

Underhill™ 2WIRE

Decoder Irrigation Control



Works like **magic**.

Offering unmatched simplicity and reliability, it's easy to see why more and more contractors are installing 2-wire control systems. Underhill™ 2WIRE breaks the cost barrier to allow even smaller jobs to benefit from this technology's dependability and cost-savings. Our 2WIRE modules convert irrigation controllers to 2-wire operation, so you can use your favorite box to run a 2-wire system. It works like magic...maximizing your controller while minimizing installation time and wire usage.

- **Win jobs** - Reduce wire costs by a ton and be the lowest bidder every time.
- **Simplify Installations & Expansions** - Installs are fast and easy. You can even piggyback onto existing multi-wire systems to add stations without trenching back to the controller.
- **Time-Tested Reliability** - 15 years and 150,000+ field successes proves our technology is built to last.

**A single module
lets the Hunter ICC
control up to 48 stations.
Our Universal module lets
other controllers run
up to 63 stations!**

"Installing Underhill 2WIRE doesn't require any special equipment or tools. We use the same valves that we are familiar with...even the line is typical irrigation wire... and we're happier pulling just two wires, rather than old school multi-wire."

J.C. Wheaton C.I.C., C.L.I.A.
Manager, Centerville Irrigation, Inc.
Centerville, Ohio

"...it's more economical to install, easier to maintain and easily expands. Our crew prefers working with Underhill 2WIRE... it took just a day of training and they had it figured out."

Paul Pankow
General Superintendent, Byrom Davey
San Diego, CA

Underhill™



Underhill
2WIRE

for Hunter® ICC Controllers

CONTROL UP TO 48 STATIONS WITH ONE MODULE

With over 150,000 field successes, Underhill™ 2WIRE irrigation control systems are a proven leader in converting controllers like the Hunter® ICC to the simplicity and low cost of two-wire technology. Installation is a breeze with our handy programmer, and after your system is in, you'll enjoy reduced maintenance costs and unbelievably easy system expansion.

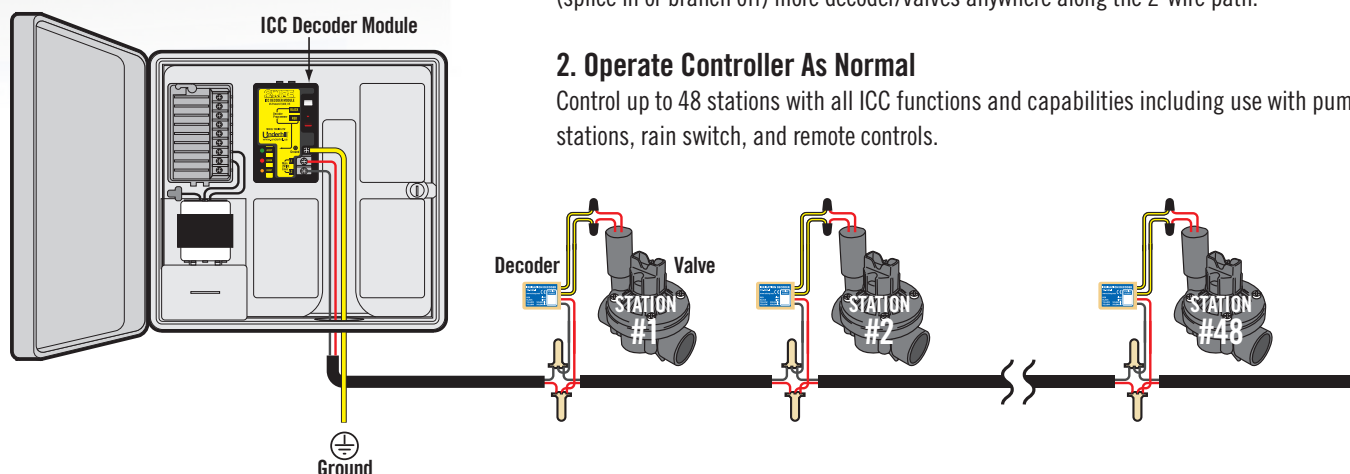
New Installations (2WIRE Only)

1. Create the 2-Wire System

Install a 2WIRE ICC Decoder Module into the controller. Run two wires out of the controller and connect to the decoder at each valve along the path. To expand your system, simply connect (splice in or branch off) more decoder/valves anywhere along the 2-wire path.

2. Operate Controller As Normal

Control up to 48 stations with all ICC functions and capabilities including use with pump stations, rain switch, and remote controls.

