

MetroCount®

traffic data specialists

MC5810 Loop Classifier

MC5800 Series RSUs

MetroCount

Australia

15 O'Connor Close
North Coogee WA 6163
Ph: 08 9430 6164
Fax: 08 9430 6187
Email: sales@metrocount.com

United Kingdom

Unit 15, Oliver Business Park
Oliver Road
Park Royal, London NW10 7JB
Ph: 020 8782 8999
Fax: 020 8782 8737
Email: uksales@metrocount.com

United States

11820 West Market Place, Suite M
Fulton MD 20759
Ph: 800 576 5692
Fax: 301 490 3521
Email: usasales@metrocount.com

www.metrocount.com

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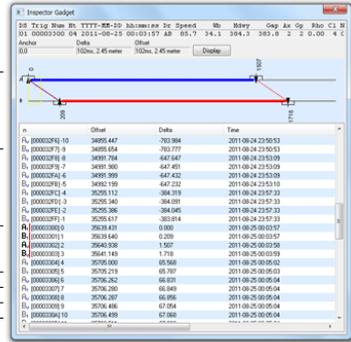
MC5810 Loop Classifier

Introducing the MetroCount 5810

The MetroCount 5810 is a length-based vehicle classifier, employing MetroCount's proven time-stamping technology for maximum data flexibility and value. The MC5810 utilises a pair of inductive loops per lane, producing highly accurate vehicle volume, speed and length.

The raw data produced by the MC5810 is fully compatible with MetroCount Traffic Executive's complete range of classification reports. At the core of the data analysis are the time-stamped individual vehicles common to all MetroCount's vehicle classifiers. Piezo, tube and loop data can be mixed and matched, to take advantage of each technology's strengths.

DS	Trig	Num	Ht	YYYY-MM-DD	hh:mm:ss	Dr	Speed	Lb	HtWry	Gap	Ax	Gp	Rho	Cl	Ln	Vehicle
01	00003304	04	2011-08-25	00:05:02	AB	81.4	27.4	65.6	63.9	2	2	0.00	4	00000010	Combo	
01	00003300	04	2011-08-25	00:05:31	AB	112.1	3.0	28.2	26.7	2	2	0.00	1	00000010	Short	
01	00003310	04	2011-08-25	00:06:06	AB	87.0	3.6	35.1	34.7	2	2	0.00	1	00000010	Short	
01	00003314	04	2011-08-25	00:06:08	AB	89.9	4.0	2.5	2.0	2	2	0.00	1	00000000	Short	
01	00003318	04	2011-08-25	00:06:53	AB	82.7	4.3	44.5	44.1	2	2	0.00	1	00000010	Short	
01	00003316	04	2011-08-25	00:08:24	AB	83.6	34.7	91.6	91.1	2	2	0.00	4	00000010	Combo	
01	00003320	04	2011-08-25	00:08:38	AB	83.3	3.8	13.4	11.6	2	2	0.00	1	00000010	Short	
01	00003324	04	2011-08-25	00:09:00	AB	85.6	4.4	21.8	21.4	2	2	0.00	1	00000010	Short	
01	00003328	04	2011-08-25	00:09:07	AB	86.3	3.5	7.1	6.6	2	2	0.00	1	00000000	Short	
01	0000332c	04	2011-08-25	00:13:31	AB	81.8	4.0	264.2	263.8	2	2	0.00	1	00000010	Short	
01	00003330	04	2011-08-25	00:17:41	AB	87.3	31.6	249.7	249.2	2	2	0.00	4	00000010	Combo	
01	00003334	04	2011-08-25	00:19:56	AB	74.6	3.4	135.6	134.0	2	2	0.00	1	00000010	Short	
01	00003338	04	2011-08-25	00:21:21	AB	80.2	4.4	84.5	84.0	2	2	0.00	1	00000010	Short	
01	0000333c	04	2011-08-25	00:24:32	AB	77.6	4.0	190.9	190.4	2	2	0.00	1	00000010	Short	
01	00003340	04	2011-08-25	00:25:28	AB	104.2	4.5	56.9	56.4	2	2	0.00	1	00000010	Short	
01	00003344	04	2011-08-25	00:26:54	AB	82.6	10.4	85.4	85.0	2	2	0.00	2	00000010	Med	
01	00003348	04	2011-08-25	00:32:43	AB	88.5	3.9	348.6	347.9	2	2	0.00	1	00000010	Short	
01	0000334c	04	2011-08-25	00:41:25	AB	78.3	4.3	522.2	521.7	2	2	0.00	1	00000010	Short	
01	00003350	04	2011-08-25	00:46:11	AB	75.4	9.7	286.6	286.0	2	2	0.00	2	00000010	Med	
01	00003354	04	2011-08-25	00:50:29	AB	81.1	8.5	258.1	257.3	2	2	0.00	2	00000010	Med	
01	00003358	04	2011-08-25	00:57:17	AB	77.0	5.2	407.4	406.8	2	2	0.00	1	00000010	Short	
01	0000335c	06	2011-08-25	01:04:32	AB	95.0	18.0	435.3	434.7	2	2	0.00	3	00000010	Long	
01	00003362	04	2011-08-25	01:06:58	AB	78.9	3.7	145.7	144.8	2	2	0.00	1	00000010	Short	
01	00003366	04	2011-08-25	01:08:20	AB	92.5	4.3	81.8	81.3	2	2	0.00	1	00000010	Short	



