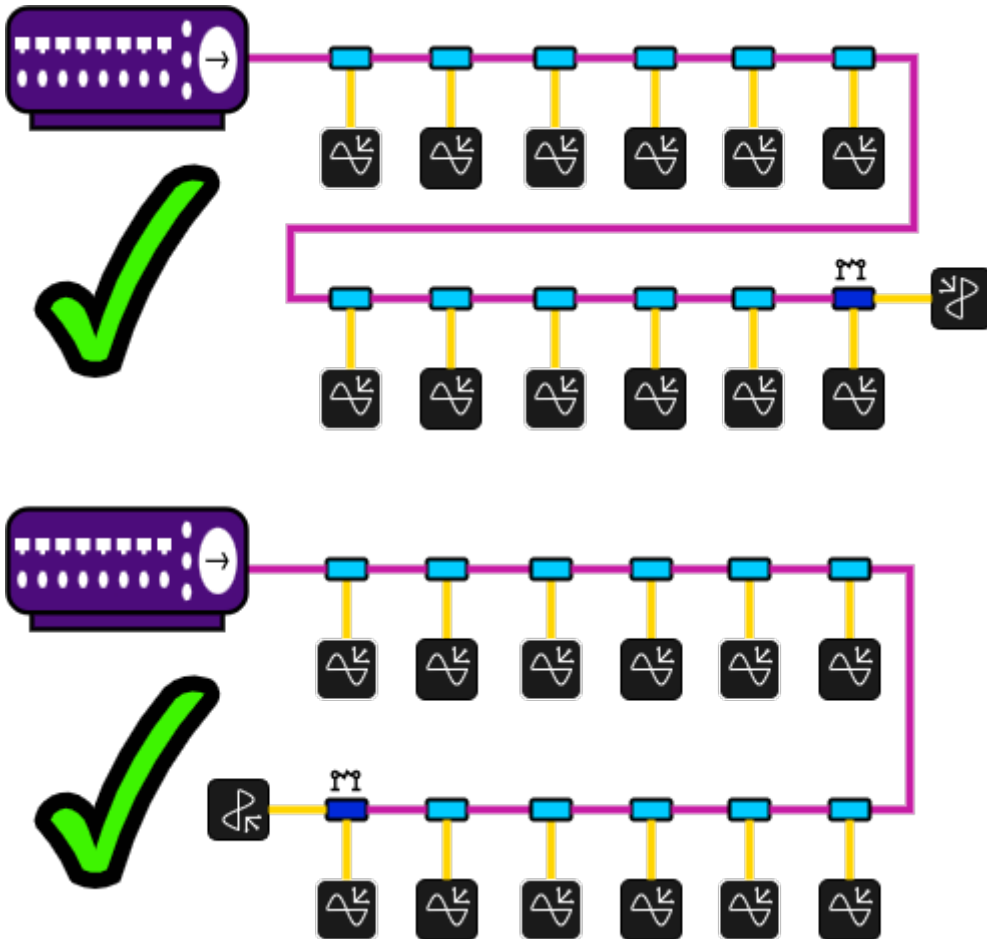


# System Layout Diagram (Simplified & Color-Coded)

## Proper TriVibe Layout:

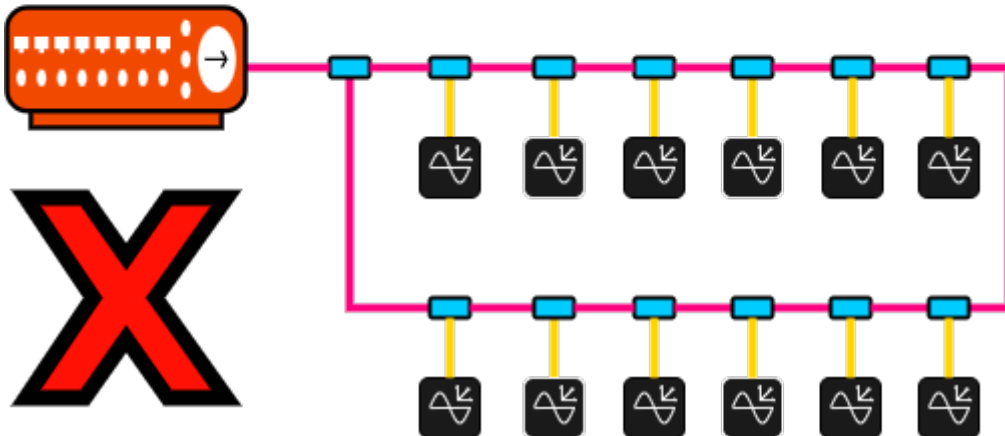
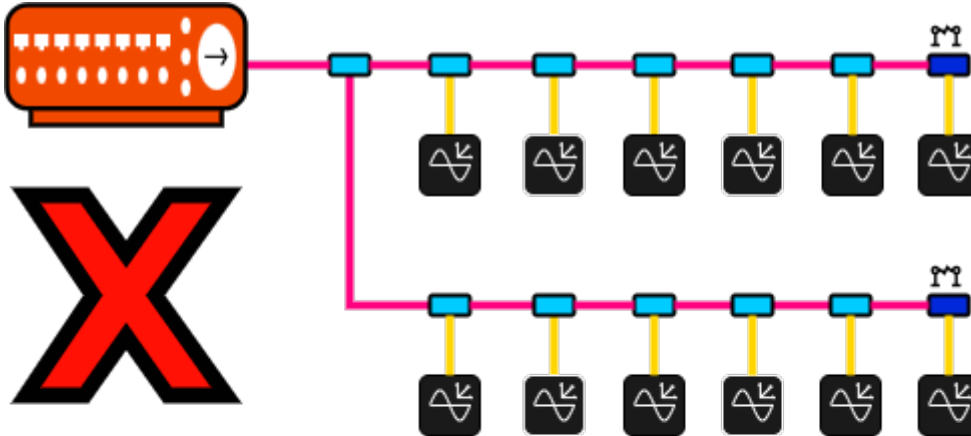
1. A **Modbus Master** which has properly designed RS-485 (TIA-485(-A)/EIA-485) ports with built-in pullup and pulldown resistors enabled to enforce the RS485 (TIA-485(-A)/EIA-485) electrical standard.
2. A single **field cable bus trunk** for each RS-485 (TIA-485(-A)/EIA-485) port available from the **Modbus Master**.
3. Each **T-Port** connection terminal allows a TriVibe Tri-Axial Vibration Sensor to drop off the **field cable bus trunk** by way of the **integral sensor cable**.
4. On each available RS485 (TIA-485(-A)/EIA-485) port, only the **last/furthest T-Port** connection terminal should have a jumper installed, thereby enabling the 120 $\Omega$  terminating resistor.
5. As long as you do not plan to expand with more TriVibe Tri-Axial Vibration Sensors on a particular **field cable bus trunk**, It is permissible to use the last set of terminals of the **last/furthest T-Port** to connect a TriVibe by way of the **integral sensor cable**.
6. **Field cable** which adheres to RS-485 (TIA-485(-A)/EIA-485) specification and Machine Saver's recommended characteristics.
7. Total length of **field cable bus trunk** should not exceed 2800 feet (855 meters) for **Modbus Masters** communicating at a baudrate of 115,200 bit/s.
8. 24 - 36 VDC should be verified available to power each TriVibe Tri-Axial Vibration Sensor at each **T-Port** connection terminal which includes the **T-Port which is furthest/last** on the **field cable bus trunk** from the **Modbus Master**.



