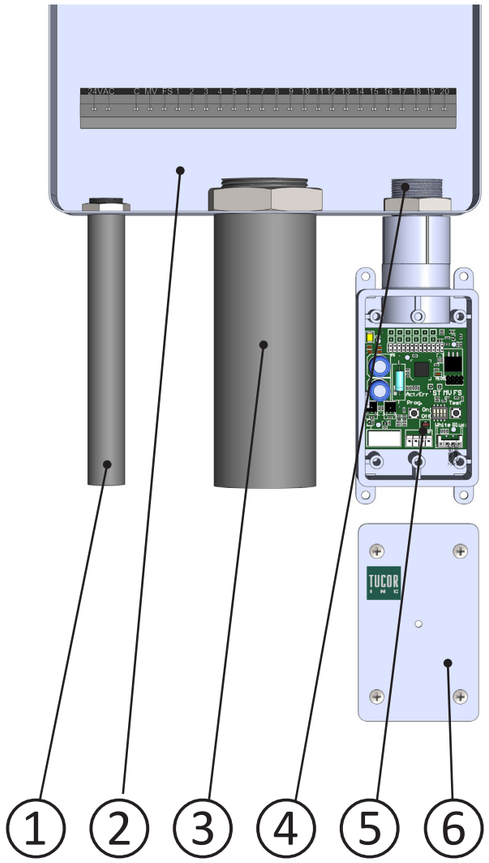
3D

The Two-wire Decoder Interface (3D) is designed to integrate conventional systems with proven two-wire technology. The 3D allows clients in the landscape irrigation industry to retrofit their existing controller systems. The 3D will enable any conventional irrigation system for the two-wire technology.

Installation of 3D

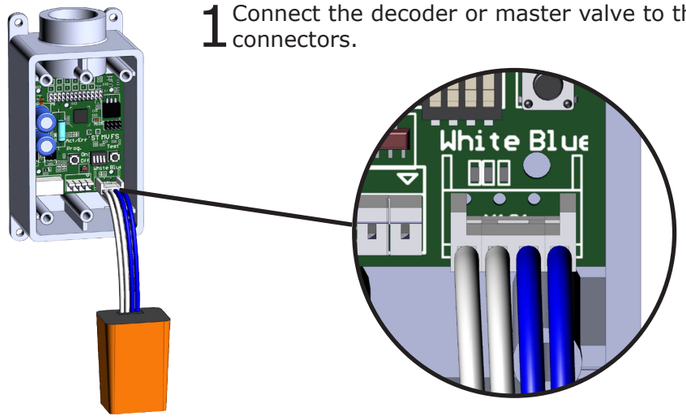


1	To the power
2	Controller
3	To the field
4	Fitting threads
5	3D
6	Box lid

Allow the fitting threads to protrude into the controller housing, so that in the event of water getting into the cabinet it will not flood the 3D.

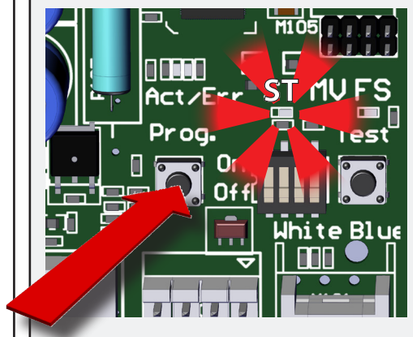
Programming of decoders and master valve

Decoders (except sensor decoders) must be programmed before installation.



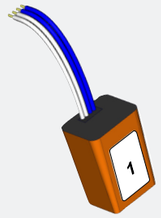
1 Connect the decoder or master valve to the 3D programming connectors.

Decoders



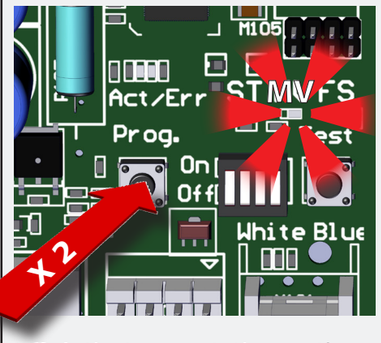
2 Push the **Prog** button once. The ST LED will be lit.

3 Manually activate the desired station on the controller for at least 1 sec. For example, activate station 1 to assign the id number 1 to the decoder. Proceed to the next decoder.



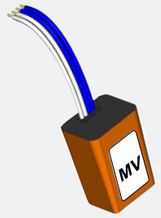
4 Mark the decoders with numbers.

