



Table 1. Maximum One-way Distance (m) Between Controller and Valve

Common Wire (mm ²)	Active Wire (mm ²)						
	0.5	1.0	1.5	2.5	4.0	6.0	10.0
0.5	180	240	250	300	310	320	320
1.0	240	370	400	520	550	570	600
1.5	250	400	500	620	730	800	870
2.5	300	520	620	910	1120	1290	1330
4.0	310	550	730	1120	1500	1780	1900
6.0	320	570	800	1290	1780	2220	2500
10.0	320	600	870	1330	1900	2500	3330

This table has been calculated on the following factors. Solenoid Voltage: 24 VAC. Maximum Pressure: 1000 kPa. Voltage Drop: 4 V. Minimum Output Voltage: 20 V. Amperage Peak: 0.3 A.

Table 2. Multiplier Factors for Various Controller Output Voltages

Controller Output Voltage	24 - Volt Solenoids	
	24 VAC	24 VDC
28	2	5.45
27	1.75	4.77
26	1.5	4.09
25	1.25	3.41
24	1	2.73
23	0.75	2.05
22	0.5	1.36

Table 3. Multiplier Factors for Low Voltage Solenoids

Controller Output Voltage	12 - Volt Solenoids	
	12 VAC	12 VDC
16	0.58	1.96
15	0.5	1.63
14	0.41	1.3
13	0.33	0.98
12	0.25	0.65
11	0.17	0.33

The following information will assist you to determine the correct wire size when connecting valves and controllers in automatic irrigation systems.

Step 1.

- Select the furthest valve from the controller.
- Calculate the distance from the controller to the valve.
- Select the common and active wire sizes, based on the maximum run lengths, from Table 1. e.g. If the distance from the controller to the furthest valve is 1000 m, then it would be best to select a 4.0 mm² common and a 2.5 mm² active.

Step 2.

- Address the subsequent closer valves.
- Keep the same common.
- Select the active based on the maximum run lengths.

Step 3.

- Table 3 shows the multiplier factors for determining maximum wire run lengths for other controller output voltages and optional solenoids.