



# GP-DU SDI-12 Display Unit Operation Manual

The GroPoint SDI-12 Display Unit can read all GroPoint SDI-12 sensors. It is a useful device for viewing current measurement conditions when sensors are not connected to an SDI-12 Logger. The display unit automatically detects a sensor's address, issues the measure command, and then displays the results when the measurement is completed. Although designed with GroPoint sensors in mind, the display unit can also be used with other SDI-12 sensors provided the sensors can operate from a nominal 9V battery voltage.



## To Operate the Display Unit:

1. Press the POWER button to activate the display unit. The message "READY" is displayed.
2. Connect a sensor to the display unit's mating connector. If the sensor is bare wire, use item #2631 Alligator Clip Adapter (details last page) to connect the sensor wires:  
 Power: RED  
 Ground: GREEN  
 SDI-12 I/O: WHITE
3. Press the MEAS button to start a measurement. The display shows "READING..." while the measurement is taking place. When the measurement is finished, the results are shown. For GroPoint sensors, there will be a text label indicating the type of measurement, for example "MOIS" for a GP Lite sensor's soil moisture reading and "TEMP" for its temperature reading. Below is a table of labels for various sensor types:

Device	Parameter Measured	Label
GP Lite Sensor	Soil Moisture (%)	MOIS.±mm.m
	Temperature (°C)	TEMP.±tt.t
GP Lite Profiling Probe	Soil Moisture (%)	SEG.n±mm.m (n is current segment)
	Temperature (°C)	T.n±tt.t (n is current temperature sensor)
GP Pro Sensor	Soil Moisture (%)	MOIS.±mm.m
	Soil Conductivity (dS/m)	EC.±s.ss
	Temperature (°C)	TEMP.±tt.t
	Wetting Front	WF.±n
Other SDI-12 Sensors*	Unknown	VL.n.±d.ddd for M! Mc.n±d.ddd for M1! to M9! (c is measure command number, n is measurement number, d.ddd is reading value)*

\* see [Third Party SDI-12 Sensors](#) for more information

4. For devices that support multiple data values per measurement, press the NEXT and PREV buttons to scroll through the list of available values. Scrolling past the last value displays the first measurement and vice versa.
5. Press and hold the MEAS button to take continuous readings from the currently displayed measurement value. The display is continuously updated with new measurements (cycle rate depends on the sensor's measurement time).
6. If an error occurs, for example an attempt to measure with no sensor connected, the error message "ERROR -- NO SENSOR DETECTED" will be scrolled across the screen. Press the MEAS, NEXT or PREV button to return the unit to the "READY" state.

The display unit automatically turns off if there have been no button presses after about 30 seconds. To turn back on simply press the POWER button.

### Third Party SDI-12 Sensors

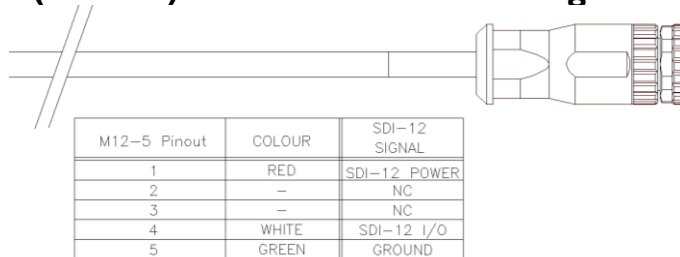
The SDI-12 reader unit may be used with other third-party SDI-12 sensors that can operate from a 9V battery. For M! commands the displayed label is "V.L.n ±d.ddd" as shown in the table above. Each measurement value is display as "d.ddd". Four digits of precision is the maximum that the GPDU supports. If the NEXT button is pressed past the last value in the current M! command measurement, subsequent "Mc!" commands are issued. The label changes to "Mc.n±d.ddd" where 'c' is the measure command (M1! to M9!), 'n' is the measurement number. For example, M1 -- 1 for the first value of the M1! command. If the "Mc!" command is not supported, the GPDU iterates through the possible "Mc!" commands until a supported command is found.

### Display Unit Battery

The display unit is powered by a 9V alkaline battery. If the battery voltage level drops too low (less than about 6.5V), when the unit is powered on a "\*\*\* LOW BATTERY \*\*\*" message will be scrolled across the display. You should change the battery if this message is shown. Open the compartment on the back of the display unit. Disconnect the old battery and replace with a new 9V alkaline battery. Close the battery compartment.

Note: you can still take readings if the low battery message is received, however in many cases sensor reading accuracy is not guaranteed for a supply voltage of less than 6.5V (minimum 7.2V for GroPoint Pro sensor).

### M12-5 Pin (code A) Connector Pin Out Diagram



### SDI-12 Alligator Clip Adapter (Optional) item #2631

The SDI-12 Alligator Clip Adapter can be used to connect the SDI-12 display unit to third party SDI-12 sensors. Connection of the alligator clips should be as follows:

Power: RED  
 Ground: GREEN  
 SDI-12 I/O: WHITE

