MetroCount®

Traffic Data Specialists

MC5805 Operator Guide

MC5800 Series RSUs

3.20

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DRAFT

Introducing the MC5805

Roadside Unit

The MC5805 RSU is a four loop, binned vehicle counter. Loops are connected to the robust, circular connector via a Breakout Board with screw terminals.

The RSU and Breakout board can be mounted in a cabinet on common, top-hat DIN rail, or simply located on a shelf.

The unit is powered by an internal alkaline battery pack for up to six months, which also serves as a long-term backup battery when an external DC supply is connected.

MC5805 Front Panel

Software

The MC5805 RSU requires MTE v3.20 or newer to access all features of the unit. Please ensure MCSetup is installed and tested on a laptop PC.

The MC5805 behaves like any other MetroCount RSU. Performing a Setup starts the unit to it's Active state, logging data. The unit will continue to run until it is stopped via an Unload, or its memory is filled.

The MC5805 is a binned counter, with a default bin size of five minutes. Bins can always be aggregated into larger bins, such as 15 or 60 minutes, when producing reports with MCReport.

The MC5805's four inputs are divided into two channels - 0 and 1. Only one Setup operation is required to automatically start both channels. Each channel must be unloaded separately, producing two standard MetroCount binned datasets, with two inputs per file (A and B).

Using MCSetup

RSU Setup

Before setting up the MC5805, ensure all loops are connected. If this is the first use of this version of MCSetup, check that the correct comms port has been selected in the Preferences.

To setup the unit, click the **Setup** button on MCSetup's main toolbar. Remember that any existing data in the RSU will be overwritten. If the RSU is already running it must be stopped via an Unload, or Factory Setup.

The MC5805's four inputs are divided into two channels. Both channels will be automatically setup together.
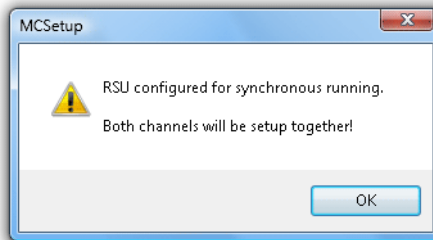

Setup reminder
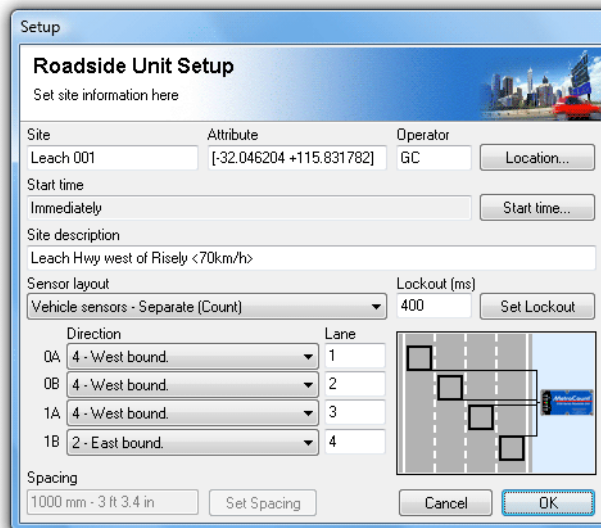
MC5805 Setup

| Setup Field	Description
Site	Site name or number (max. 20 characters).
Attribute	Additional site information (max. 25 characters). Suggested use is site coordinates, which can be entered by clicking the Location button.
Operator	Operator initials (max. 3 characters).
Start time	Default is to start the RSU immediately. The RSU will be automatically deferred to the next bin boundary.
Site description	Description of the site (max. 70 characters).
Sensor layout	Type of sensors used. Vehicle sensors (loops) is the only option for the MC5805.
Lockout	Minimum time before an input can be retriggered after the last untrigger event. Eliminates multiple counts for articulated vehicles. Default is 350 milliseconds.
Direction and Lane	A direction code and lane number is provided for each input.

