

MetriNet

M-Node PC Software Utility Manual

Home Office

Analytical Technology, Inc.
6 Iron Bridge Drive
Collegeville, PA 19426

Ph: 800-959-0299
610-917-0991

Fax: 610-917-0992

Email: sales@analyticaltechnology.com

European Office

ATI (UK) Limited
Unit 1 & 2 Gatehead Business Park
Delph New Road, Delph
Saddleworth OL3 5DE

Ph: +44 (0)1457-873-318

Fax: + 44 (0)1457-874-468

Email: sales@atiuk.com

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Analytical Technology, Inc. (Manufacturer) warrants to the Customer that if any part(s) of the Manufacturer's equipment proves to be defective in materials or workmanship within the earlier of 18 months of the date of shipment or 12 months of the date of start-up, such defective parts will be repaired or replaced free of charge. Inspection and repairs to products thought to be defective within the warranty period will be completed at the Manufacturer's facilities in Collegeville, PA. Products on which warranty repairs are required shall be shipped freight prepaid to the Manufacturer. The product(s) will be returned freight prepaid if it is determined by the manufacturer that the part(s) failed due to defective materials or workmanship.

This warranty does not cover consumable items, batteries, or wear items subject to periodic replacement including lamps and fuses.

Gas sensors carry a 12 months from date of shipment warranty and are subject to inspection for evidence of misuse, abuse, alteration, improper storage, or extended exposure to excessive gas concentrations. Should inspection indicate that sensors have failed due to any of the above, the warranty shall not apply.

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This warranty is in lieu of all other warranties (including without limiting the generality of the foregoing warranties of merchantability and fitness for a particular purpose), guarantees, obligations or liabilities expressed or implied by the Manufacturer or its representatives and by statute or rule of law.

This warranty is void if the Manufacturer's product(s) has been subject to misuse or abuse, or has not been operated or stored in accordance with instructions, or if the serial number has been removed.

Analytical Technology, Inc. makes no other warranty expressed or implied except as stated above.

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M-Node PC Utility

1.1 General

ATI supplies a free PC software utility for use with the M-Node sensors to enable a quick and easy user interface for calibrating or configuring sensors away from the Q52/MetriNet monitor. Operation is very similar to that of the Q52, but the software utility does require the use of a PC and a special USB cable (cable available from ATI.)

1.2 ATI USB-M8 M-Node Sensor Cable

A special USB-to-M8 cable is available from ATI that will communicate with the M-Node sensor, and also supply power to the sensor. This cable can then be used in conjunction with the free software utility to set up new sensors. The cable plugs into the USB port of a PC, and requires a driver from FTDI, which should be installed automatically when the USB connector is inserted. If not, download and install FTDI driver from here – <http://www.ftdichip.com/FTDrivers.htm>

