

### Summary

The CPC-XXXX-27-BP2 series of Current Probe Clips are capable of measuring ac and dc current and are available in four different models with current ranges of  $\pm 250A$ ,  $\pm 500A$ ,  $\pm 1000A$ , or  $\pm 2000A$ . They have an accuracy of  $\pm 1.0\%$  of full scale and non-linearity of  $< \pm 0.2\%$ . The bandwidth is dc to 75kHz. The current probe provides an analog output voltage of  $0.0V \pm 2.00V$  for the full scale output and operates with a 3.5 to 5.5V power source at less than 85mA.

The Clip-On Probe opens allowing easy installation onto existing cables up to 27mm in diameter in tight spaces without having to break the connection. The Probe Clip is spring loaded to the closed position. For secure permanent installation or high vibration environments the Probe can be fixed closed with a tie-wrap around the “neck” region as shown below.

The Clip-On Probes utilize magnetic field sensors with no magnetic core. This eliminates magnetic hysteresis and non-linearity effects present in conventional open loop sensors with magnetic cores. There is no damage from very high overload current and recovery to linear operation is immediate.

The Clip-On Probe incorporates an integral 4 pin Molex connector with positive latch for reliable operation in a high vibration environment. The Probe has an operating temperature of  $-40C$  to  $100C$ .



**TABLE 1: ELECTRICAL SPECIFICATIONS**

Specification	Symbol	Model CPC-250-27-BP2	Model CPC-500-27-BP2	Model CPC-1000-27-BP2	Model CPC-2000-27-BP2	Units
Primary Current, Nominal	$I_{PN}$	$\pm 250$	$\pm 500$	$\pm 1000$	$\pm 2000$	A
Primary Current, Maximum	$I_{PSAT}$	$\pm 275$	$\pm 550$	$\pm 1100$	$\pm 2200$	A
Primary Current, Overload	$I_{OL}$	No Limit				A
Sensitivity	S	8.00	4.00	2.00	1.00	mV/A
Sensitivity Accuracy	SA	$\pm 1$				%
Non-Linearity	NL	$< 0.2$				% of I
Bandwidth	BW	DC-75kHz ( -3db )				
Delay	$t_d$	$< 2$				$\mu S$
Maximum Response Time	$t_R$	$< 10$				$\mu S$
Recovery from 10X overload	$t_{rec}$	$< 2$				$\mu S$
Hysteresis	$V_{HYS}$	$< 0.05$ after full scale current applied				% of $V_{OUTMAX}$
Noise (3Hz to 1kHz)	$V_{NO}$	0.6	0.3	0.1	0.05	mV <sub>rms</sub>
Output Signal, Nominal	$V_{OUT}$	$0.0 \pm 2.0$				V
Output Signal, Max	$V_{OUTMAX}$	$0.0 \pm 2.25$				V
Output Signal Current, Absolute Max	$I_{OUTM}$	$\pm 2$				mA
Offset at IP = 0	$V_{OS}$	$< \pm 10$	$< \pm 7.5$	$< \pm 5$	$< \pm 5$	mV
Output Capacitive Load	$C_L$	$< 1$				nF
Output Source Impedance	$R_S$	10-15				Ohm
Power Supply Voltage	$V_C$	3.5 to 5.5				V
Power Supply Current Max	$I_C$	85				mA
Dielectric Withstanding	$U_W$	$> 5000V_{ac}$ ( 60Hz, Dwell Time 1 min, $< 2mA$ )				V
Turn ON Stabilization time	t	120	80	60	30	S