LoopScope

MCSetup's **LoopScope** is used for checking loop properties and verifying correct operation. To access the LoopScope, select **Technical » LoopScope** from MCSetup's main menu. MCSetup must be connected to a MC5805 that is running.
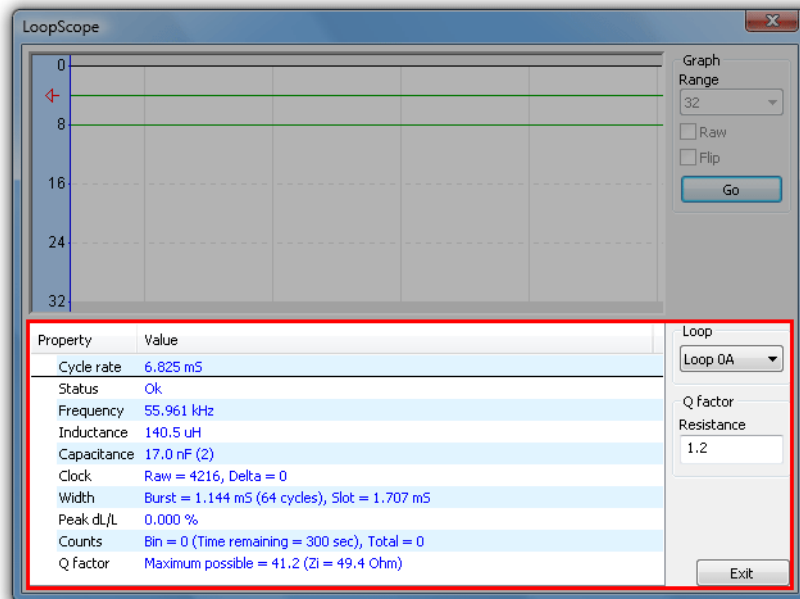

Loop Properties

Initially the LoopScope shows the properties for the loop selected in the **Loop** drop-down list on the right. This is the default button, so each loop can be easily selected by using the up and down keyboard arrows. The loop properties update once per second.

The **Status** property indicates whether the loop is OK, or whether a potential problem exists. Common issues are the loop being open, shorted or having a low Q, preventing the loop from operating in its normal range. An unused input will obviously report as loop open. If the approximate resistance of a loop is known, such as by measuring the loop with a multimeter, its value can be entered in the **Q factor Resistance** box, and an approximate Q factor will be calculated.
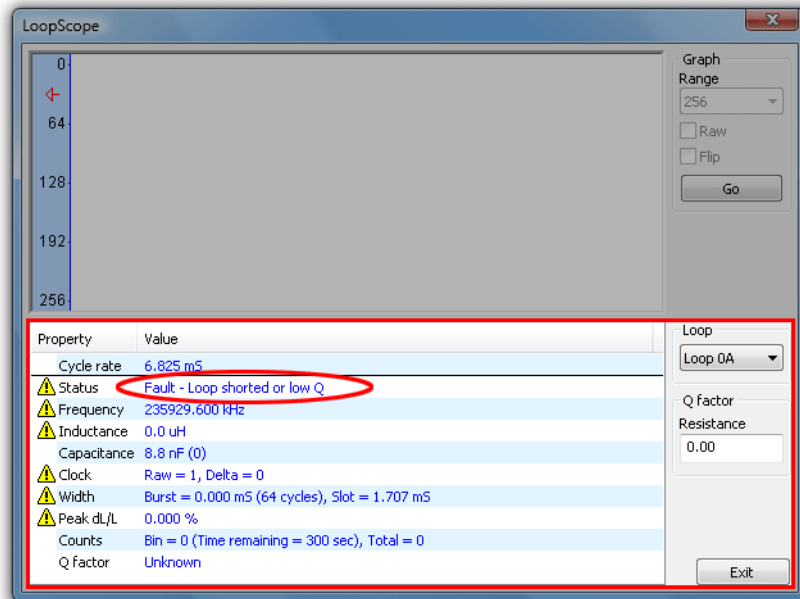
Loop properties indicating a potential problem