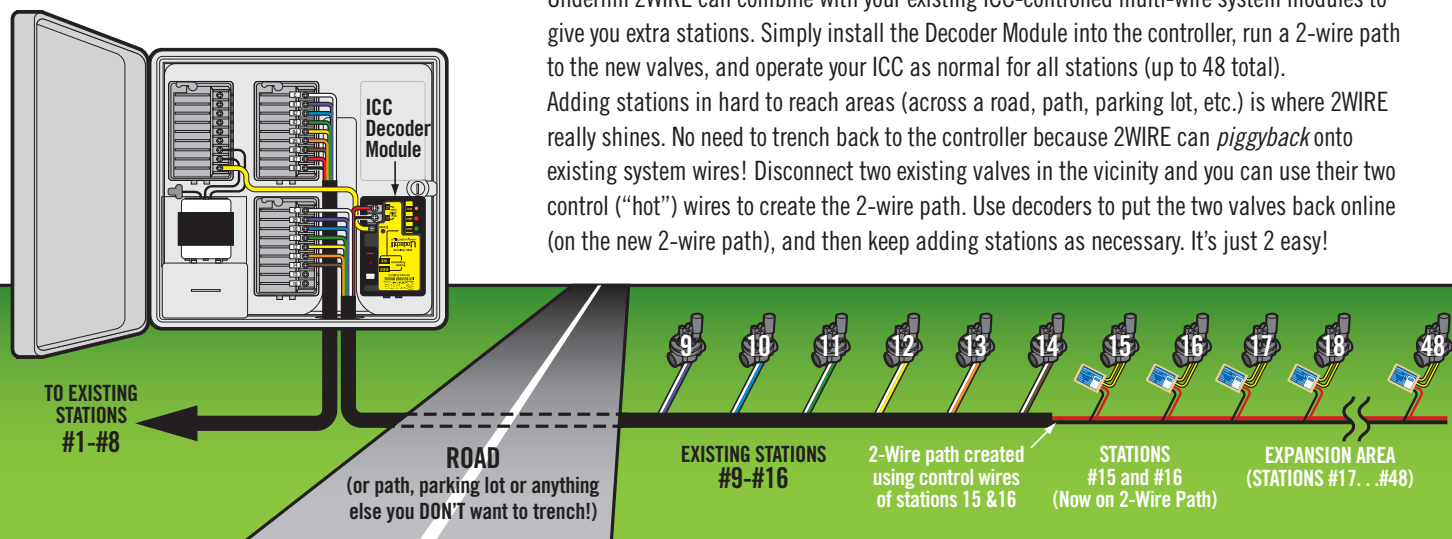


Hybrid Systems (Existing Multi-wire plus 2WIRE)

Quickly expand systems up to 48 stations - even in remote areas

Underhill 2WIRE can combine with your existing ICC-controlled multi-wire system modules to give you extra stations. Simply install the Decoder Module into the controller, run a 2-wire path to the new valves, and operate your ICC as normal for all stations (up to 48 total).

Adding stations in hard to reach areas (across a road, path, parking lot, etc.) is where 2WIRE really shines. No need to trench back to the controller because 2WIRE can *piggyback* onto existing system wires! Disconnect two existing valves in the vicinity and you can use their two control ("hot") wires to create the 2-wire path. Use decoders to put the two valves back online (on the new 2-wire path), and then keep adding stations as necessary. It's just 2 easy!





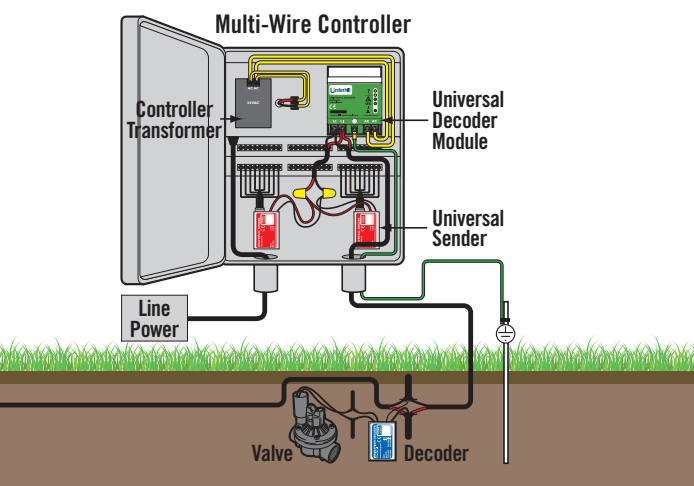
for Other Controllers

CONVERT TO 2-WIRE, CONTROL UP TO 63 STATIONS

The Underhill™ 2WIRE Universal Decoder Module is designed to give any controller the superior features of decoder technology. The module and universal sender (pictured at right) install neatly inside your favorite controller. Or you can use a separate enclosure **anywhere along the two-wire path**, up to 3,000 feet away from the controller.



