Technogram

March 17, 2003

Affects: D343P, D7039 Wiring

1.0 Introduction

The Radionics Technical Support team has received reports of Multiplex detectors or other Multiplex (Mux) devices suddenly going into a trouble condition. The symptoms may affect just some of the devices on the Multiplex loop and not others.

Testing has shown that the wiring of the Multiplex loop must not exceed 30 ohms for all the devices to work properly.

To reduce the possibility of Multiplex trouble conditions, Radionics has changed the recommended wiring methods and has made improvements to the D7039 Multiplex Driver Module.

2.0 Wiring Multiplex Loops

The following is the recommended Multiplex wiring for the D7039 Multiplex Driver Module and the D343P Multiplex Duct Smoke Detector Housing used with the D7024 Fire Alarm Control Panel.

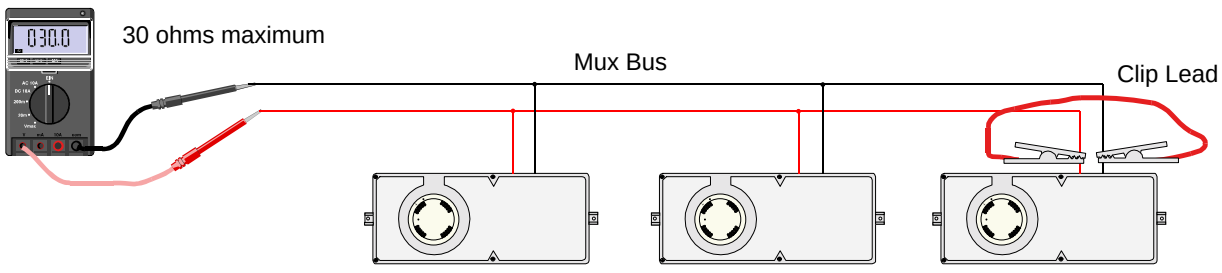
2.1 Wiring the D7039 Multiplex Driver Module Loop

The wiring of the D7039 Multiplex Loop must be below 30 ohms. The chart below shows maximum wiring distances for Class A and Class B wiring with respect to wire size.

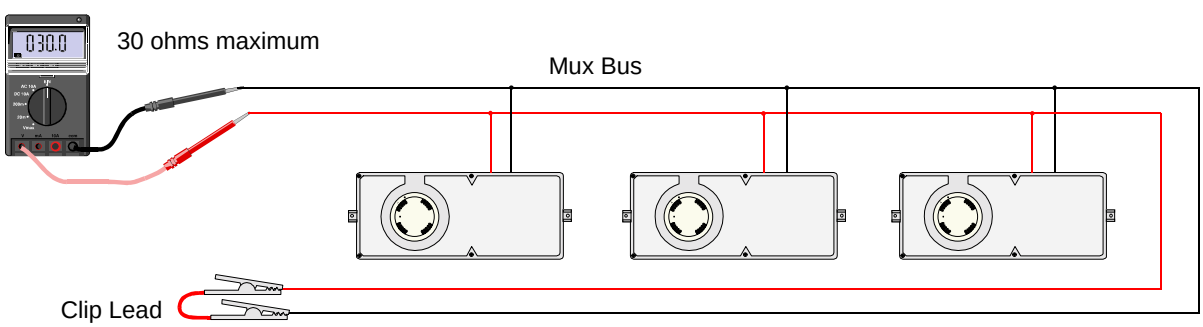
Size of Wire vs. Maximum Distance			
Wire Gauge AWG	Style 4 Class B	Style 6 Class A	Wire Gauge AWG
	Maximum 30 ohms		
20 (1.0 mm)*	1,400 ft. (425 m)	700 ft. (213 m)	20 (1.0 mm)*
18 (1.2 mm)	2,200 ft. (670 m)	1,100 ft. (335 m)	18 (1.2 mm)
16 (1.5 mm)	3,500 ft. (1066 m)	1,750 ft. (533 m)	16 (1.5 mm)
14 (1.8 mm)	5,700 ft. (1736 m)	2,850 ft. (868 m)	14 (1.8 mm)
12 (2.3 mm)	8,800 ft. (2682 m)	4,400 ft. (1341 m)	12 (2.3 mm)

* The use of #20 AWG (1.0 mm) wire is not allowed on UL Certificated fire installations

Loop resistance measurement is done by shorting the end of the farthest device in class “B” or shorting the return wires in Class A” and then reading the total resistance of all wires associated with the loop. **Be sure the loop is disconnected from the D7039 module.**



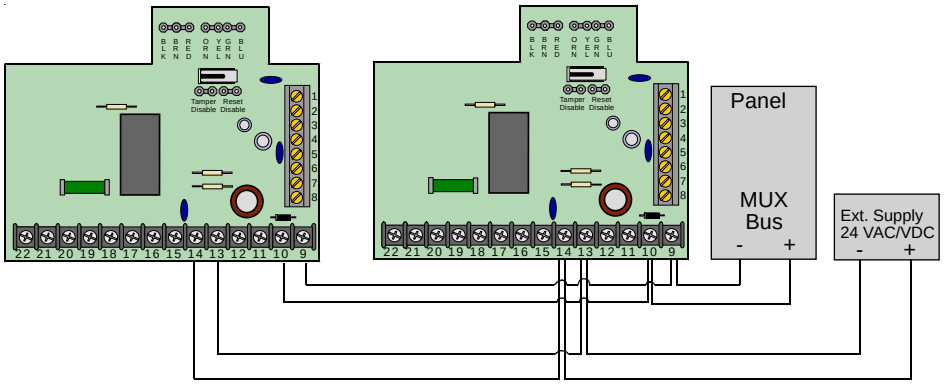
Measuring Class “B” Loop Resistance



Measuring Class “A” Loop Resistance

2.2 Wiring the D343P Multiplex Duct Smoke Detector Housing

In order to reduce the wiring distance, the wiring for multiple D343P Multiplex Duct Smoke Detector Housings with remote test stations has changed. The earlier wiring diagrams showed one side of the MUX loop going in on terminal 10 and out on terminal 11. The new wiring diagrams show the Mux loop going in and out on terminal 10. This reduces the amount of wire added to the MUX loop by the remote test station.



The maximum number of D343P Multiplex Duct Smoke Detector Housings with D344-RT Remote Test Stations is 40. The maximum number of D343P Multiplex Duct Smoke Detector Housings with a remote LED is 50. The maximum number of D343P Multiplex Duct Smoke Detector Housings without a remote led or remote test station is 70. The maximum distance that the remote test station or remote led can be from the D343P is 500 ft. (152 m). When using the Remote Test Station with the D7024, a listed UL 24 VDC supply should be used. Do not use the AUX power from the D7024.

Maximum Number of D343P Duct Smoke Detector Housings on the Multiplex Bus	
With Remote Test Module D344-RT	40
With Remote LED Module D344-RL	50
Detector Only	70

3.0 D7039 Mux Driver Board

The supervision routines of the D7039 has been improved in regard to Class “A” polling. These improvements deal with long lines and response time. These changes do not effect Class “B” operation. Should you have purchased any D7039 Multiplex Driver Modules before March 1, 2003 for a Class “A” project that has not been installed, please call customer service and request a new D7039 Mux Driver Board. Any existing Class “A” installations that have been completed need not be upgraded.