

SONO Guide Wiring SM-USB

Last Updated: April 19, 2018

Before Beginning:

Required Equipment and Software:

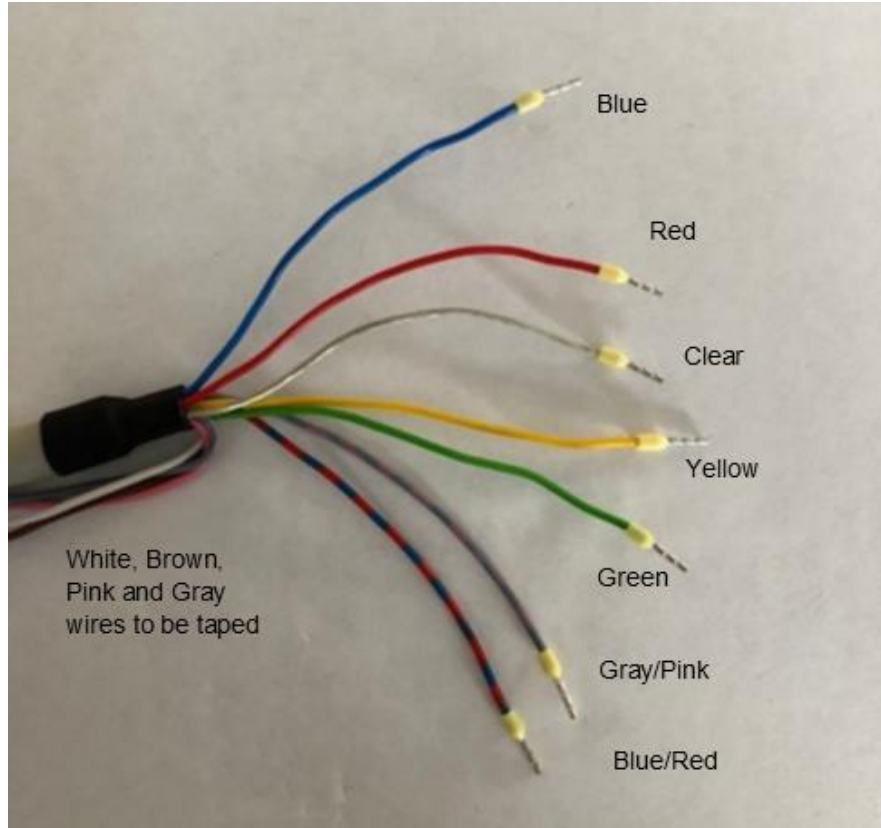
- **SONO-VARIO** (M308070, M308074, M308090) probe(s)
- **SM-USB** (M100020) module
- **Mounting plate and bracket** (M308037)
- **SONO cable**, available in 4m (M308029) or 10 m (M308032)
- **SONOConfig software**, available via MESA USB drive or <http://mesasystemsco.com>

Notes: Follow “**SONO Guide_Installation**” to properly install Mounting plate and bracket and SONO-VARIO before wiring

Overview:

- The SM-USB Converter module requires DC power to operate.
- The SONO-VARIO probe connects to the PLC or Batch control panel using the SONO probe cable and if longer cabling is required, use a junction box.
- The SM-USB converter module, communicates digitally via the IMP-Bus, with the SONO probe for setup and adjustment of all operating parameters.
- The SM-USB Converter module will be used only during commissioning and is not wired to the PLC of batch panel
- Color-coded leads from the SONO probe cable must be wired for operation.
- The SM-USB can connect multiple SONO probes to a notebook computer through a PC USB2 port, although a SONO-VIEW is recommended for multiple probes.
- Setup and adjustment of all operating parameters of SONO probes is managed with free software (SONOConfig).

Notes: Not all wires are required to be connected for operation.



SONO Probe Connection to PLC or Control System	M308029 cable wire lead colors
12 to 24 VDC Power: (At 24 VDC, 200 milliamps are required to power each SONO probe)	Red
0 VDC Power:	Blue
Cable Shield:	Clear
Percent Moisture +: (20 mA, 5 or 10 VDC)	Green
Percent Moisture -: (0/4 mA, 0/1/2 VDC)	Yellow (Yellow)
IMP-Bus RT (for SM-USB only)	Gray/Pink (multicolored)
IMP-Bus COM (for SM-USB only)	Blue/Red (multicolored)
NOTE: The White, Brown, Pink and Gray wires are not used.	

Step-by-step Guide for new installations:

- 1) Connect the 13-foot long **SONO probe cable** to the back of the **SONO-VARIO** probe with a MIL-style bayonet connector.