## Improper TriVibe Layout:

1. A **Modbus Master** which has IMPROPERLY designed RS-485 (TIA-485(-A)/EIA-485) ports. Missing (or disabled) built-in pullup and pulldown resistors leaving the bias-voltage at an unknown level.
2. A **field cable bus trunk** which uses a **T-Port** connection terminal to attempt to split the **field cable bus trunk**, thereby violating the RS-485 (TIA-485(-A)/EIA-485) electrical communication standard.
3. The above issue also results in **2 furthest T-Port** connection terminals to be identified, if you attempt this and see there are 2 possible places to install a jumper AND/OR if you have more than 1 jumper per RS-485 port re-evaluate your layout. The layout cannot remain in these conditions and function appropriately.
4. **Field cable** adheres to RS-485 (TIA-485(-A)/EIA-485) specification and Machine Saver's recommended field wire chart characteristics.

5. Total length of **field cable bus trunk** MUST NOT EXCEED 2800 feet (855 meters) for **Modbus Masters** communicating at a baudrate of 115,200 bit/s.
6. Allowing the voltage supplied to any TriVibe Tri-Axial Vibration Sensor at any **T-Port** connection terminal to drop below 24 - 36 VDC which includes the **furthest T-Port** from the **Modbus Master**.
7. Allowing the current supplied to any TriVibe Tri-Axial Vibration Sensor at any **T-Port** connection terminal to drop below 50 milliamps.



Revision #2

Created 30 March 2022 17:46:55 by Bach\_L

Updated 23 June 2022 06:48:09 by Bach\_L