**U.S. PATENT 9,952,257**

Revision Date: APR 18, 2018

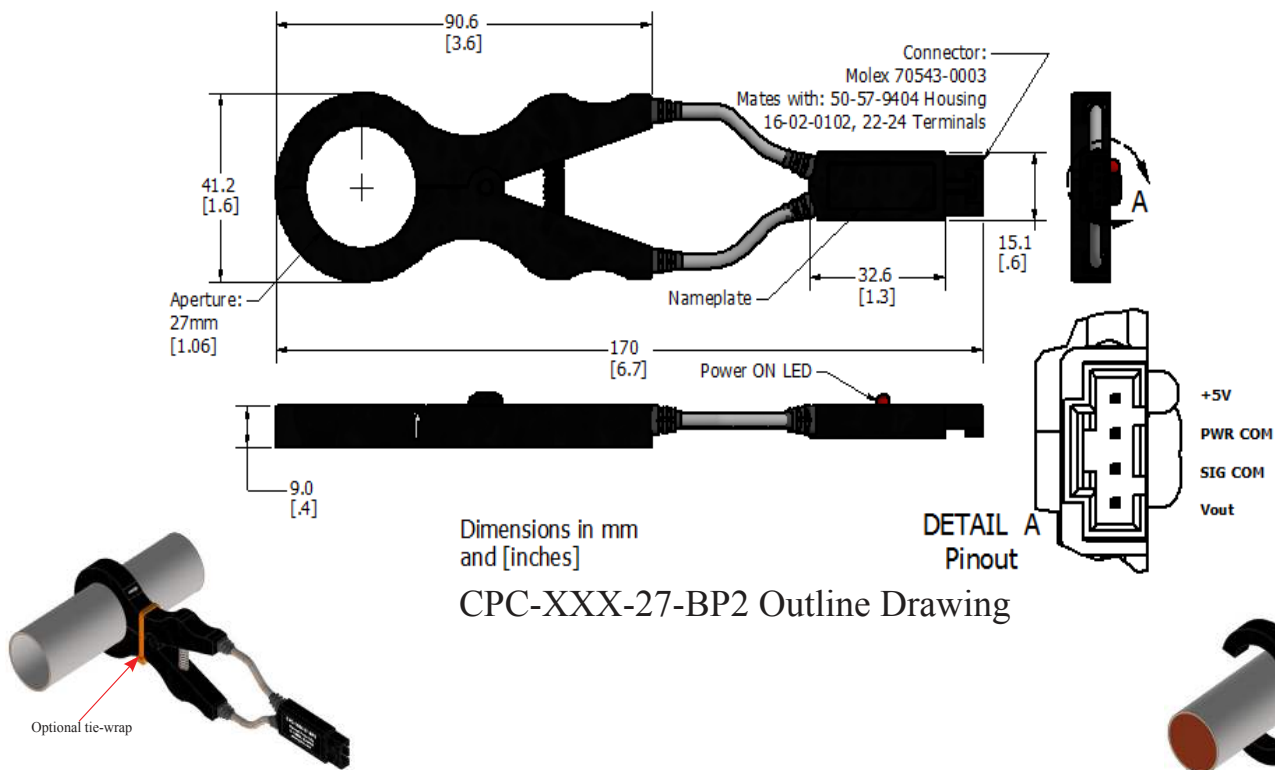
**GMW Associates: 955 Industrial Road, San Carlos, CA 94070, USA. www.gmw.com. +1 (650) 802-8292**

**TABLE 2: MECHANICAL SPECIFICATIONS**

Specification	
Aperture Diameter	27mm (1.06")
Overall Size	41mm x 170mm x 9mm
Weight	<30g (<1oz)
Housing Material	Nylon 66 Fire Retardant (UL94 V-0)
Encapsulation Material	Polybutadiene Resin (UL 94 V-0)

**TABLE 3: ENVIRONMENTAL SPECIFICATIONS**

Specification		
Temperature, Operating	-40C to 100C	
Temperature, Storage	-40C to 100C	
Sensitivity change with ref to 25C, -40C to +100C	+4% to -1% of S	
Offset change with ref to 25C, -40C to +100C	<±60mV	
Sealed	NEMA 5 Equivalent	
Humidity	0-90% RH	
External Magnetic Field Component, <0.2% of FS Output Signal Shift	In Plane	<40mT (400G)
	Longitudinal ( axial)	<200mT (2000G)
Effect of Another Conductor within 5mm of any outer surface of probe (20mm diameter conductor, $I \leq I_{PN}$ )	< 0.25% of $I_{PN}$	
Effect of Primary Conductor Position within Aperture (20mm diameter conductor) $I \leq I_{PN}$	< 0.25% of $I_{PN}$	