To start the LoopScope's real-time view, click the **Go** button. The chart's vertical scale can be adjusted using the **Range** drop-down list.
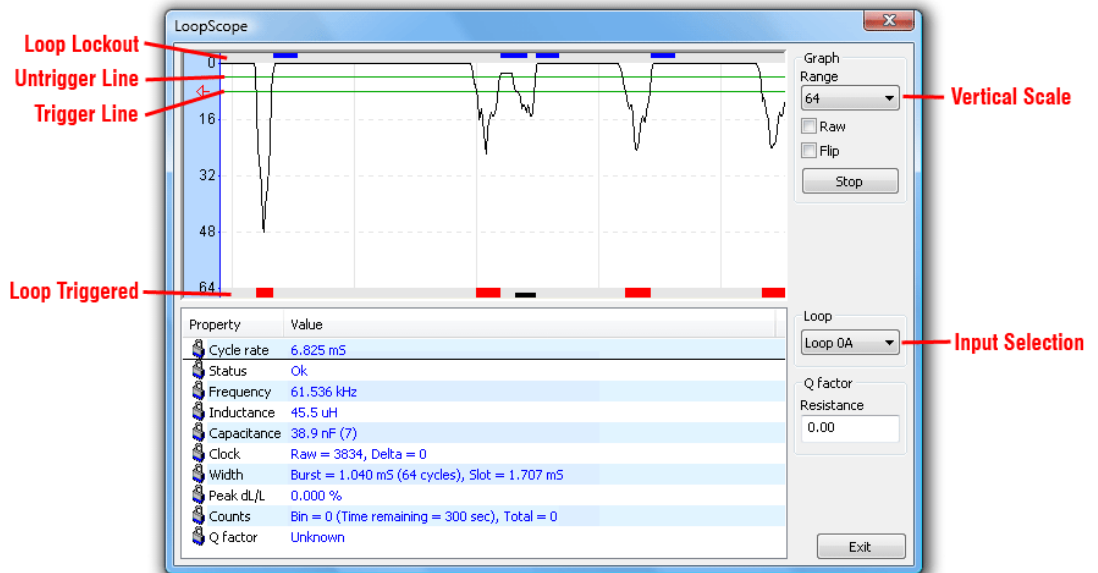

LoopScope real-time view

The real-time view is a rolling chart of the relative deviation in inductance of a loop as a vehicle passes over it. Once the deviation drops below the *trigger* line, the loop is triggered and a count is registered in the current bin. The loop will remain triggered until the deviation increases back over the *untrigger* line. At this point, the lockout period starts, preventing any further counts of triggers during this period.

The baseline (top of the chart) is the steady-state inductance when no vehicle is present. The baseline is constantly adjusted internally to filter out low-frequency drift in the loop, over a period of minutes. The trigger and untrigger thresholds are relative to the current baseline.

The **Raw** checkbox shows an unprocessed view of the loop's inductance. In this mode, changes in inductance (both positive and negative) can be viewed, which is useful for checking loop stability and sources of interference. The displayed value is relative to when the rolling chart was last started.

