Underhill™ 2WIRE

Quick Start Checklist Novo

step 1 Locate and Mount

Locate the Novo within 18" of the host controller on a vertical surface. Use the 4 (qty) mounting holes in the back of the Novo case.

step 2 Connect Station Wires

Connect the multi-colored wire attached to the Novo to the host controller's station outputs. Tie all the white common wires together.

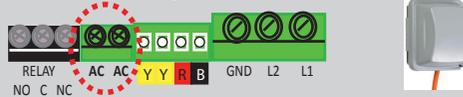|	
VALVE COM	WHT
8, 16, 24, 32	PUR
7, 15, 23, 31	BLU
6,14, 22, 30	GRN
5, 13, 21, 29	YEL
4, 12, 20 28	ORG
3,11,19,27	RED
2,10,18,26	BRN
1, 9,17, 25	BLK

step 3 Connect to a Ground Rod

Locate the "Gnd" terminal block and connect a #10 bare copper wire to a ground rod or ground plate depending on soil conditions. The ground rod should be located a minimum of 10' from the Novo.

RELAY NO C NC   AC AC   Y Y R B   GND   L2   L1
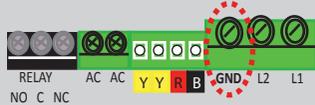
step 4 Connect AC Power

Locate the "AC" power terminals on the Novo. Connect the two wires from the supplied transformer. Connect the plug end into an approved electrical receptacle. For outdoor installations, verify the plug is protected with a weathertproof cover.

RELAY NO C NC   AC AC   Y Y R B   GND   L2   L1

step 5 Connect 2Wire Path

Locate the "L2 / L1" terminal on the Novo. Connect the 2Wire communication cable to these terminals. The 2Wire path can be 12, 14, 16, or 18 gauge wire for direct burial applications. See the wire sizing chart for the maximum allowable distances.

RELAY NO C NC   AC AC   Y Y R B   GND   L2   L1

Maximum Distance From Controller Per Wire Gauge

Distance (ft.)

Legend:
- 18 AWG
- 16 AWG
- 14 AWG
- 12 AWG

1 Valve Active:
- 18 AWG: 1800
- 16 AWG: 3000
- 14 AWG: 4000
- 12 AWG: 5300

2 Valves Active:
- 18 AWG: 1200
- 16 AWG: 1800
- 14 AWG: 2650
- 12 AWG: 3300

step 6 Program Decoders

Slide the switch from "RUN" to "PROG". Insert the decoder wires matching the color coding as shown below. Select the Programmer menu and program the decoder with the corresponding station number.

PROG RUN

STATION NUMBER

Y Y R B

step 7 Check the System

Using a multi-meter set to "AC" and verify:
* 24 VAC at the AC terminal blocks on the Novo.

* 24 VAC on the 2Wire path when operating any station in MANUAL mode from the Novo.

Confirm any station can be operated Manually from the Novo in MANUAL mode. Then confirm stations can be operated manually from the host controller.
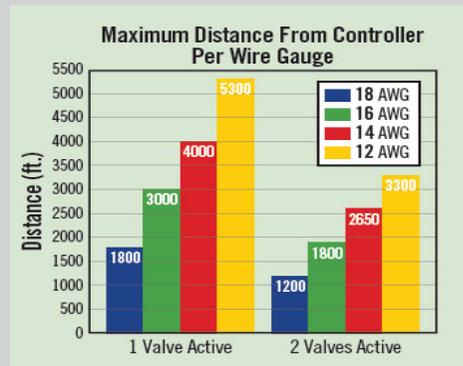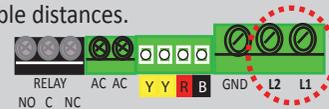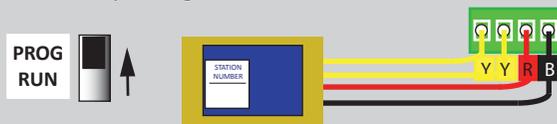
step 8 Program Senders

For applications where **more** than 32 stations are required, program and install Universal Senders p/n TW-SEN-8 by connecting them to the host controller's station outputs starting at station 33. Program Senders using the same programmer as in Step 6 and starting the Sender address code at #5.

step 9 Troubleshooting

1) Cannot operate a station manually from the Novo.
Go to the FAULTS menu:
* Confirm there isn't a break in the 2Wire path.
* Confirm decoders are programmed properly with the right station number.
* Confirm the valve solenoid is not defective.