MC5810 Individual Vehicles

The MetroCount 5810's modular design ensures long-term reliability. The MC5810 Roadside Unit contains high-speed, transient suppression components, protecting against local electrical disturbances. The MC5800 Series Breakout Board provides a robust link between the loop feeder cables and the MC5810, with integrated cable strain-relief, and additional levels of electrical protection.



MC5810 Loop Classifier with Breakout Board

The MC5810 uses dedicated, ultra-low power oscillators per loop, providing up to six months stand-alone battery life in semi-permanent applications, and minimal external power requirements for permanent sites. For solar-powered sites, panels can be small and unobtrusive.

The MC5810 is continuously self-tuning, requiring no user adjustment of thresholds or sensitivity. MetroCount Traffic Executive's unique software diagnostics tools provide visual assurance of correct site operation and data quality, and assist in trouble-shooting faults.



MetroCount LoopScope Diagnostics

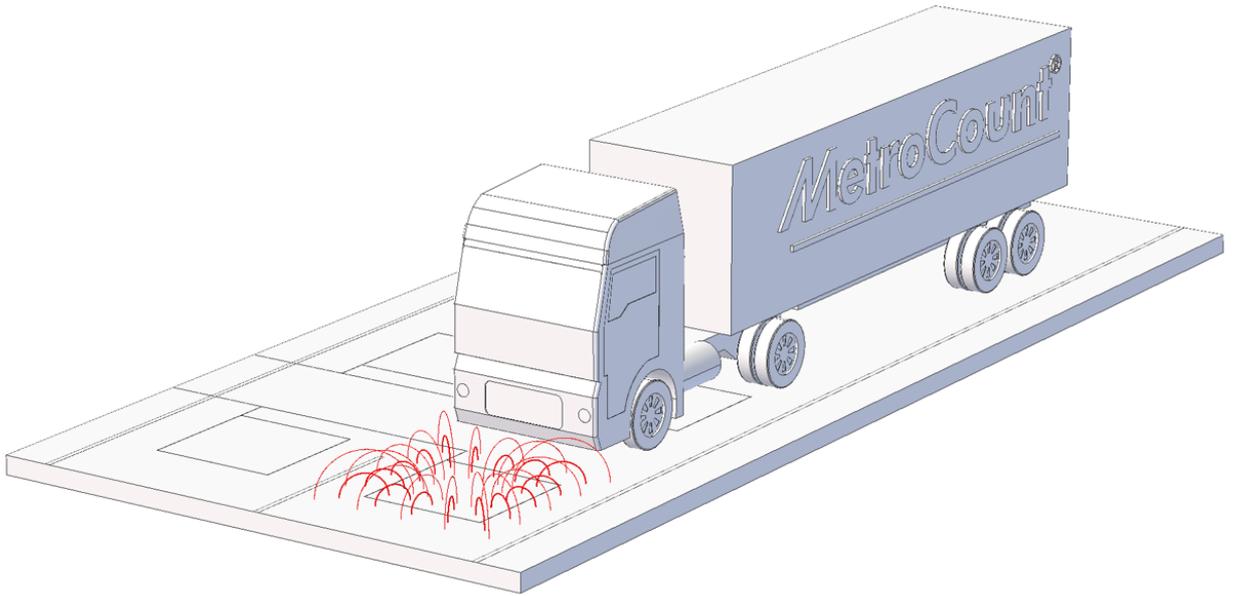
Remote site monitoring and data access is available via MetroCount's Remote Access Module and FieldPod subscription services.