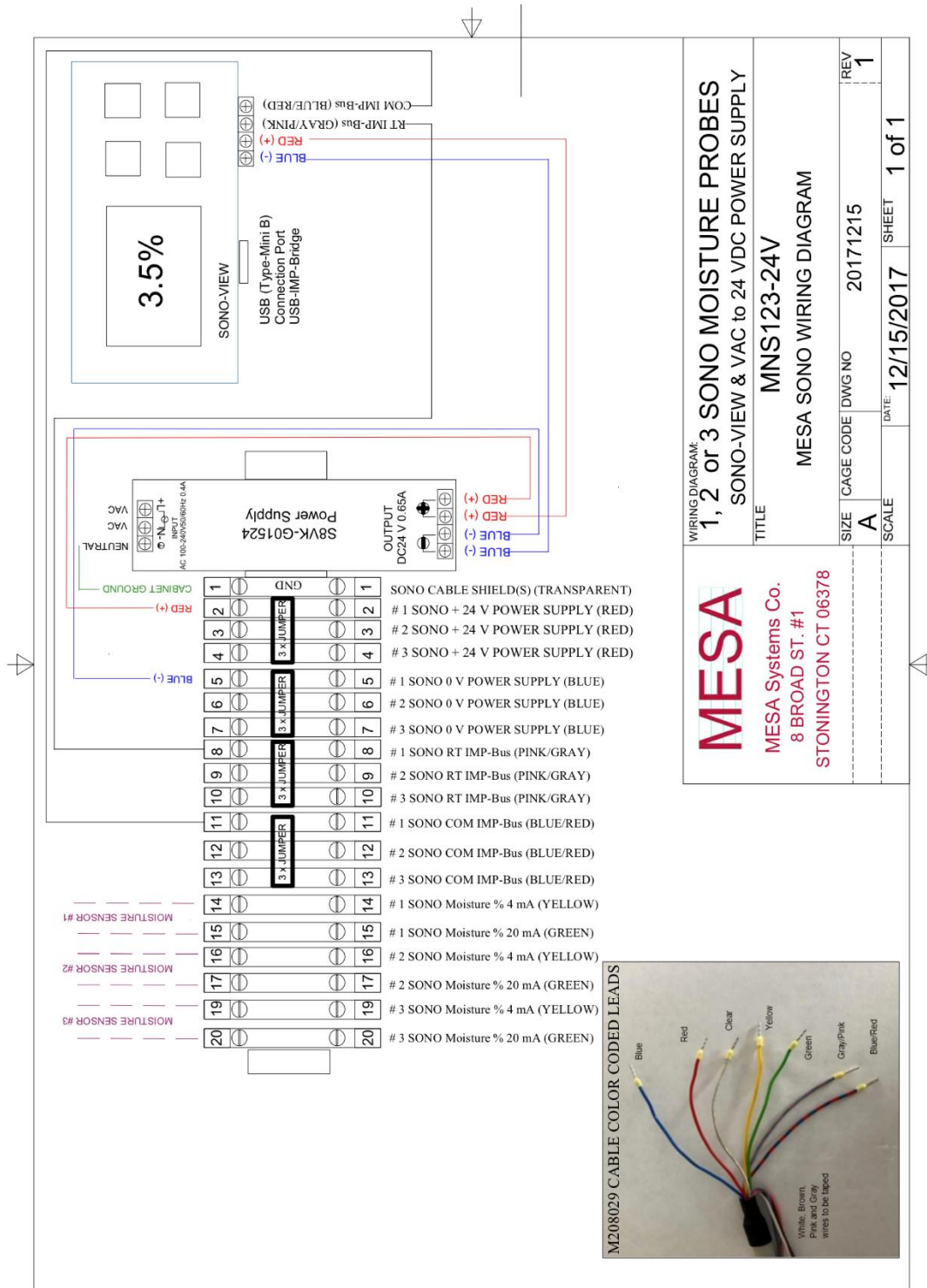
- 2) Pull the other end of the cable, **having cable tails**, to a **local junction box (J-Box)**, which is supplied by the installation company.
- 3) Pull the required wires from the **J-Box back to the PLC or Batch control panel**.
- 4) Wire the **Red, Blue, Clear, Green, Yellow, Gray/Pink, and Blue/Red** cable leads, **as indicated in Table 2**, for operation.
- 5) MESA recommends 20 AWG wire between the J-box and the batch panel PLC.
- 6) Tape off the unused White, Brown, Pink and Gray cable leads. These are not important for this application.
- 7) In the control room, where the PLC or Batch control panel is located, use the SM-USB converter module to communicate with the SONO probes.

Notes:

- The moisture analog output default is = 4...20 mA = 0...20 percent. The percent scale will need to be changed from 4...20mA to 0...20mA) when you want to convert the mA analog output signal to a voltage.

- The 0...20mA output will need the addition of a precision resistor, placed across the input to the PLC or control panel of the batch control system.
 - A 500 ohms resistor will convert the output to 0...10 VDC full scale output.
 - A 250 ohms resistor will supply 0...5 VDC full scale output.





For complete technical details visit <http://mesasystemsco.com> for manuals and support documentation.

Additional Questions? Contact MESA at support@mesasystemsco.com or +1 (508) 655-6372.