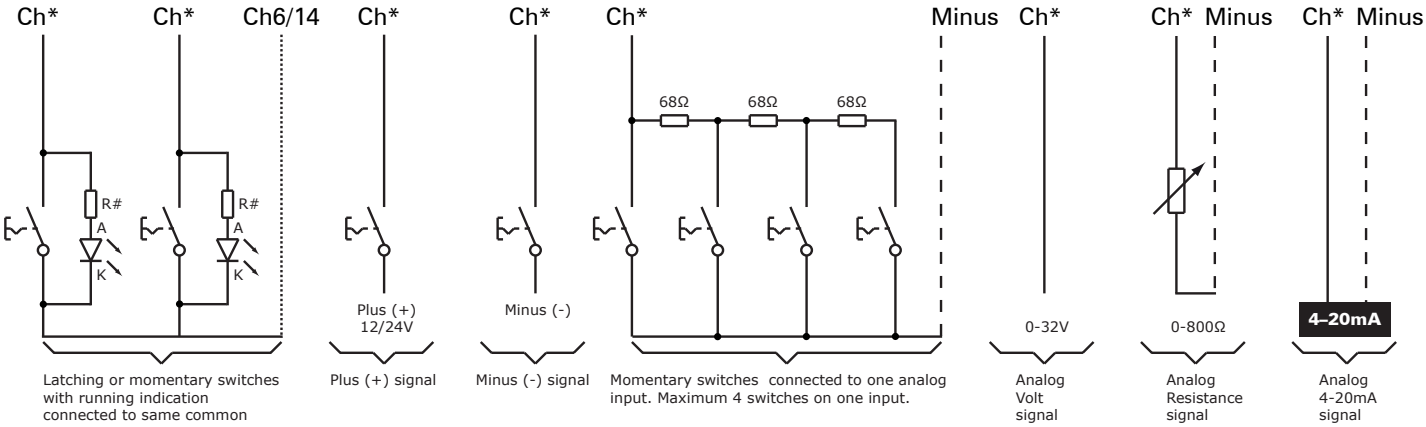

 # Current Limit Resistor

R = Voltage supply – LED forward voltage / 0,020A

Voltage supply, 12V system is about 14V when charging. 24V around 28V
LED voltage forward (Vf) = Nominal 1,7 – 2,2V

12V System Example
14V – 2,0V = 12V
12 / 0,020 = 600Ω minimum

24V System Example
28V – 2,0V = 26V
26V / 0,020 = 1300Ω minimum

*** Channel connection**

Ch* can be connected to any channel on the unit

Ch6/14 Common is used to run a LED connected in parallell with a switch

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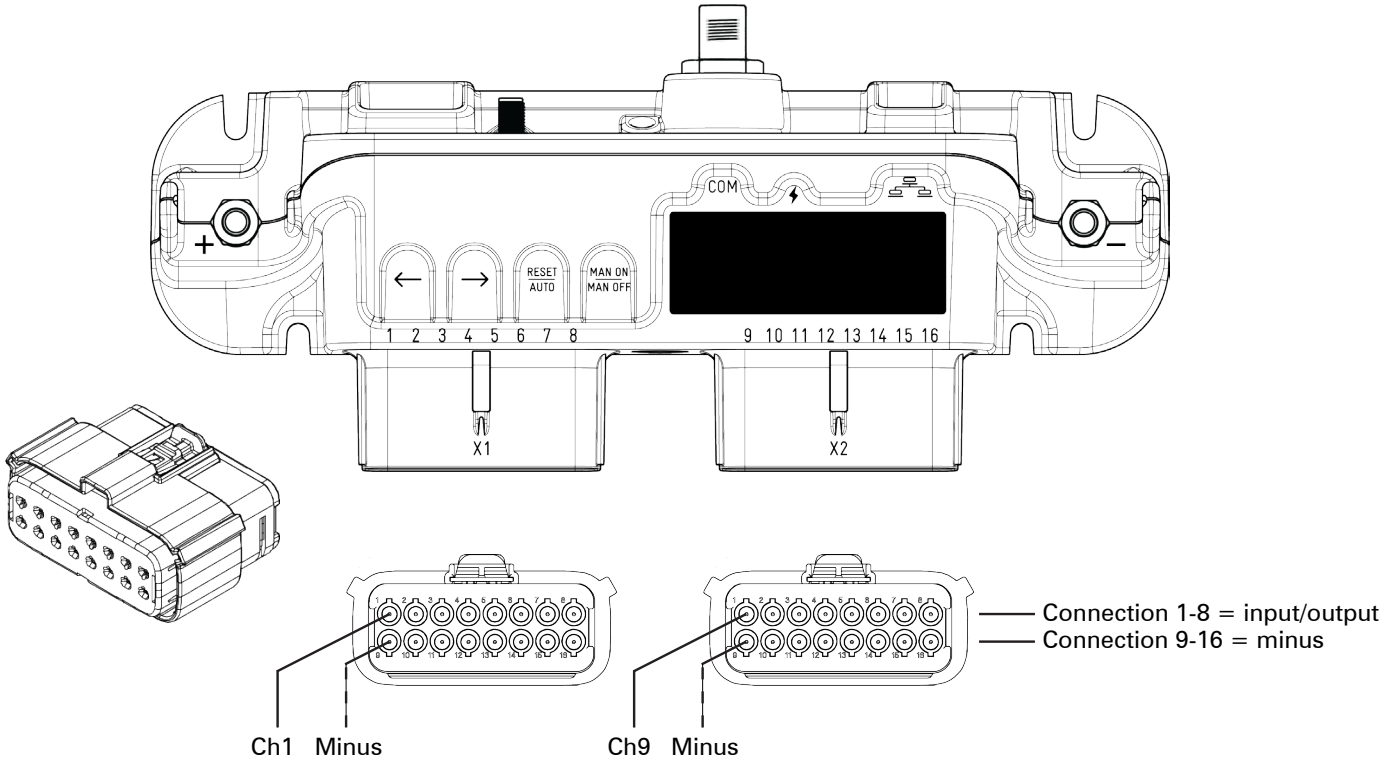