MC5810 Specifications

Storage Capacity	up to 250,000 vehicles per lane
Number of Lanes	2
Power Requirements	6V internal alkaline battery, with optional 6-18V external supply
Internal Battery Life	180 days continuous use, or 5 years as backup for external supply
Optimum Loop Size	2m x 2m
Optimum Loop Spacing	5m
Operating Temperature Range	-10 to 60°C, 14 to 140°F
Loop Inductance Range	50 - 500µH (150µH optimum)
Loop Oscillator Range	45 - 65kHz
Power Consumption	<20mW
Data Storage	Flash memory, with up to 10 years retention

MC5810 Vehicle Detection and Analysis

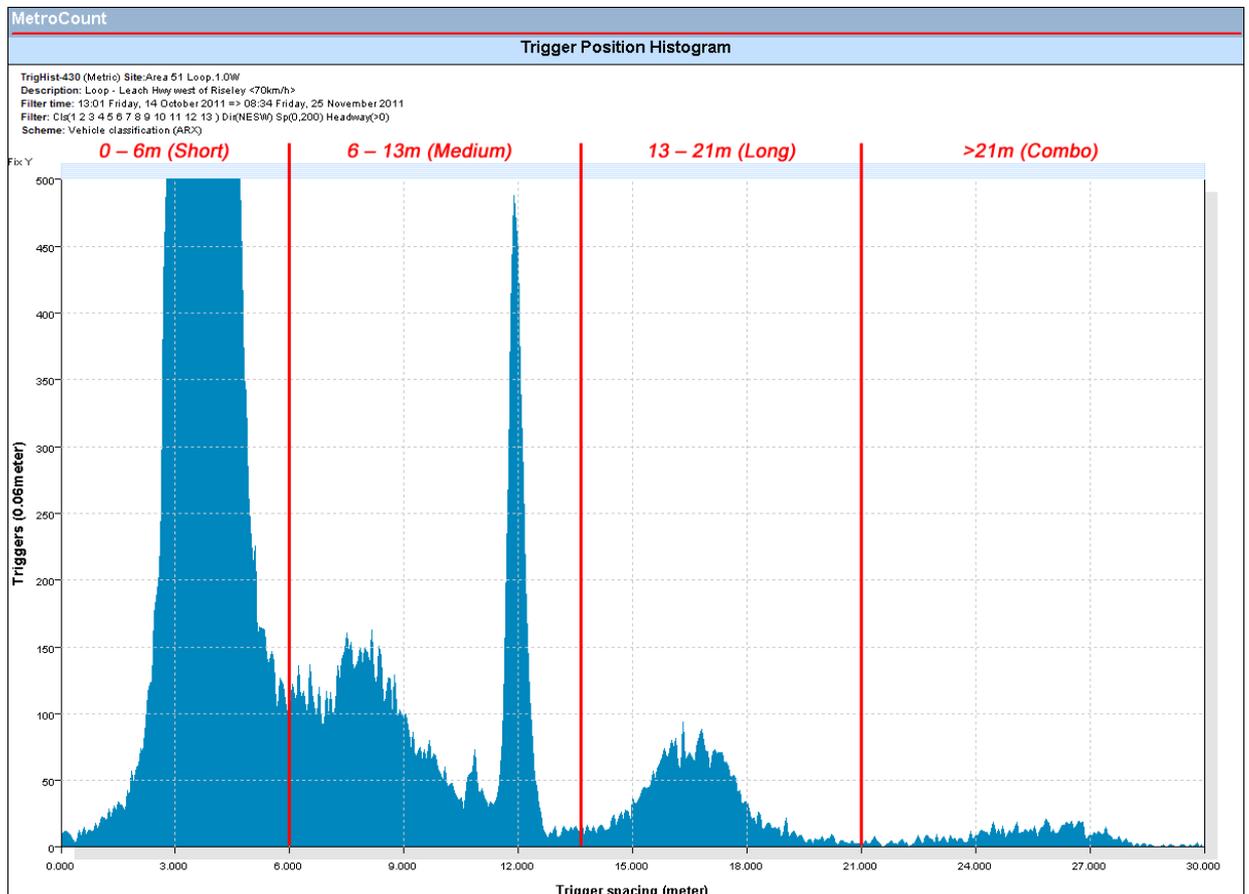
The MC5810 uses loops of wire, embedded in the road, to detect vehicles. A small, alternating current is injected into each loop, creating a magnetic field. When a vehicle passes over the loop, a portion of the magnetic field's energy couples to the conductive parts of the vehicle. The Roadside Unit detects this change and generates a time-stamp to indicate the loop is triggered. Another time-stamp is generated when the vehicle leaves the loop.