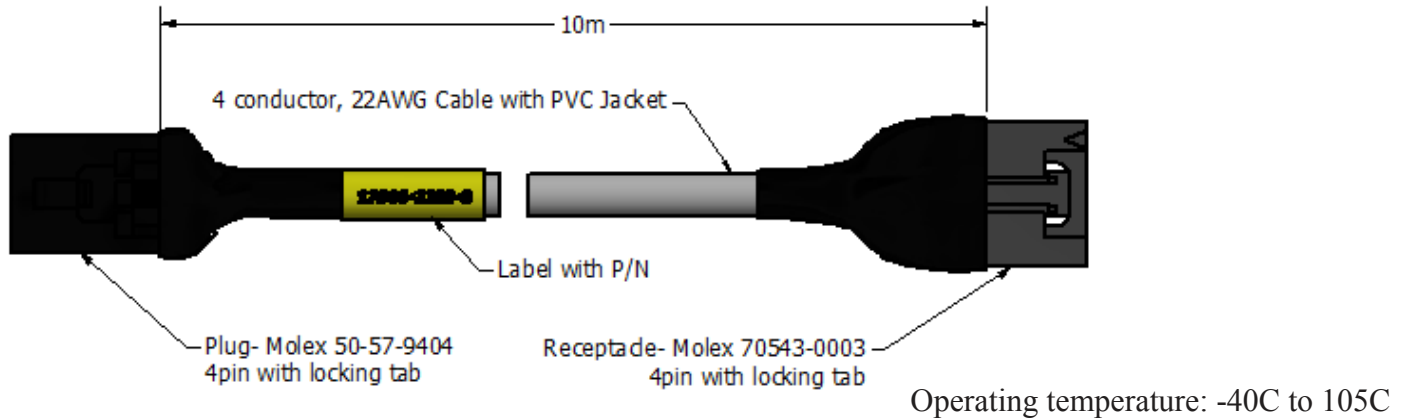
U.S. PATENT 9,952,257

Revision Date: APR 18, 2018

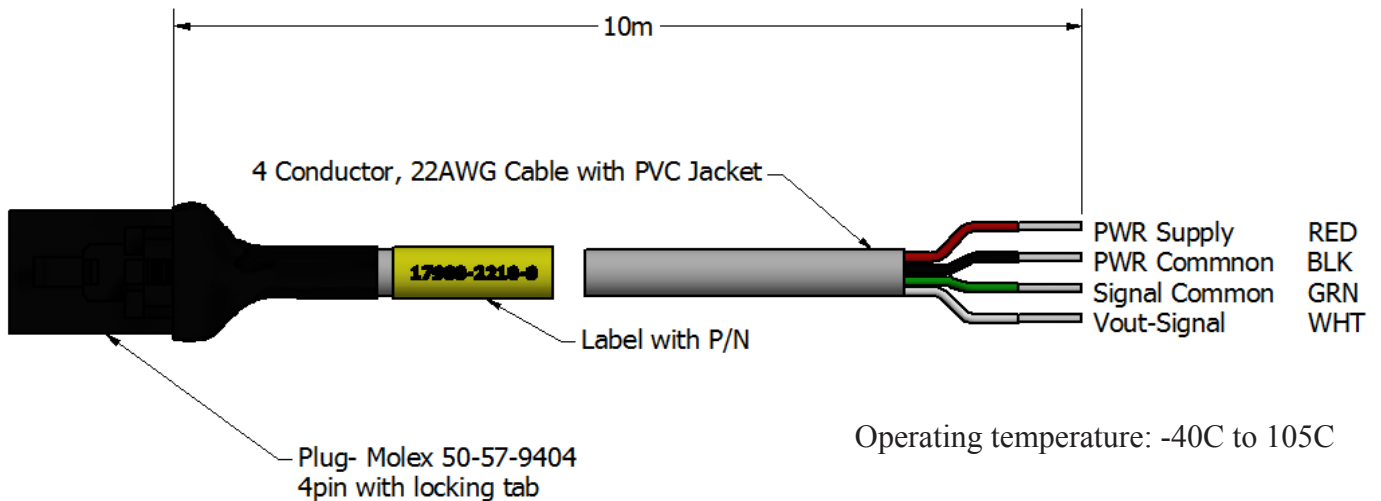
GMW Associates: 955 Industrial Road, San Carlos, CA 94070, USA. www.gmw.com. +1 (650) 802-8292