Ideally the raw view will be a flat line when no vehicles are present. Rapid drift or oscillations may indicate a problem with the loop.
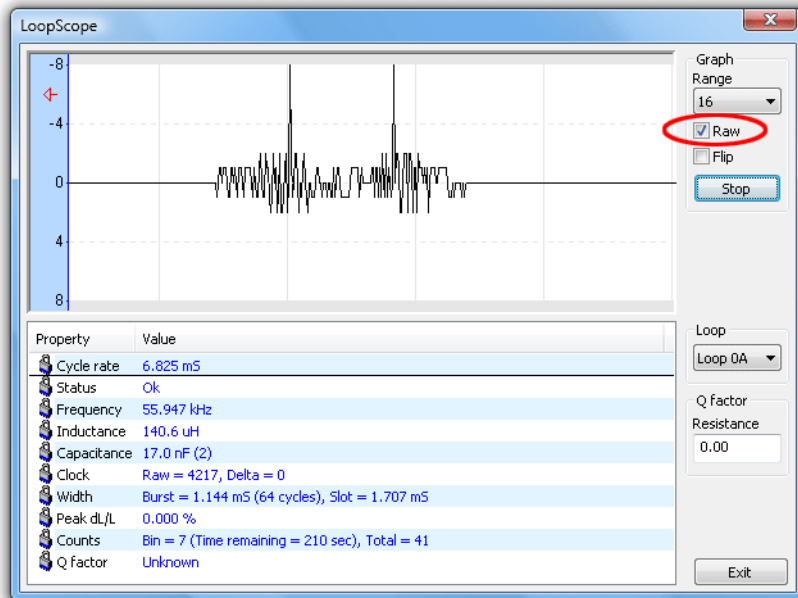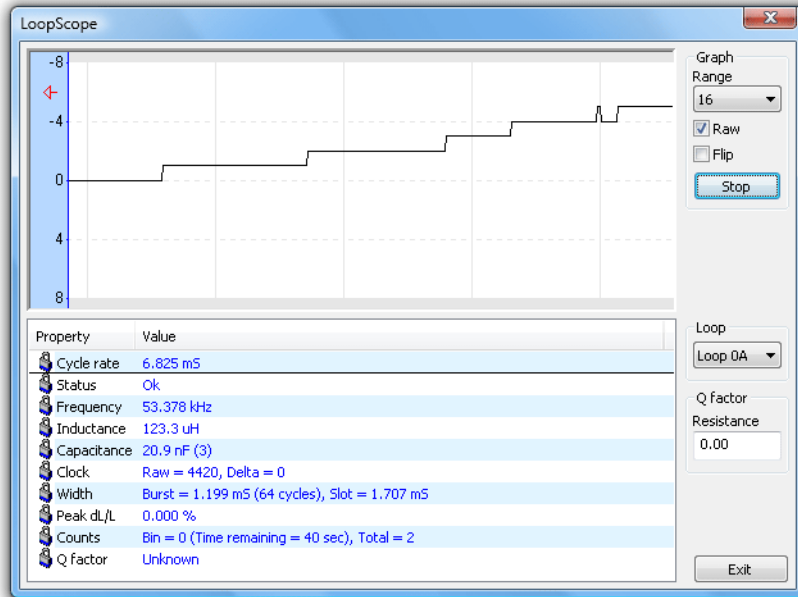
LoopScope in raw mode showing drift and interference
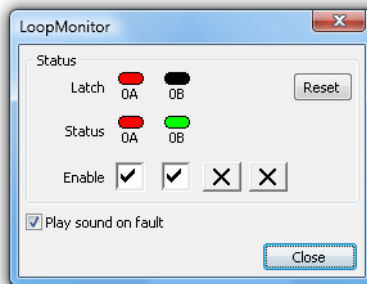
LoopMonitor

MCSetup's **LoopMonitor** is used for checking continuity of all loop connections. To open the LoopMonitor, select **Technical » LoopMonitor** from MCSetup's main menu. MCSetup must be connected to a MC5805 that is running.

On entering the LoopMonitor, uncheck any of the **Enable** boxes for loops that are not connected, and click the **Reset** button to clear the **Latch** indicators.
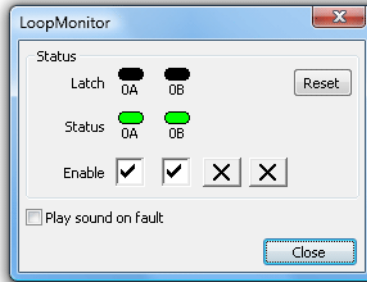

LoopMonitor showing loops 0A and 0B operating normally

The **Status** row of indicators show the instantaneous state of each loop. A green indicator means the loop is operating within its normal range, and red indicates a possible fault, such as the loop being open or shorted. To play an alert tone when a fault condition exists, check the **Play sound on fault** option.