Loop Magnetic Field

MetroCount Traffic Executive partitions the time-stamps from a pair of loops into vehicles. The calculated speed of vehicles is very accurate, given the fixed distance between the two loops, and that two identical loops will trigger at the same point. The metallic length of the vehicle is then calculated from the speed, and the time the loops were triggered.

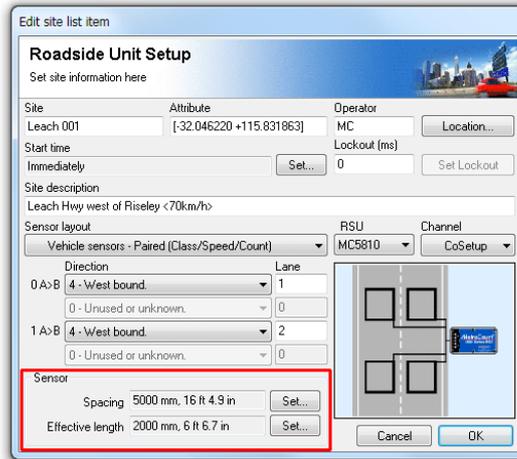
Vehicles can be classified based on their calculated length. The distribution of vehicle lengths can typically be divided into four or five bins, with relatively little overlap. Length-based classification schemes are available for most regions, and new schemes can be easily created and applied to existing data.



Length-based Vehicle Classification

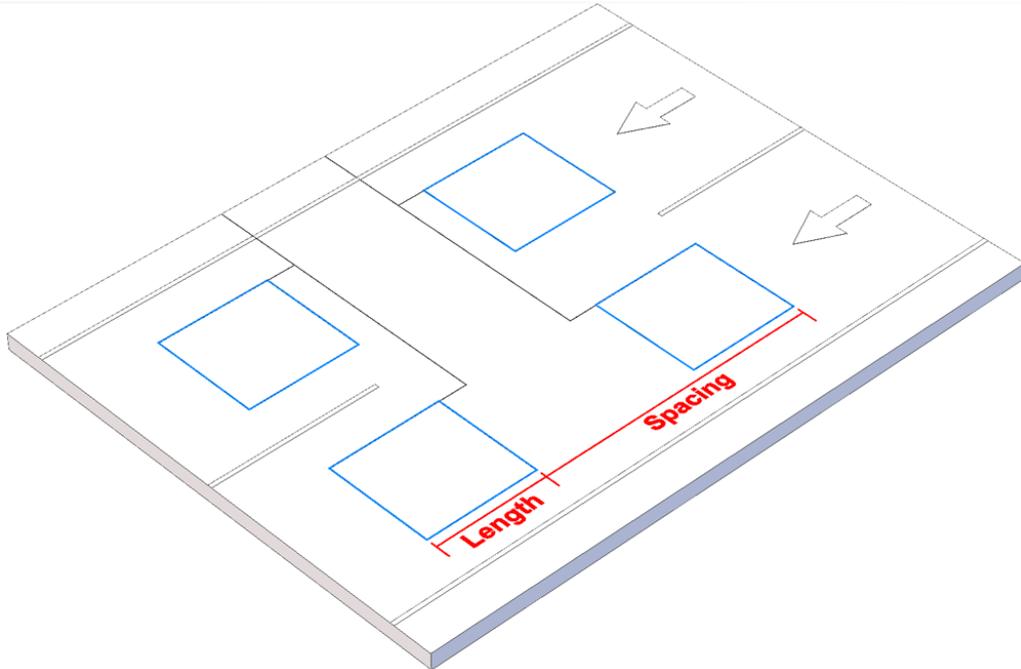
MC5810 Setup

MetroCount Traffic Executive provides the same intuitive setup interface for the MC5810, common to all MetroCount's Roadside Units. A setup operation is all that is required to start the unit logging.