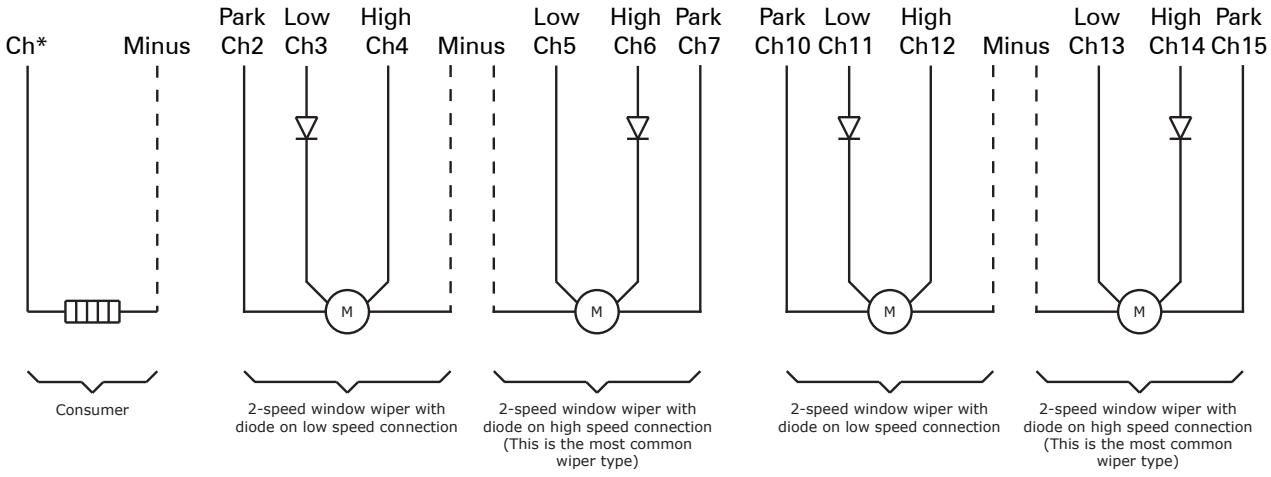

*** Channel connection**

Ch* can be connected to any channel on the unit

Ch6/14 Common is used to run a LED connected in parallell with a switch

Wiper

Ch4, 5, 12 and 13 are dedicated window wiper channels when connecting a two speed wiper the diode must not be connected on these channels. All other channels are just a suggestion they can be connected to any channel.
(This is on articles 2010104 and 2020109, on articles 2010105 and 2020110 all channels are dedicated window wiper channels)

When using a two speed wiper a diode must be connected on either high or low speed depending on the brand of the wiper motor.