Master valve

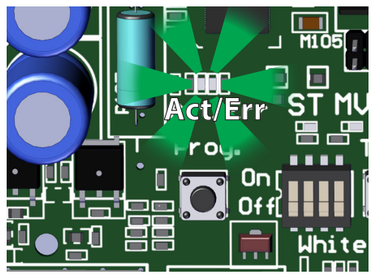


2 Push the **Prog** button twice. The MV LED wil be lit.

3 Activate any station on the connected controller for at least 1 sec to assign the decoder as master valve.



4 Mark the master valve decoder.

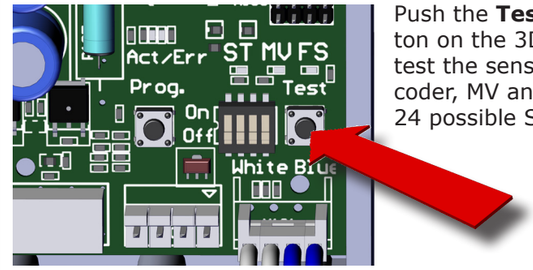


The Act/Err LED shows the programming status.

Status	Color	Code
Ready	**Green**	30
Active	**Green**	31
Done	**Green**	32
Error	**Red**	Error code

For LED codes, refer to the section **LED codes.**

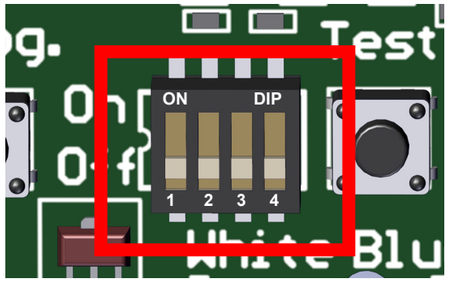
Test run



Push the **Test** button on the 3D to test the sensor decoder, MV and the 24 possible STs.

- The test program runs until complete or until an error is discovered.
- The stations will be tested in the following order: FS-MV – ST1 – ST2 … ST24.
- The Flow sensor is only checked for presence.
- If the test program encounters a failure, the LEDs will show corresponding error codes. See **LED error codes**.
- Press **Test** button to clear the error and resume the test.
- Press **Prog** button to exit the test program and resume normal operation.

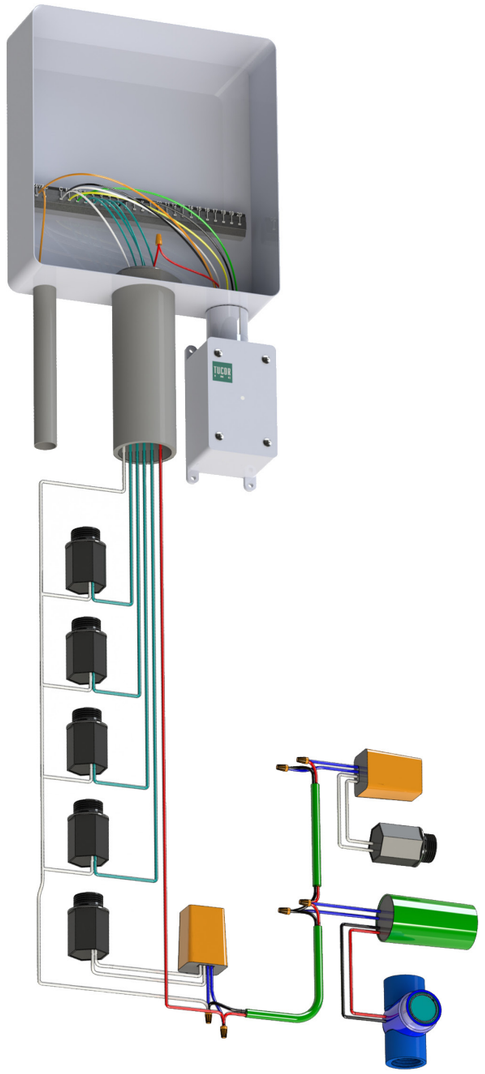
DIP Switches



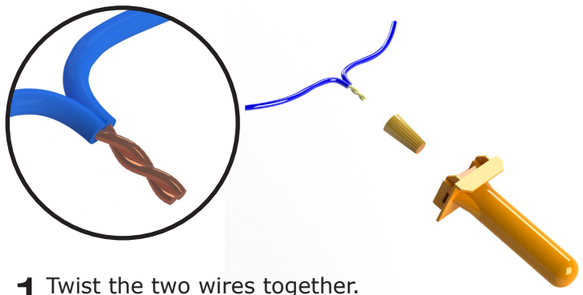
#	Off (Default)	On
1	Station Normal Power. About 25mA.	Station High Power. About 35mA.
2	MV Normal Power. About 25mA.	MV High Power. About 35mA.
3		Dynamic load
4	Not in use	Not in use