2) Cannot operate a station manually from the host controller.
Go to DIAGNOSTICS menu:
* Confirm color-coded station wire from Novo to host controller is connected to the right station output.
* Confirm the decoder thresholds are within the factory default settings in "Decoder Setup".

Novo Menus

Menu Button	RUN	FAULTS	DIAGNOSTICS	MANUAL	OFF	PROGRAMMER
Display	**RUN** 0mA	STN FAILURE 1 FAIL TURN OFF 2 FAIL TURN OFF 3 FAIL TURN OFF 4 FAIL TURN OFF 5 FAIL TURN OFF 6 FAIL TURN OFF 7 FAIL TURN OFF	**DIAGNOSTICS** PRESS NEXT / OK KEY	**MAN. ON/OFF** PRESS + ON, - OFF 0mA STATION: 1 READY 0:10:00	**SYSTEM OFF**	**PROGRAMMER** PRESS NEXT / OK KEY
What Does it Do?	Automatic mode between Novo & a host controller. Displays total current draw for the # of stations, decoders, solenoids and 2Wire load in miliamps (mA).	Identifies a station not working. Issue could be: * broken 2Wire * a decoder * a solenoid Press "-" buttton to view next 7 stations. Press "-" Down Btn to clear faults.	* Confirms if commands between the Novo & a host controller are being received. * Provides a method to change factory default decoder threshold settings under certain field conditions.	Allows any sta to be operated at a time from the Novo separate from a host controller. Default runtime is 2 minutes. Can run up to 9 hours per station.	Immediately stops any scheduled or manual irrigation. 24 VAC down the 2Wire com path is turned "Off".	Allows a Decoder or Sender to be programmed or tested.

Other Displays within this Menu

RUN

RUN 355mA **FAULTS**

A "Fault" has occurred.

RUN 355mA **FAULTS** 2 12

A "Fault" has occurred. Stations 2 & 12 are operating from a host controller.

RUN 355mA **FAULTS** RUN/PROG SWITCH TO RUN

Lower message will appear if slide switch is in the incorrect position. Slide to "RUN".

VIEW FAULTS LIST CLEAR FAULTS LIST

Press NEXT/OK key to view this display.

STN FAILURE
1 NO FAULTS
2 NO FAULTS
3 NO FAULTS
4 NO FAULTS
5 NO FAULTS
6 NO FAULTS
7 NO FAULTS

To clear faults, press the "-" key, then NEXT/OK key.

VIEW FAULTS LIST CLEAR DISPLAYED FAULTS

Press NEXT/OK key to clear fault history.

SAVED OK

VIEW SENDER COMMANDS EDIT DECODER SETUP

Press NEXT/OK key to view this display.

1 -------- 8	SENDERS
9 -------- 16	+ ON
17 -------- 24	- OFF
25 -------- 32	. NONE
33 40	
41 48	
49 56	
57 64	

Verifies if Novo is receiving commands from the Host controller.

VIEW SENDER COMMANDS EDIT DECODER SETUP

Press "-" key to select, then press NEXT/OK key to view this display.

DECODER SETUP
OK -SAVE, ESC-REJECT
LOW mA / HIGH mA / DWELL mS
67 / 345 / 100

Allows decoder thresholds to be user-defined for some field conditions.

MAN. ON/OFF
PRESS + ON, - OFF 0mA
STATION: 1
RUNNING 0:10:00

Press the "left or right arrow" key to select a station.

Press the "+/-" key to select a runtime.

Once a station starts, the display changes from "Ready" to "Running" and remaining run time is displayed.

SHUTTING DOWN

Message displayed when OFF key is selected.

SYSTEM OFF

To select a function:

PROGRAM DECODER
TEST DECODER
PROGRAM SENDER
TEST SENDER
RUN/PROG SWITCH TO PROG
PRESS NEXT/OK TO SELECT

To program a Decoder:

PROGRAM DECODER
OFF TEST PROG PASS FAIL
STATION: 1
PRESS NEXT / OK TO PROG

Press "+/-" key to select station number. Press the NEXT/OK key to test or program.

To test a Decoder:

TEST DECODER
OFF TEST PROG PASS FAIL
STATION: 1
PRESS NEXT / OK TO TEST

To program a Sender:

PROGRAM SENDER
OFF TEST PROG PASS FAIL
SENDER: 5
PRESS NEXT / OK TO PROG

To test a Sender:

TEST SENDER
OFF TEST PROG PASS FAIL
SENDER: 5
PRESS NEXT / OK TO TEST