



Tech20140828-2-1

DCM Specifications by Generation

This document contains DCM specifications that have been previously published in the Cellwatch Manual. This includes all legacy DCM specifications as well as the current released DCM specifications.

Note: The minimum battery amp hour for DCM5 and DCM6 units (all variants) is 10Ah.



DCM6-L Specifications			
Description	DCM6-L		
Environment			
Operating temperature	0 to 60°C		
Relative Humidity	5 - 85% non-condensing		
Maximum Altitude	3,000 meters (10,000ft)		
Power supply full functionality	4 - 12 Volts DC		
Power supply voltage & temperature	3 - 12 Volts DC		
Protection			
Transient suppression	600W		
Short circuit protection	Internal 4-amp fuse		
Reverse polarity protection	Any combination		
Insulation resistance	1000 MΩs >1Kv		
Operating current			
Quiescent current	12mA		
Sleep current after 25 hours	<2ma		
During ohmic testing	1.5 amps		
Standard Measurement Characteristics	Range	Resolution	Accuracy
Voltage	0 to 12 volts	15 mV	0.1% +/-15mv
Ohmic Value	0 to 5mΩ	6.3μΩ	2% +/- 15 μΩ
Enhanced Measurement Characteristics Requires Activation			
Voltage	0 to 12 volts	2mV	0.1% +/-5mv
Ohmic Value	0 - 5mΩ	1μΩ	2% +/- 8 μΩ
Temperature -ve post (optional)	2 to 80°C	0.01°C	+/- 1°C
Mechanical			
Fiber optic range	Min: 150mm (6”) to Max: 50meters (150 ft)		
Dimensions	4.2" x 3.1" x 0.9" 107mm x 80mm x 23mm		
Mounting pads	3M Dual Lock™		
Base plate with mounting holes	Optional		
Base plate with DIN rail mount	Optional		
Enclosure Material	ABS		
Wire lead length	40 - 72 inches		



DCM6-H Specifications			
Description	DCM6-H		
Environment			
Operating temperature	0 to 60°C		
Relative Humidity	5 - 85% non-condensing		
Maximum Altitude	3,000 meters (10,000ft)		
Power supply full functionality	12-80 Volts DC		
Protection			
Transient suppression	600W		
Short circuit protection	Internal 1-amp fuse		
Reverse polarity protection	Any combination		
Insulation resistance	1000 MΩs >1Kv		
Operating current			
Quiescent current	12mA		
Sleep current after 25 hours	<2ma		
During ohmic testing	0.5 amps		
Standard Measurement Characteristics	Range	Resolution	Accuracy
Voltage	0 to 80 volts	15 mV	0.1% +/-15mv
Ohmic Value	1 to 25.9mΩ	6.3μΩ	1.5%
Enhanced Measurement Characteristics Requires Activation			
Voltage	0 to 80 volts	2mV	0.1% +/-5mv
Ohmic Value	1 to 50mΩ	1μΩ	1.5%
Ripple Voltage	0 - 400 mVAC rms	1 mv	2% +/-5mv
Temperature -ve post (optional)	2 to 80°C	0.01°C	+/- 1°C
Fiber Optic Specification			
Optic cable	Acrylic		
Sheathing	Fluorine containing polymer		
Fiber optic range	Min: 150mm (6") to Max: 50meters (150 ft)		
Mechanical			
Dimensions	4.2" x 3.1" x 0.9" 107mm x 80mm x 23mm		
Mounting pads	3M Dual Lock™		
Base plate with mounting holes	Optional		
Base plate with DIN rail mount	Optional		
Enclosure Material	ABS		
Wire lead length	40 - 72 inches		



DCM6-R Specifications			
Description	DCM6-R		
Environment			
Operating temperature	0 to 60°C		
Relative Humidity	5 - 85% non-condensing		
Maximum Altitude	3,000 meters (10,000ft)		
Power supply full functionality	24 - 300 Volts DC		
Protection			
Transient suppression	600W		
Short circuit protection	Internal 4-amp fuse		
Reverse polarity protection	Any combination		
Insulation resistance	1000 MΩs >1Kv		
Operating current			
Quiescent current	12mA		
Sleep current after 25 hours	<2ma		
Standard Measurement Characteristics	Range	Resolution	Accuracy
Ripple voltage	0 - 5 VAC rms	1 mv	2% +/- 5 mv
String voltage	24 - 300 VDC	10 mv	0.5% +/- 100 mv
Mechanical			
Fiber optic range	Min: 150mm (6'') to Max: 50meters (150 ft)		
Dimensions	4.2" x 3.1" x 0.9" 107mm x 80mm x 23mm		
Mounting pads	3M Dual Lock™		
Base plate with mounting holes	Optional		
Base plate with DIN rail mount	Optional		
Enclosure Material	ABS		
Wire lead length	72 inches		



DCM5-DS Specifications			
Description	DCM5-DS		
Environment			
Operating temperature	0 to 60°C		
Relative Humidity	5 - 95% non-condensing		
Maximum Altitude	3,000 meters (10,000ft)		
Power supply	10 - 60 Volts DC		
Maximum voltage between black/white or black/brown	30 volts		
6 – 12 volt containers	2, 3 or 4 containers		
4-volt container	4 containers		
Protection			
Transient suppression	600W		
Short circuit protection	Internal 3-amp fuse		
Insulation resistance	1000 MΩs >1Kv		
Operating current			
Quiescent current	25ma		
Sleep current after 25 hours	<2ma		
During Ohmic testing	0.5 amp		
Measurement Characteristics	Range	Resolution	Accuracy
Voltage	0 to 60 volts	2mV	0.1% +/-5mv
Ohmic Value	1 to 65mΩ	1μΩ	1.5%
Temperature -ve post (optional)	2 to 80°C	0.01°C	+/- 1°C
Ripple Voltage across 4 jars 40Hz - 1 KHz	0 to 4 volts rms	2mv rms	2% +/-5mv rms
Fiber Optic Specification			
Optic cable	Acrylic		
Sheathing	Fluorine containing polymer		
Core diameter	1.0 mm		
Outside diameter	2.2 mm		
Wavelength	400-700 nm		
Communication rate	9600 baud		
Fiber optic range	Min: 150mm (6”) to Max: 50meters (150 ft)		
Mechanical			
Dimensions	4.2" x 3.1" x 0.9" 107mm x 80mm x 23mm		
Mounting pads	3M Dual Lock™		
Optional base plate with mounting holes			
Optional base plate with DIN rail mount			
Enclosure Material	ABS		
Wire lead length	36 inches		