Doc no. 487-230-0003/B

Installation



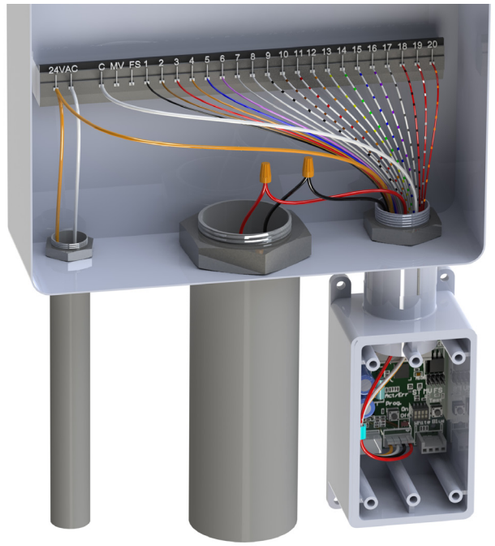
Connection of decoders



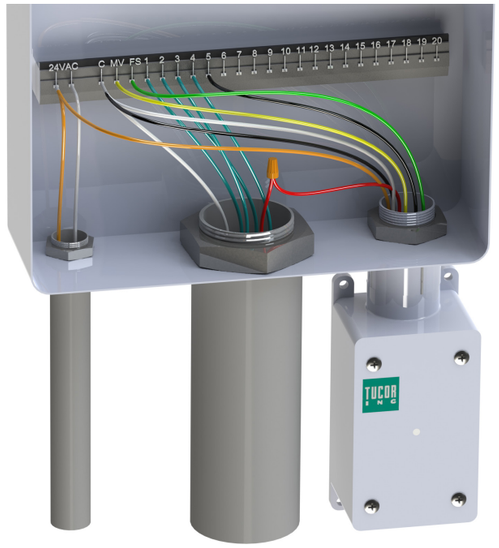
1 Twist the two wires together.

2 Screw the twist wire splice connector on.

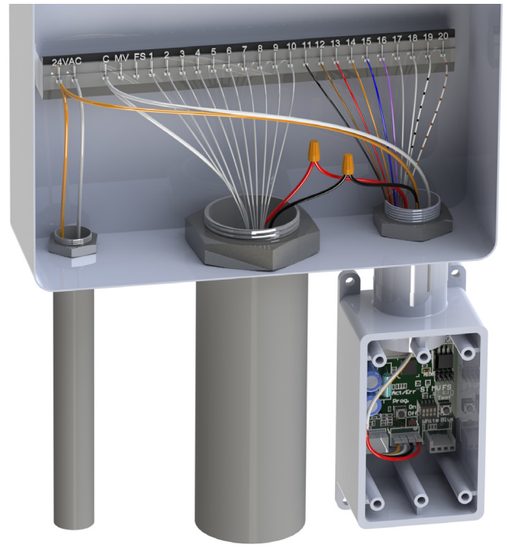
3 In the field: Attach and close the gel-filled protecting cap.



Hybrid 3D-24
Simple conversion to 2-Wire



Hybrid 3D-6
Adding 2-Wire, Master Valve and Flow Meter, using existing conventional wires.



Hybrid 3D-6 for up to 6 valves, hybrid 3D-24 for up to 24 valves
Keeping current conventional outputs and adding additional valves by converting them to a 2-wire system.

Data wire colors

Name	Color
ST1	Brown
ST2	Black
ST3	Orange
ST4	Red
ST5	Violet
ST6	Blue
ST7	White
ST8	Grey
ST9	White striped Brown
ST10	White striped Black
ST11	White striped Orange
ST12	White striped Red
ST13	White striped Green
ST14	White striped Yellow
ST15	White striped Violet
ST16	White striped Blue
ST17	Red striped Black
ST18	White striped Grey
ST19	Red striped Orange
ST20	Red striped White
ST21	Red striped Green
ST22	Red striped Yellow
ST23	Red striped Violet
ST24	Red striped Blue
MV	Green
FS	Yellow

Power wire colors

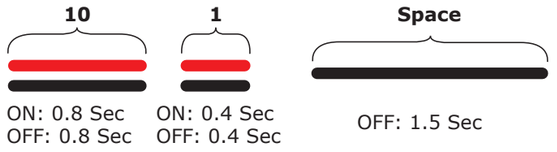
Name	Color
24VAC Hot	Orange
24VAC Common	White
2-WIRE Hot	Red
2-WIRE Common	Black

LED codes

Code	Error	Cause/information	Action
10	Short circuit in two wire path.	The 3D is in protection mode, limiting current to a safe level.	Check two wire path.
20	Station activation error. Current consumption out of range.	Shorted output, no decoder or solenoid or incorrect solenoid type. The number of the station causing the error is shown on the ST or MV LEDs.	Check decoder, solenoid and splices.
21	Station activation error. Too many active stations.	Limit for number of active stations exeeded. The number of the station causing the failure is shown on the ST LED.	Deactivate one or more stations.
25	Flow sensor poll failed.	Not present or wrong type flow sensor. Only used for test program!	Use correct flow sensor.
30	Station programming. No decoder attached, or incorrectly connected.		Connect decoder.
31	Station programming. Wrong decoder type.		Use correct decoder type.
32	Station programming. Verification of the programmed station failed.	Decoder could be defective.	Connect decoder again, or replace decoder.
33	Station programming. General operation timeout.	Station programming operation took too long.	Keep programming sequence inside the time limit. Connect decoder again, or replace decoder.

LED Number patterns

The LEDs will blink a pattern that can be translated into a number.



For example, 21 will be: Long on – long off – long on – long off – short on – longer off. The pattern 3 and 23 are also shown as examples.