**LoopMonitor showing a fault on loop 0A**

The **Latch** row of indicators enables intermittent faults to be detected. Any fault will cause the loop's **Latch** indicator to turn red, and remain red until the **Reset** button is pushed. Gently shake or move feeder cables and connections to detect even the shortest fault due to problems such as faulty crimps or joins. Connections away from the main cabinet, such as junction boxes, can also be inspected and the Latch indicator checked on return.
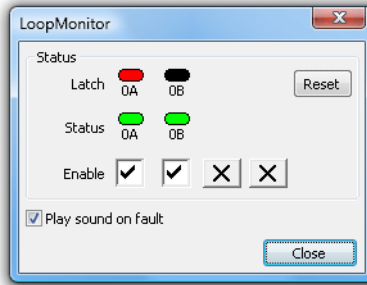
LoopMonitor indicating a transient fault has occurred

Bin View

The MC5805's View mode can be accessed by clicking the **View** button on MCSetup's main toolbar. This displays current bin totals for the currently selected channel. The peak deviation caused by the last vehicle is also displayed. Refer to the LoopScope for further details.
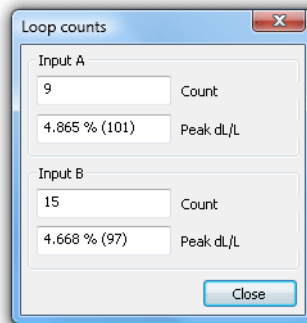

View of current bin totals

Unloading Data

The MC5805's four inputs are divided into two channels. An Unload transfers data from the currently selected channel into a standard MetroCount dataset with two inputs (A and B). Remember to unload both channels if loops from both channels are used. The current channel is displayed on MCSetup's status bar at the top, and can be changed by clicking the **Channel** button on the main toolbar.

To unload the current channel, click the **Unload** button on MCSetup's main toolbar. The dataset location uses the **Base folder for unloaded data** from MCSetup's Preferences. The suggested file name uses the Site field and current date. The file extension will be **.ecX** where **X** is the lane number of the A-input of the current channel. Provided each input was assigned a unique lane number on setup, the unload file from each channel will have a unique extension.

To stop the unit, ready for another setup after the unload, check the **Stop the RSU after unloading data** option. Stopping either channel stops both channels.
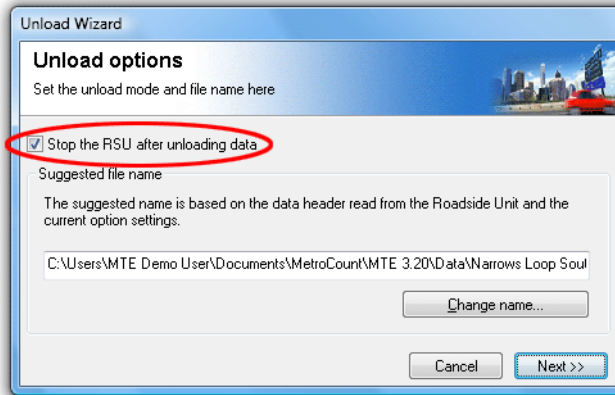
MC5805 Unload

Click the **Next** button, confirm the file location, and the unload will begin.
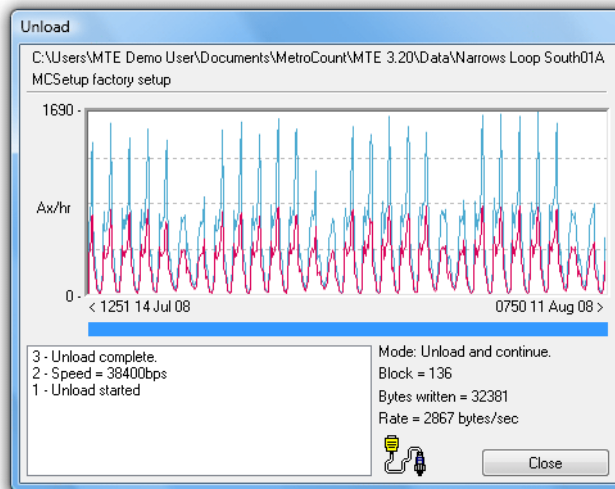
MC5805 Unload progress

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