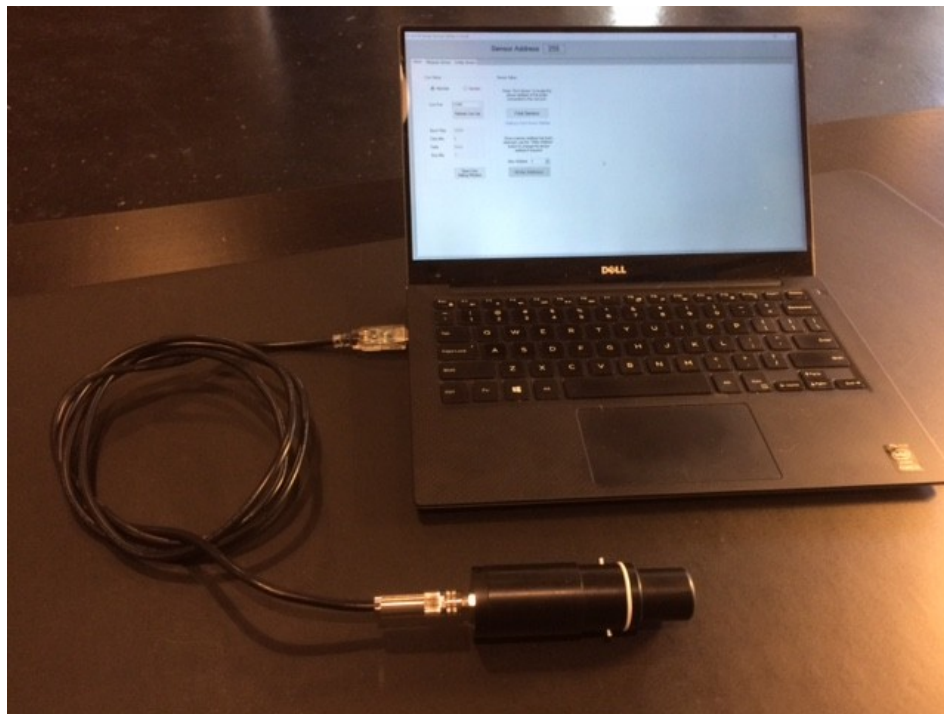


Figure 1 – M-Node Sensor Connected to PC Via ATI USB-M8 Cable

To aid in diagnosing port problems on the PC, the M-Node USB-M8 cable flashes a red LED on every transmission to the M-Nodes sensor, and flashes a green LED on every accepted message from the sensor.



Figure 2 – ATI USB-M8 Sensor Cable Showing Sensor Responses

1.3 Sensor Utility Operation

Once the utility program is installed and launched, the first screen presented is the sensor address connection screen.

1.31 Mode Selection

If selected for “MetriNet” mode, the communication parameters are fixed to a certain configuration, which makes the sensor slave address easy to find. Click on “Find Sensor” and tool will scan slave addresses in an attempt to hook up to sensor. Once address is found, top of screen will show connection address, and you will note a green light flashing on and off on the USB end of the ATI sensor cable as PC sends out and receives information.

Generic Mode can be used to set non-standard communication settings, but only Parity and stop changes are supported at this time. If you change those, you must remember to continue to connect at those settings in Generic mode as the tool will not scan at all options of the generic settings.

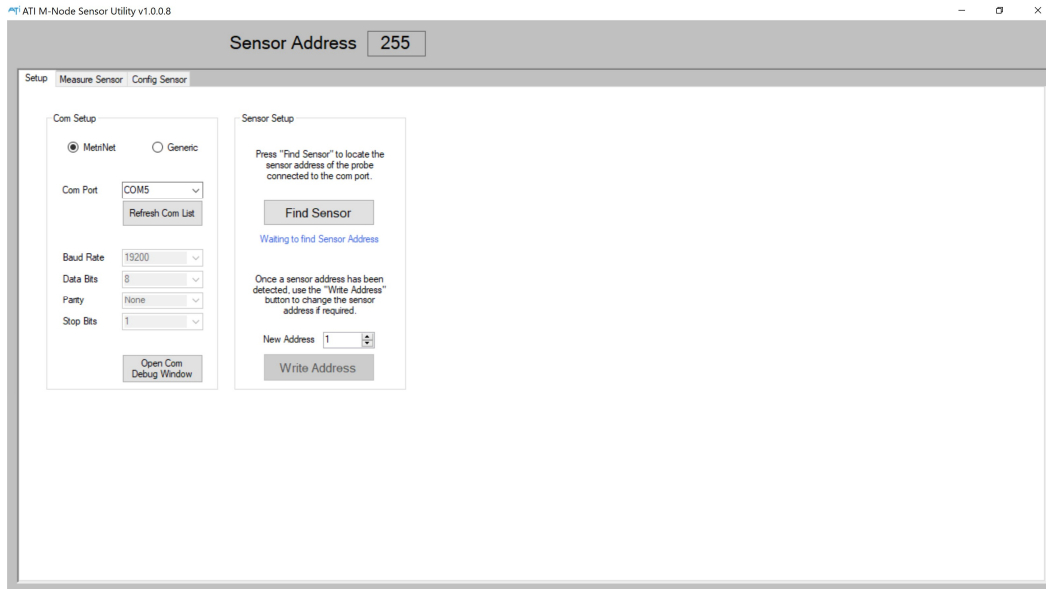


Figure 3 – ATI Sensor Utility Setup Tab – Connecting to Sensor

1.32 Set Sensor Address

If desired, the user may change the sensor slave address once connected, by entering the address in the “**New Address**” window and clicking on “**Write Address**.”