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Articles 12V

	2010101-X	2010102-X	2010103-X	2010104-X	2010105-X	2010303-X	2010403-X	2010505-X
CH1	In	In	In, OL	In, OL	In, OL, Lo	In, OL	In, OL	In, OL, Lo, mA
CH2	In	In	In, OL	In, OL	In, OL, Lo	In, OL	In, OL, mA	In, OL, Lo, mA
CH3	In, OL	In, OL	In, OL	In, OL	In, OL, Lo	In, OL	In, OL	In, OL, Lo, mA
CH4	In, OL	In, OL	In, OL	In, OL, Lo	In, OL, Lo	In, OL	In, OL	In, OL, Lo, mA
CH5	In, Ol	In, OL	In, OL	In, OL, Lo	In, OL, Lo	In, OL	In, OL	In, OL, Lo, mA
CH6	In, OL, Co	In, OL, Co	In, OL, Co	In, OL, Co	In, OL, Lo	In, OL, Co	In, OL, Co	In, OL, Lo, mA
CH7	In, OL	In, OL	In, OL	In, OL	In, OL, Lo	In, OL	In, OL	In, OL, Lo, mA
CH8	In, OL	In, OH	In, OH	In, OH	In, OH, Lo	In, OH	In, OH	In, OH, Lo, mA
CH9	In, OL	In, OH	In, OH	In, OH	In, OH, Lo	In, OH	In, OH	In, OH, Lo, mA
CH10	In	In	In, OL	In, OL	In, OL, Lo	In, OL	In, OL, mA	In, OL, Lo, mA
CH11	In	In	In, OL	In, OL	In, OL, Lo	In, OL	In, OL	In, OL, Lo, mA
CH12	In, OL	In, OL	In, OL	In, OL, Lo	In, OL, Lo	In, OL	In, OL	In, OL, Lo, mA
CH13	In,OL	In, OL	In, OL	In, OL, Lo	In, OL, Lo	In, OL	In, OL	In, OL, Lo, mA
CH14	In, OL, Co	In, OL, Co	In, OL, Co	In, OL, Co	In, OL, Lo	In, OL, Co	In, OL, Co	In, OL, Lo, mA
CH15	In, OL	In, OH	In, OH	In, OH	In, OH, Lo	In, OH	In, OH	In, OH, Lo, mA
CH16	In, OL	In, OH	In, OH	In, OH	In, OH, Lo	In, OH	In, OH	In, OH, Lo, mA
Ethernet						Ethernet		

In	Digital Input
OL	Output 10A
OH	Output 18A
Co	Commonline for running indication LED
Lo	Output minus
mA	Analog Input 4-20mA

Article options

Article number-XXX

- 0: no wiper synchronization
- 1: wiper synchronization
- 0: no volt/resistance
- 1: 8 volt/resistance
- 2: 16 volt/resistance
- 0: no dimmer
- 1: 8 dimmer
- 2: 16 dimmer

Available options:

Article number-1 Article number-001

Article number-2 Article number-111

Article number-01 Article number-221

Article number-02

Article number-11

Article number-22

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Articles 12/24V

	2020106-X	2020107-X	2020108-X	2020109-X	2020110-X	2020308-X	2020408-X	2020510-X
CH1	In	In	In, OL	In, OL	In, OL, Lo	In, OL	In, OL	In, OL, Lo, mA
CH2	In	In	In, OL	In, OL	In, OL, Lo	In, OL	In, OL, mA	In, OL, Lo, mA
CH3	In, OL	In, OL	In, OL	In, OL	In, OL, Lo	In, OL	In, OL	In, OL, Lo, mA
CH4	In, OL	In, OL	In, OL	In, OL, Lo	In, OL, Lo	In, OL	In, OL	In, OL, Lo, mA
CH5	In, OL	In, OL	In, OL	In, OL, Lo	In, OL, Lo	In, OL	In, OL	In, OL, Lo, mA
CH6	In, OL, Co	In, OL, Co	In, OL, Co	In, OL, Co	In, OL, Lo	In, OL, Co	In, OL, Co	In, OL, Lo, mA
CH7	In, OL	In, OL	In, OL	In, OL	In, OL, Lo	In, OL	In, OL	In, OL, Lo, mA
CH8	In, OL	In, OH	In, OH	In, OH	In, OH, Lo	In, OH	In, OH	In, OH, Lo, mA
CH9	In, OL	In, OH	In, OH	In, OH	In, OH, Lo	In, OH	In, OH	In, OH, Lo, mA
CH10	In	In	In, OL	In, OL	In, OH, Lo	In, OL	In, OL, mA	In, OL, Lo, mA
CH11	In	In	In, OL	In, OL	In, OL, Lo	In, OL	In, OL	In, OL, Lo, mA
CH12	In, OL	In, OL	In, OL	In, OL, Lo	In, OL, Lo	In, OL	In, OL	In, OL, Lo, mA
CH13	In, OL	In, OL	In, OL	In, OL, Lo	In, OL, Lo	In, OL	In, OL	In, OL, Lo, mA
CH14	In, OL, Co	In, OL, Co	In, OL, Co	In, OL, Co	In, OL, Lo	In, OL, Co	In, OL, Co	In, OL, Lo, mA
CH15	In, OL	In, OH	In, OH	In, OH	In, OH, Lo	In, OH	In, OH	In, OH, Lo, mA
CH16	In, OL	In, OH	In, OH	In, OH	In, OH, Lo	In, OH	In, OH	In, OH, Lo, mA
Ethernet						Ethernet		

In **Digital Input**
OL **Output 10A**
OH **Output 18A**
Co **Commonline for running indication LED**
Lo **Output minus**
mA **Analog Input 4-20mA**

Article options

Article number-XXX

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- 0: no volt/resistance
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Available options:

Article number-1 **Article number-001**

Article number-2 **Article number-111**

Article number-01 **Article number-221**

Article number-02

Article number-11

Article number-22

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