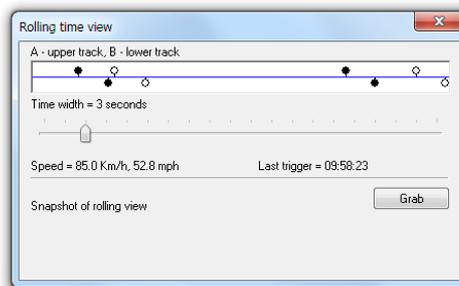
MC5810 Setup

The important setup fields for the MC5810 are the loop spacing and effective length. The loop spacing is the distance from the leading edge of the first loop to the leading edge of the second loop, which is used to calculate the speed of vehicles. The length of one of the loops is used in calculating the length of vehicles.



Loop Spacing and Length

MTE's **View** mode provides confirmation that the Roadside Unit is successfully logging data by showing loop trigger events as vehicles pass the site.



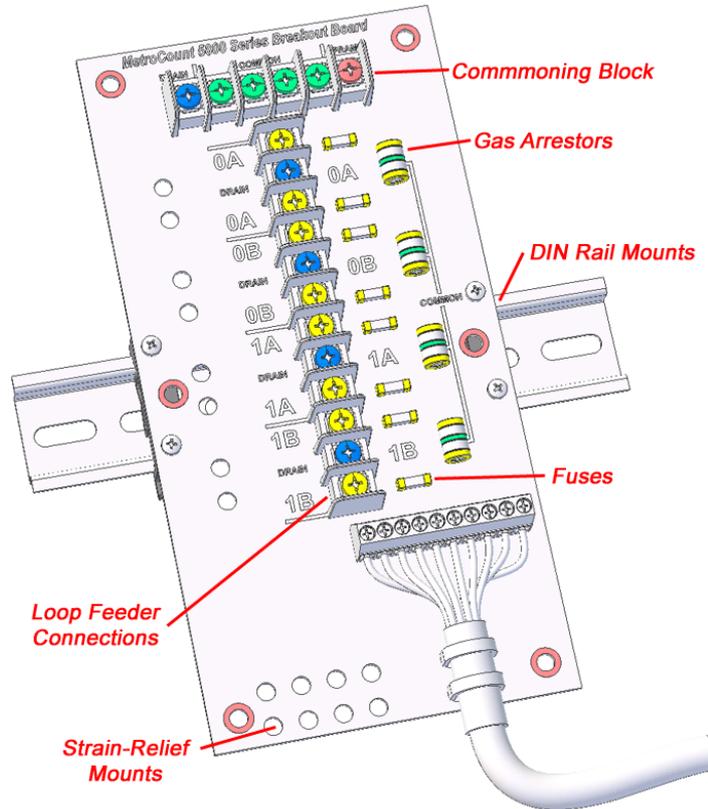
Rolling time view

MC5800 Series Breakout Board

The main design criteria for the MC5810's Breakout Board is reliability. All loop feeder cables terminate into robust screw terminals that can be easily inspected. Multiple tie-down points are provided for cable ties, to ensure adequate strain-relief.

The Breakout Board's commoning block provides a convenient grounding point, crucial to the entire system's electrical protection. Each pair of inputs has a gas arrestor tube to suppress transient voltages, and every input contains a telecommunications-grade fuse for over-current protection. The MC5810's modular design means, in the event of a failure, individual components can be easily replaced.

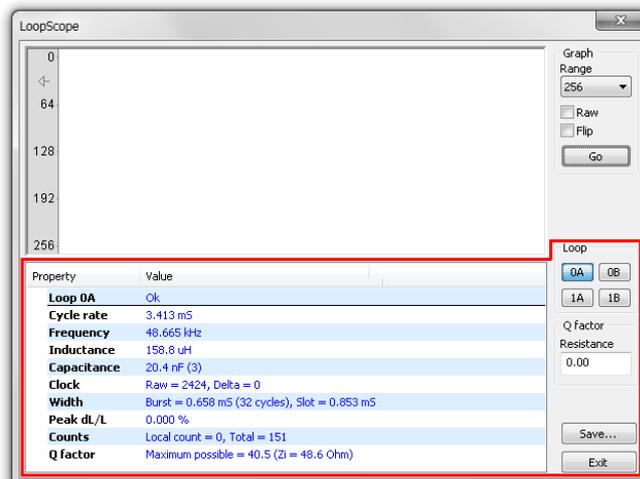
The MC5810's Breakout Board also provides flexible mounting options, including DIN rail mounts and convenient panel-mounting points.