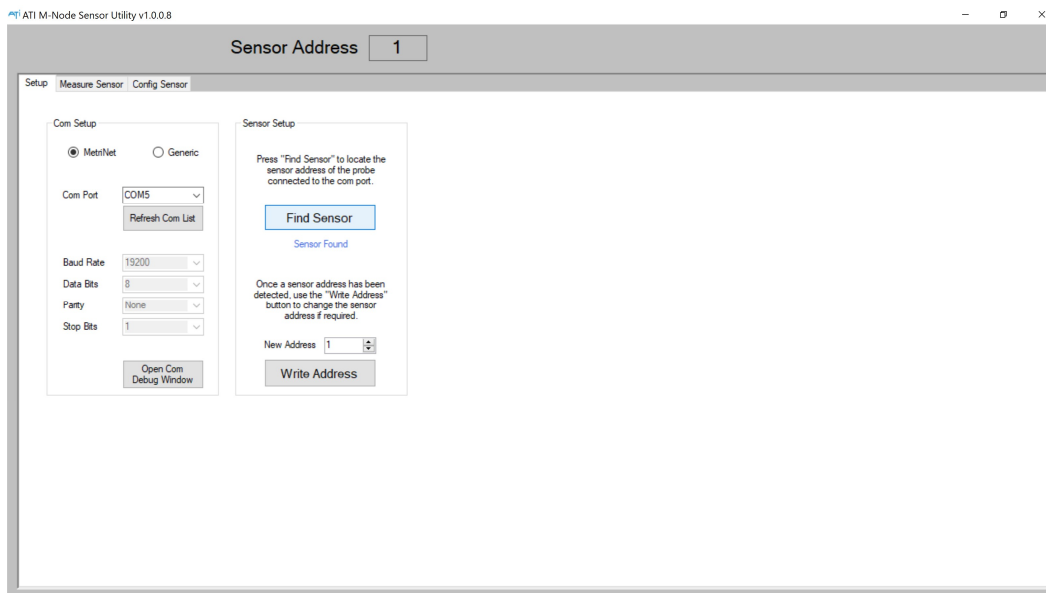


Figure 4 – ATI Sensor Utility Setup Tab – Sensor Address Found

1.33 Comm Debug Tab

Finally, once connected, clicking on “**Open Com Debug Window**” will open an additional window that will show the actual exchanges between the PC (master) and sensor (slave.) This debug window will then stay open on all the other tabs also. You can close that debug window simply by clicking on the “**Close Com Debug Window**” button.

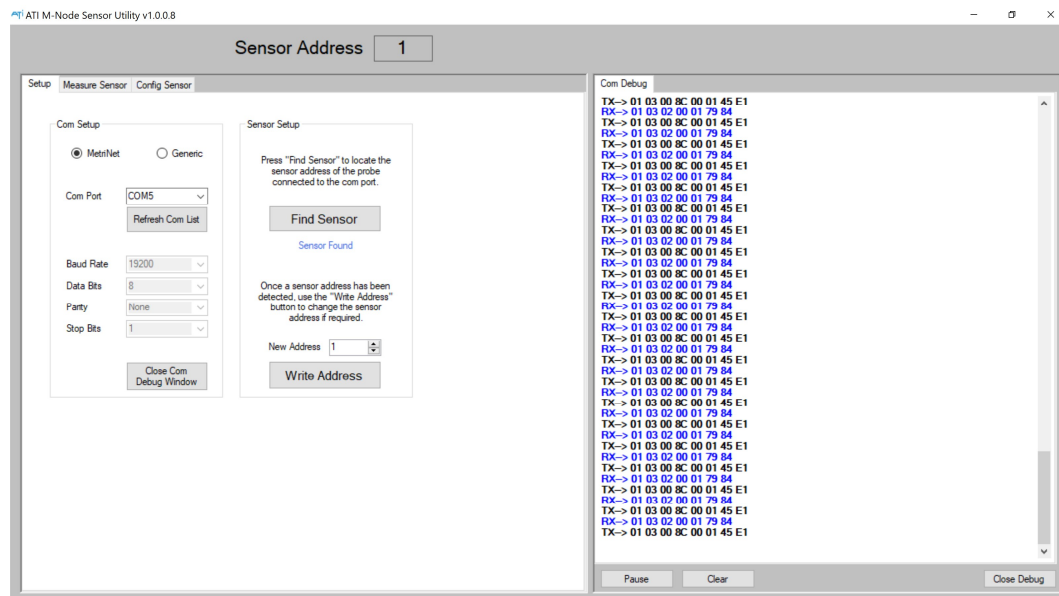


Figure 5 – ATI Sensor Utility Setup Tab – Communications Debug Window

1.34 Measure Sensor Tab

Once the sensor has been connected at the proper slave address, the user can then click on the “Measure Sensor” tab to view all the data that they would see on the lower screen of the Q52 transmitter for a particular sensor slave. Unlike the Q52, however, all this lower data is shown at once on a single screen.

