# Process Calibrators (HandyCal 3850N)



The Process Calibrator (HandyCal 3850N) series is a micro-controller based portable, battery-operated, precision instrument designed for sourcing and measuring Ohm, mA and mV signals. A 4½ digit LCD provides excellent resolution with high contrast ratio. It is designed to calibrate process instruments and retain its precision and repeatability over long periods in worst environmental conditions. An exceptionally stable voltage/current source provides continuously variable precision output signals with two ten-turn potentiometers.



#### **Features**

- Sources & measures one or two of Ohms, mA, mV
- High precision, accuracy, reliability & longevity
- 4½ digit (8mm) LCD for high resolution
- Compact in size and built for toughest environments
- Unique self-check facility ensures reliable operations
- Powered by AC/DC adapter or 9V Ni-Mh battery

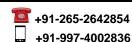
## **Applications**

- Simulates transmitter (with 24V<sub>DC</sub> loop power)
- Simulates & measures T/Cs (mV mode) using temp tables
- Simulates & measures RTDs (Ohms mode) using temp tables
- Works current regulator or source
- Calibrates various temperature and process indicators
- Suitable for mass calibration during plant shutdowns

1	Code	Function, Range & Resolution			
Model		Resistance	DC Current	DC milliVolts	
		0-2000 Ω	0 to 20 mA	0 to 200 mV	
		0.1 Ω	1 μΑ	10 μV	
38500	D			Ø	
38501		$\square$			
38502			☑		
38503			Ø	$\square$	
38504		<b>☑</b>		$\square$	
38509 <sup>[1]</sup>			Ø		
Any one of the above	G	User specified requirements <sup>[2]</sup>			

[1] The current i/p may be measured from 0-20mA, but o/p is fixed at 4/8/12/13/16/20mA.

[2] Contact us with your specific requirements.



## **Technical Specifications** 22 ≤ T<sub>A</sub> ≤ 32°C; V<sub>S</sub>=V<sub>LOBAT</sub>; 1yr of calibration validity unless otherwise noted

Display Specifications	Display	4½ digit (8mm) 7-segment LCD with high contrast ratio					
	Function	Ω	mA	mV			
	Resolution	0.1Ω	1µA	10μV			
	Accuracy	± 0.02% rdg ± 0.01% FS ± 2 dgt					
	Self-check	17777 ± 2 digits					
Input Impedance	Voltage	> 1MΩ					
	Current	1 or 10Ω depending on range					
	Resistance	Bridge current of 0.1 to 1 mA depending on range					
Output Impedance	Voltage	< 0.05Ω					
	Current	> 1MΩ					
Source Capability	Voltage	Up to 250mV into 250Ω					
	Current	Up to 20mA into 250 $\Omega$ (or 800 $\Omega$ with loop power of 24V <sub>DC</sub> )					
	Resistance	Up to the maximum specified range					
Battery	Туре	9V Ni-Mh battery with longer life for field use					
	Life	10 - 12 Hrs. @ 12 mA output current					
	Status	Displays battery status using "Low Battery"					
Mains Operation		Power jack for AC/DC adapter/charger (230V <sub>AC</sub> ,50Hz to 9V <sub>DC</sub> ,200mA)					
Input Protection		I/O terminals are protected up to 24 V <sub>DC</sub> for Ω/mV and 48 V <sub>DC</sub> for mA					
Storage Temperature		0 to 70°C w/o batteries					
Humidity		Less than 90% Rh (Non-condensing)					
Operating Temperature		5 to 55°C	5 to 55°C				
Zero Drift		< 1dgt per 10°C outside the range of 22 ≤ T <sub>A</sub> ≤ 32°C					
Span Drift		< 0.0015% of rdg per °C					
Enclosure Dimension		75(W) x 150(H) x 55(D) mm					
Enclosure Finish		Powder coated					
Weight		600g w/o batteries	3				

### **Standard Accessories**

Accessories	Included	BS-5(4mm) probes, crocodile clips, DP2, SP3, screw driver, leather case, AC/DC adapter	
	Optional	6 AA sized Ni-Mh batteries, external battery charger(s), wooden case	
Documentation	Included	Warranty certificate <sup>[1]</sup> , Calibration certificate <sup>[2]</sup> , User manual, RTD & T/C temperature tables	
	Optional	NABL Calibration certificate	



## **Ordering Information**

Model No.	Code	
38503	X (As specified in the table)	
Example	Specify 38503D to order the mV/mA calibrator using 4½ digit LCD with high contrast ratio for ranges of 20mA and 200mV.	

[1] Valid for 2 years against mfg defects.

[2] Traceable to NABL, India.

[3] Some accessories in the picture are optional.