MC5800 Series Breakout Board

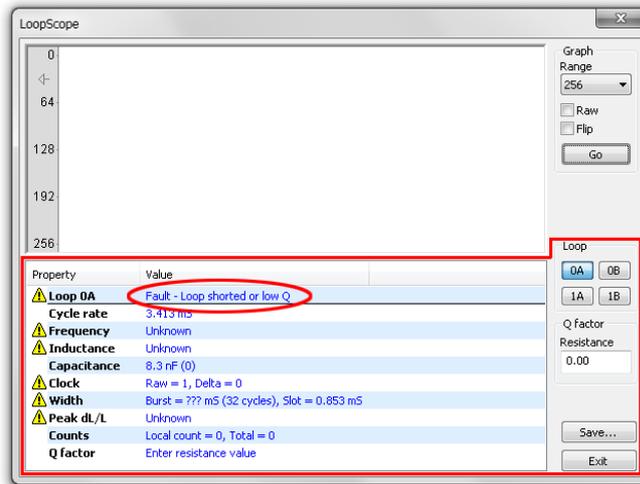
MC5800 Series Diagnostic Tools

MetroCount Traffic Executive's unique **LoopScope** tool provides crucial feedback about complete site operation, from the Roadside Unit through to the loop sensors. Loop properties such as inductance, operating frequency and peak percentage deviation for the last vehicle, are automatically updated for the currently selected loop. An approximate Q-factor will also be calculated if the resistance of the loop is known.



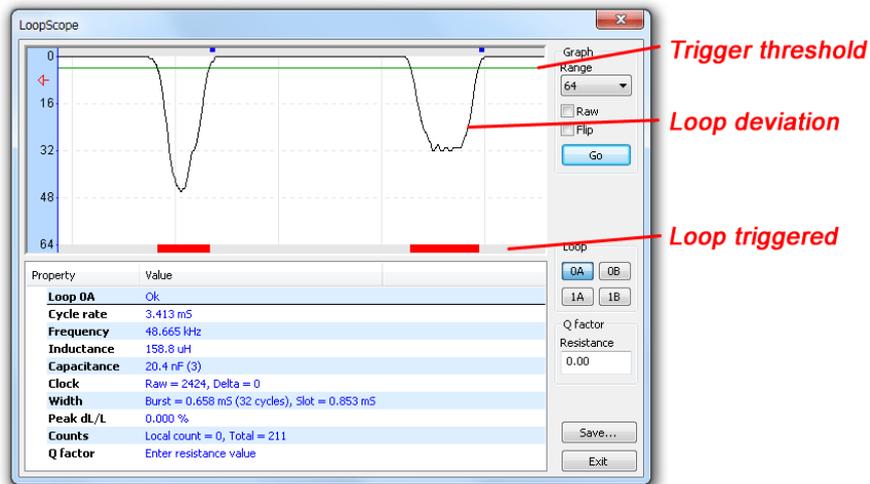
Loop Properties

If any fault condition exists, such as the loop connection being open or shorted, or any of the loop properties are outside reasonable operating values, these conditions can be immediately identified, without the need for additional test equipment.



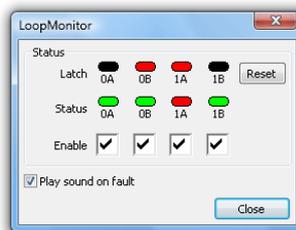
Loop properties indicating a potential fault

The LoopScope also has a real-time rolling view of loop deviation caused by passing vehicles. The chart shows the relative drop in inductance as a vehicle passes the loop, as well as the trigger levels used to register a count. This gives a clear indication of how reliably differing types of vehicles are triggering the Roadside Unit.



Real-time view of passing vehicles

The **LoopMonitor** is an extremely useful tool for testing the correct installation and reliability of all loop connections, such as screw terminals and crimp terminals. The **Status** lights indicate whether each loop is operating correctly (green), or has a fault condition such as an open or short (red). There is also the option to play a tone if a fault condition is detected.



LoopMonitor for testing loop connector reliability

By gently shaking cables and connections, any intermittent or faulty connections can be identified. The **Latch** lights indicate if any fault has occurred since the **Reset** button was pushed, highlighting even the shortest break or short in the connection.

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