The screens shown here can vary a bit by sensor parameter, but most are common to very sensor. The “S1” is the current sensor slave number. See section below for a description of the various types of data which can be displayed at this point. The “**Stop Scan**” button can be used to temporarily stop polling for sensor data.

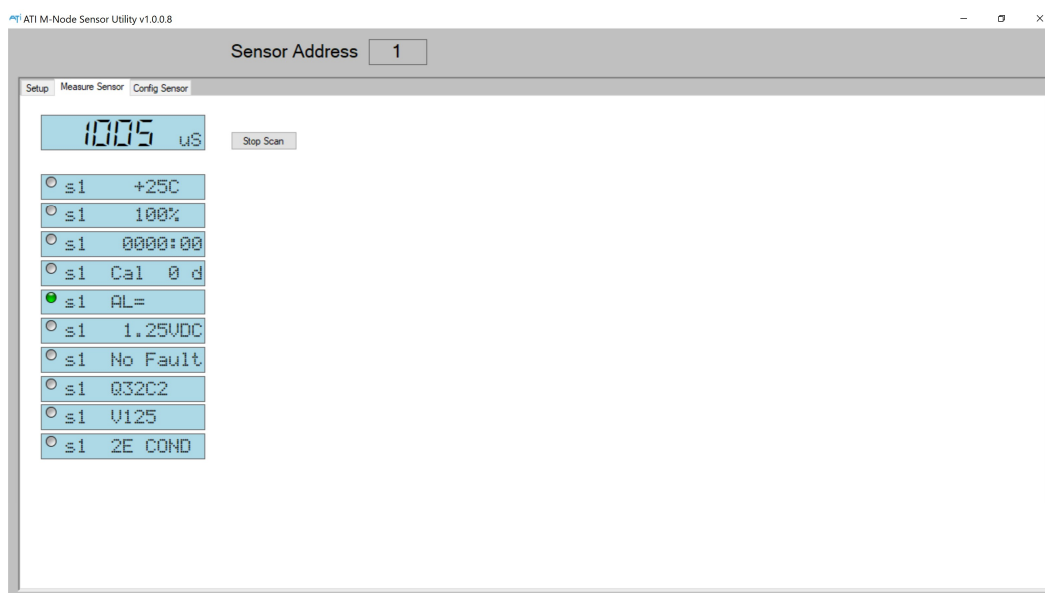


Figure 6 – ATI Sensor Utility Measure Sensor Tab

Lower Display Screens

These are data screens that show up in the Q52, Sensor Utility, or portable calibrator. Some data lines only show up with specific parameters.

Top	1005 uS	Sensor main measurement value and units
S1	+25C	Sensor temperature reading
S1	220% Sig	Sensor signal reading (nom 100%) (Q32T)
S1	0% Fol	Sensor fouling reading (nom 0%) (Q32T)
S1	0% Dry	Sensor dry reading (nom 0%) (Q32T)
S1	-16 nA	Sensor raw current (Q32H, Q32D)
S1	55 mV	Sensor raw millivolts (Q32P/R/F/K)
S1	0%sat	%Saturation reading (Q32D)
S1	100%	Sensor calibration slope
S1	0.0nAz	Sensor offset current (Q32H/D)
S1	0.0ntuz	Sensor offset turbidity (Q32T)
S1	0 mVz	Sensor mV offset(Q32P/R/F/K)
S1	0000:00	Time powered, days:hours
S1	Cal 0d	Time since last calibration
S1	AL =	Alarm setpoints triggered (A, B, C, ...)
S1	1.25 VDC	Voltage output of sensor
S1	No Fault	Existing sensor faults (or none)
S1	Q32C2	Sensor model number
S1	V125	Sensor firmware version

S1 2E COND 0-2000uS

Sensor text field (default type)

1.35 Config Sensor Tab

The “**Config Sensor**” tab allows the user to change all the settings inside the sensor, can calibrate the sensor when required. This operates exactly like the Q52 interface, and the various methods of calibrations and configuration changes are discussed earlier in this manual. The moving green dot on the screen scrolls to each screen to show that it has just been updated from a recent query.