### Accessories

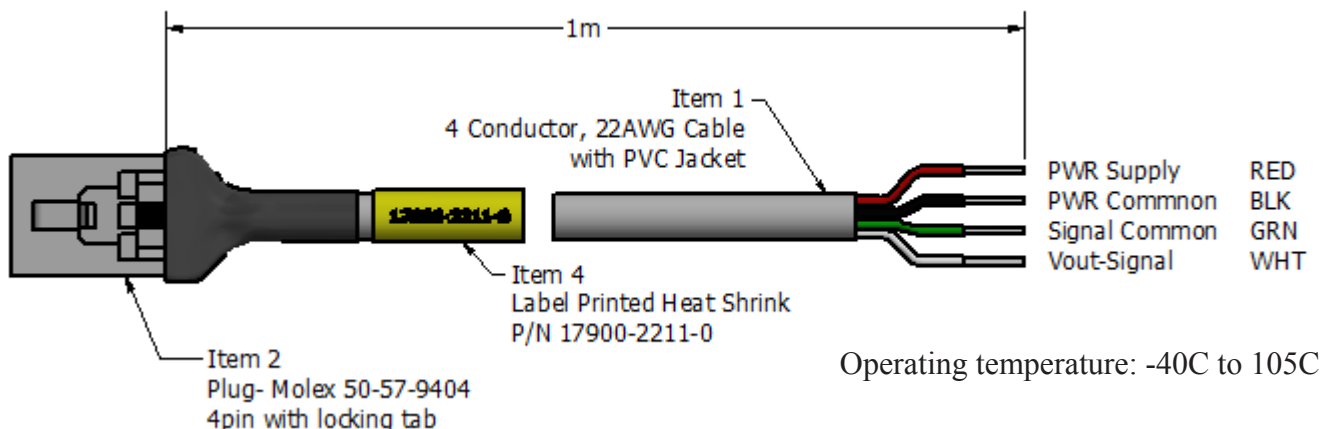
17900-2209-0 Cable, Extension, Signal and Power, 22AWG, 4pin Molex Plug and Receptacle, locking tabs, PVC Jacket, 10m



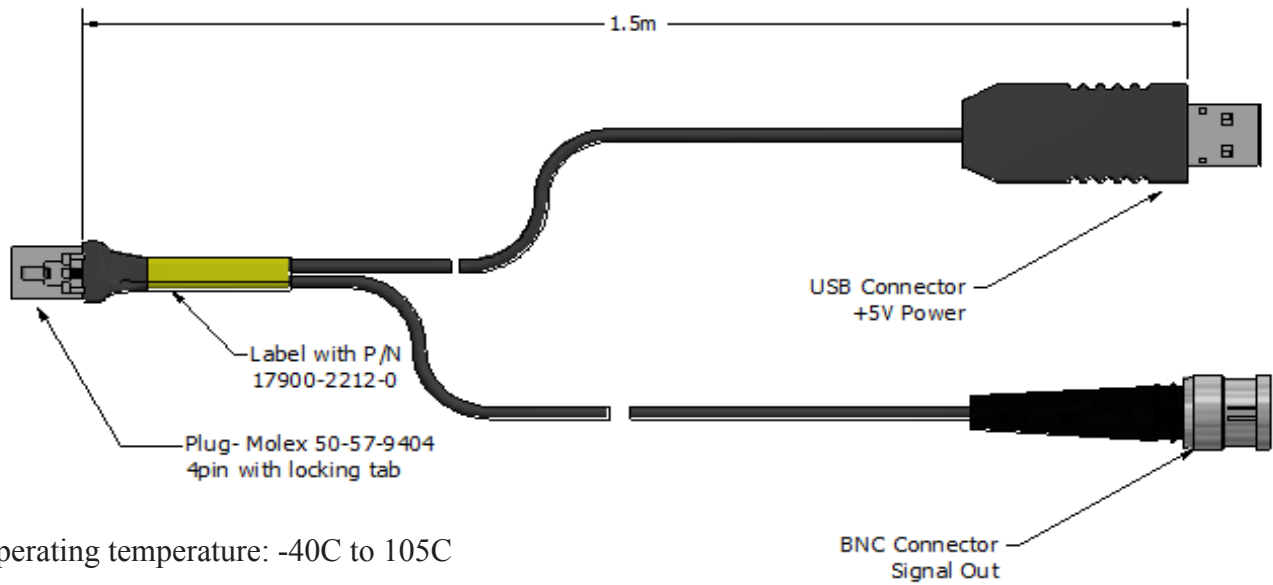
17900-2210-0 Cable, Pigtail, Signal and Power, 22AWG, 4pin Molex Plug, Locking tab and Unterminated, PVC Jacket, 10m



17900-2211-0 Cable, Pigtail, Signal and Power, 22AWG, 4pin Molex Plug, Locking tab and Unterminated, PVC Jacket, 1m



**17900-2212-0 Cable, Adapter, Signal and Power, 4pin Molex Plug, Locking tab, BNC, USB, 0.5m**



Operating temperature: -40C to 105C

**17900-2213-0 Connector and Pins, Set of 5 ( Molex 50-57-9404 Housing, 16-02-0103pins)**



*Suggested hand crimping tool: Molex Part Number 0640160201*

**Example of current probe with optional cable accessories for BNC connection and USB power**