DCM 5 Specifications			
Description	DCM 5		
Environment			
Operating temperature	0 to 60°C		
Relative Humidity	5 - 95% non-condensing		
Maximum Altitude	3,000 meters (10,000ft)		
Power supply voltage full functionality	6 - 80 Volts DC		
Power supply voltage, temperature & ripple	4 - 6 Volts DC		
Protection			
Transient suppression	600W		
Short circuit protection	Internal 3-amp fuse		
Reverse polarity protection	Any combination		
Insulation resistance	1000 MΩs >1Kv		
Operating current			
Quiescent current	25mA		
Sleep current after 25 hours	<2ma		
During ohmic testing	0.5 amp or 2 amps		
Measurement characteristics	Range	Resolution	Accuracy
Voltage	0 to 80 volts	2mV	0.1% +/-5mv
Ohmic Value	0 to 1mΩ	1μΩ	2% +/- 8 μΩ
	1 to 65mΩ	1μΩ	1.5%
Temperature – post	2 to 80°C	0.01°C	+/- 1°C
Ripple Voltage across 4 jars 40Hz - 1 KHz	0 to 4 volts rms	2mv rms	2% +/-5mv rms
Fiber Optic Specification			
Optic cable	Acrylic		
Sheathing	Fluorine containing polymer		
Core diameter	1.0 mm		
Outside diameter	2.2 mm		
Wavelength	400-700 nm		
Communication rate	9600 baud		
Fiber optic range	Min: 150mm (6”) to Max: 50meters (150 ft)		



Mechanical	
Dimensions	4.2" x 3.1" x 0.9" 107mm x 80mm x 23mm
Mounting pads	3M Dual Lock™
Optional base plate with mounting holes	
Optional base plate with DIN rail mount	
Enclosure Material	ABS
Wire lead length	36 -72 inches

DCM and DCM EX Specifications

Environment	
Operating temperature	0°C to 50°C
Storage temperature	-10°C to 80°C
Maximum Relative Humidity	95% non-condensing
Maximum Altitude	2,000 meters (6,000ft)
Power supply, nominal	From 4 x 2v cells up to 4 x 12 v monoblocs (jars)
DCM Operating Voltages	Max 60V DC
Protection	
Transient suppression	Up to 600VDC. 1Kw pulses at 100µS pulses non-repetitive.
Short circuit	5-amp max with in-line fuses fitted
Reverse polarity protection	Any combination, in any connection order, for any period of time within the rated voltages.
Insulation resistance	1000 MΩs >1Kv
Operating current	
Quiescent	DCM Max: 25mA (0.025A/Hr) (at all input voltages) DCM EX Max: 10mA (0.10A/Hr) (at all input voltages)
During ohmic value testing	DCM: Additional 0.0027 A/Hr DCM EX: Additional 0.0108 A/Hr (nominal voltage of 4V or less per channel).
Voltage measuring characteristics	
Voltage measuring range	0 volts to 60 volts on any one input channel or on DCM IN TOTAL
Resolution	15mV



Accuracy	2-volts nominal source +/- 1.0% 6-volt nominal source +/-0.5% 12-volt nominal source +/-0.25%
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Ohmic Value measuring characteristics	
Ohmic Value measuring range	DCM: 200 $\mu\Omega$ to 25.9 m Ω DCM EX: 50 $\mu\Omega$ to 25.9m Ω
Resolution, accuracy & repeatability	6.3 $\mu\Omega$ resolution, accuracy (worse case) +/-100 $\mu\Omega$, repeatability +/- 10 $\mu\Omega$
Communication rate	9600 baud
Maximum DCMs per Control Unit fiber optical loop:	254
Fiber optic range (DCM to DCM or DCM to CU) Can be extended using Fiber Optic Extender Kit	Min = 150mm (6") Max = 50meters (150 ft) (No radius less than 130mm (5"))
Maximum Cable lengths (All wires must be bundled together as sticks as much as possible).	DCM, DCM EX: 40 in. standard Max Extension: 3 meters (10ft) NOT white or blue All wires may be extended using DCM wire extenders except for the white and blue wires. Maximum variation between cables on one unit 2 meters (6ft 8")
Dimensions	DCM 117mm x 64mm x 46mm (4 5/8" x 2 17/32" x 1 27/32") DCM EX 5.00" (127mm) L x 3.30" (83.82mm) W x 0.90" (22.86) H
Mounting pads	3M Dual Lock™
Mounting hole, centers	DCM 3.2mm (1/8") 100mm centers (3.92") DCM EX 0.16" (4.064mm) dia, 4.5" (114.3mm) on center
Enclosure Material	ABS

Fiber Optic Specification	
Optic cable	Acrylic
Sheathing	Fluorine containing polymer
Core diameter	1.0 mm
Outside diameter	2.2 mm
Wavelength	400-700 nm