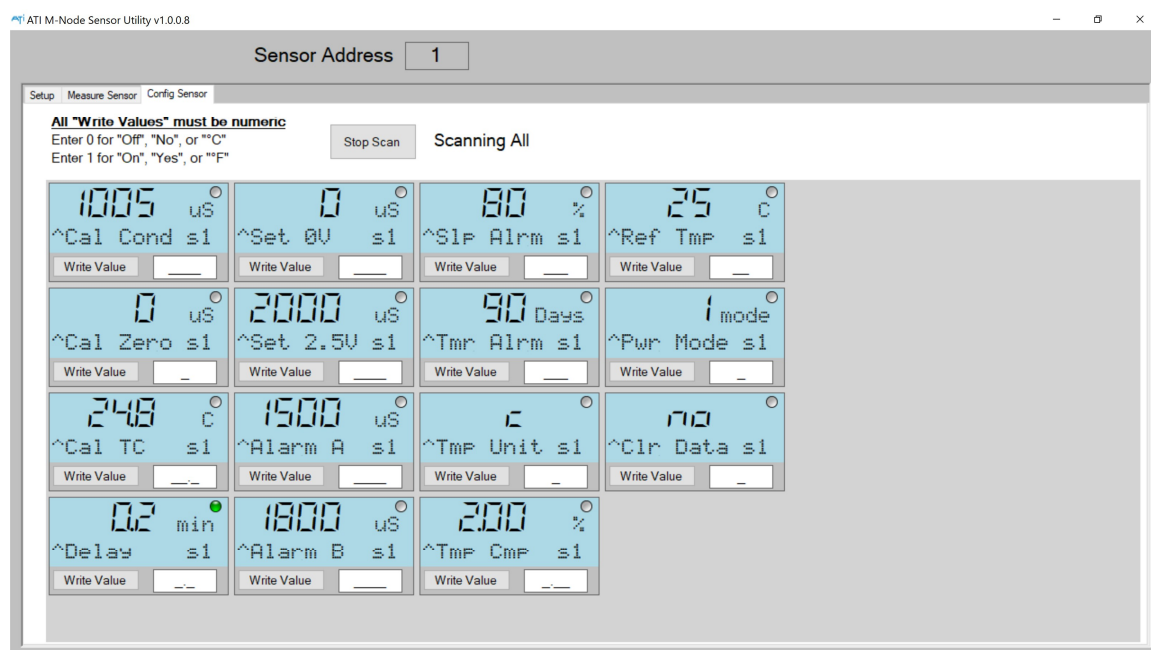


Figure 7 – ATI Sensor Utility Config Sensor Tab – M-Node Menus

When changing a value, enter the new value next to “Write Value” below the actual menu screen. Click on the “Write Value” button, and the green dot will stop on that screen while the request is processed by the sensor. **While this is happening, wait for the green dot to begin moving again before attempting to enter any new data or leave the tab.** Any messages from sensor (like Accepted!, or Fail!) will be shown during the processing of the value.

Enter the number fields the same way you see it on the display, noting the decimal point position in the entry field. All entries must be numbers, so for entries requiring fields like YES or NO, use numbers as shown in the small key at the upper right of the window.

A simple example is shown in the figure below. A new Delay value is entered, and the sensor responds in the lower screen of the menu with the message “Accepted!” After a few seconds, the green dot will begin scrolling menus again.

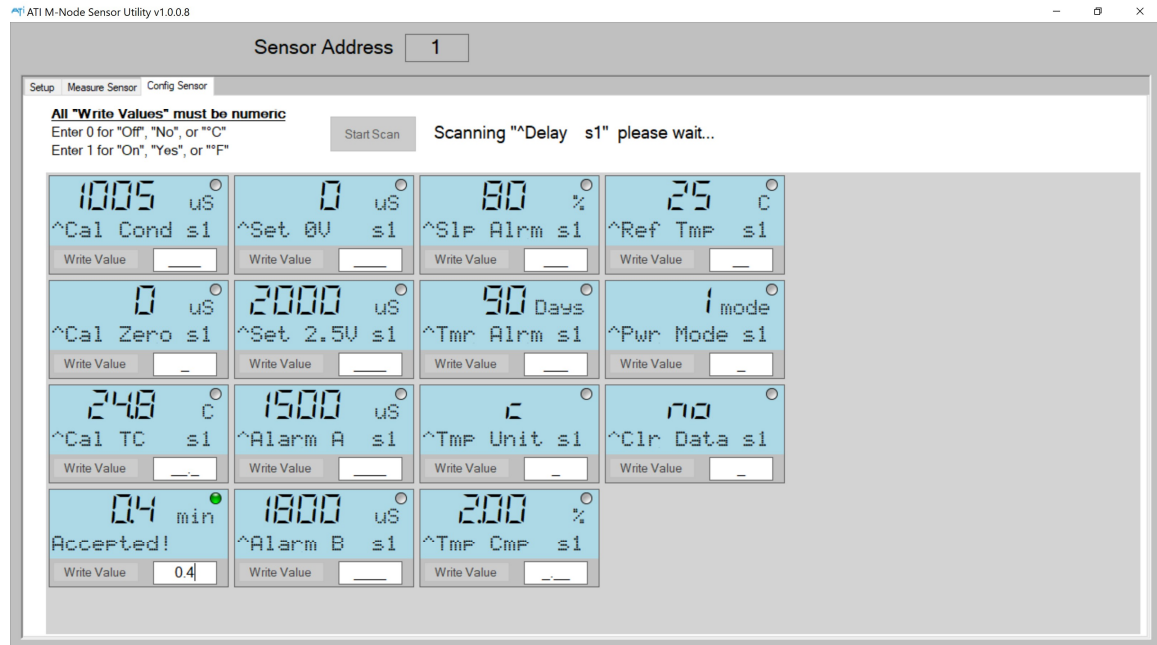


Figure 8 – ATI Sensor Utility Config Sensor Tab – New Delay Value Entered

Spare Parts

<u>Part No.</u>	<u>Description</u>
------------------------	---------------------------

Spare Sensors

00-1733	Free Chlorine M-Node, 0-4.00 ppm
00-1734	Conductivity M-Node, 0-2000 uS
00-1735	pH M-Node, 2-12 pH
00-1736	ORP M-Node, 0-1000 mv.
00-1737	Dissolved Oxygen M-Node, 0-20.00 ppm
00-1738	Dissolved Ozone M-Node, 0-4.00 ppm
00-1739	Turbidity M-Node, 0-40.00
00-1758	Combined Chlorine M-Node, 0-4.00 ppm
00-1780	Total Chlorine M-Node, 0-4.00 ppm
00-1781	Fluoride M-Node, 0.1-10.00 ppm
00-1782	Chlorine Dioxide M-Node, 0-4.00 ppm

Spare Sensor Components

03-0511	Electrolyte chamber, Q32 Sensors
05-0121	Q32 Electrolyte Chamber o-ring kit (3 each 42-0029 and 42-0061)
45-0354	Membrane Cap
48-0197	Membrane holder, titanium (for DO ₂ and DO ₃ sensors)
05-0120	Free chlorine membranes, pkg. of 10
05-0128	Combined chlorine membranes, pkg. of 10
05-0122	Total Chlorine membrane cap, pkg. of 2
09-0011	Free chlorine electrolyte, 60 ml.
09-0010	Combined chlorine electrolyte, 60 ml.
09-0089	Total chlorine electrolyte, 60 ml.
09-0091	pH/ORP/FI ⁻ Reference gel
02-0245	pH/ORP/FI ⁻ Reference Junction
05-0135	D.O. membrane, 2-mil, pkg. of 10
09-0090	D.O. electrolyte, 60 ml.

Cable Assemblies

31-0202	Node to bus bar cable, 12" (30 cm)
31-0204	Q52 to bus bar cable, 155" (4 m)
31-0208	Q52 power supply cable, 12" (30 cm)
31-0212	Bus bar jumper cable, 18" (46 cm)