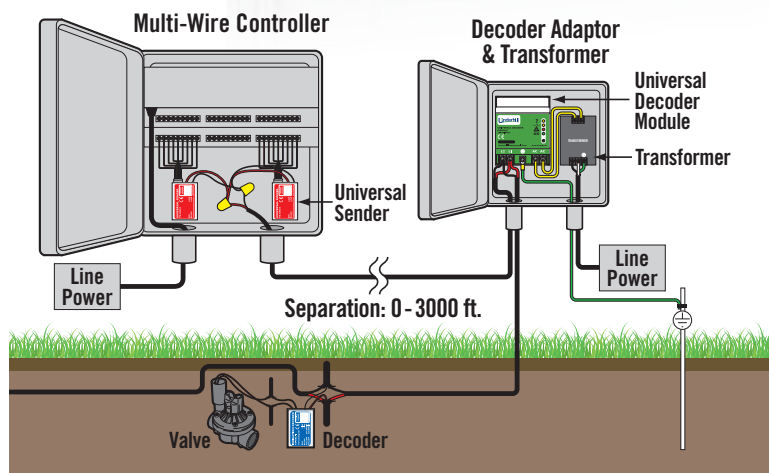
Easy Installation - Inside and Out



Internal Mounting

Connect the Universal Decoder Module to the controller transformer (24v-32v), 2-wire path and ground. Set the station addresses of the Universal Senders and connect them to the controller terminal strips and the Universal Decoder Module.

NOTE: See manual for transformer specifications.



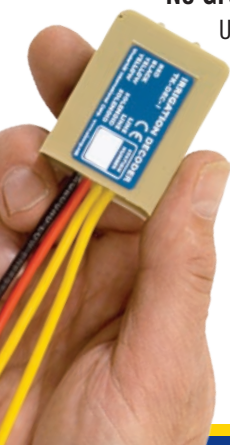
External Mounting

Connect anywhere along the 2-wire path (within 3000 feet of controller) where AC power is available. Connect the transformer to AC power, and run a 2-wire branch to the controller. Set the station addresses of the Universal Senders and then connect them to the controller terminal strips and the 2-wire path.

High-Tech Decoders

No Grounding Necessary

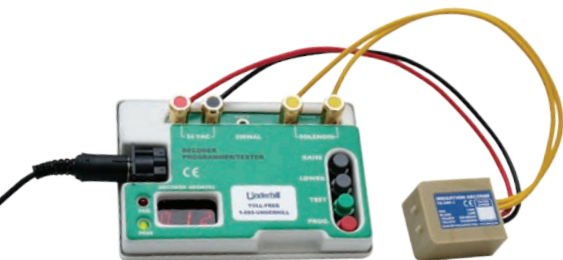
Underhill decoders quickly install anywhere along a 2-wire path, and they require no grounding. Over 150,000 of these decoders are currently installed in irrigation systems all over the world, offering proven reliability and versatility, while saving time and money. Each decoder can control one or two valves per station. Use DBY waterproof connectors (4 included with each decoder) or equivalent.



Specifications and Limits

- Maximum Number of Stations: Hunter® ICC: 48, Universal: 63
- Wire Size: 18 AWG - 12 AWG
- Maximum Distance Between Module and Decoder: 1800 to 5300 ft. (550 to 1600 m) depending on wire size (see chart on back)
- Maximum Distance Between Controller and Externally Mounted Universal Decoder Module: 3,000 ft. (900 m)
- Maximum Simultaneously Active Valves: 2 (1000 ft. max distance between stations)
- Maximum Continuous 2-Wire Current: 1.1 Amps AC
- Universal Decoder Voltage to Module: 22V-32V (Low voltages reduce maximum distance to decoders. See manual for transformer specifications.)

Underhill 2WIRE tools



Decoder Programmer

Programming a station decoder is as easy as pressing a few buttons. This unit can also test for correct station number programming, and set station numbers in the red Universal Senders (that get connected to the controller's terminal strips). Operates using AC power or DC (car battery) with optional battery inverter.



Digital Clamp Meter

Troubleshoot 2WIRE (and multi-wire) system field wiring by measuring volts, current and resistance. Features easy-to-read digital display, 200-hour battery life, and auto power off after 10 minutes. Requires 2 AAA batteries.

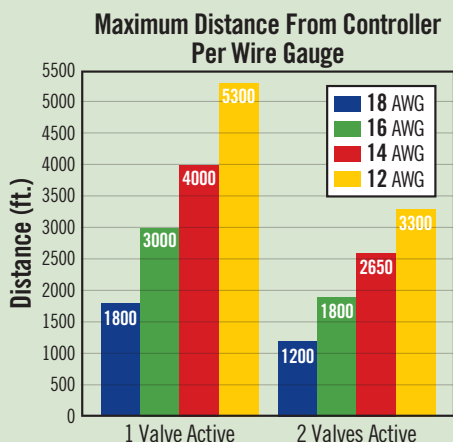
- Spec: Autoranging
- AC Amps: 60mA, 600mA, 10A, 100A
- AC Volts: 600V, Resolution 0.1V
- DC Volts: 600V, Resolution 0.1V
- Resistance: 1K Ohm, Resolution 0.1 Ohm
- Frequency: 0-100Hz, Resolution 0.1Hz



Faultfinder Transformer

Adds proper voltage to two wire path. Use with the Digital Clamp Meter for troubleshooting system field wiring

- AC voltage: 30V
- AC current: 5A



ordering

Part # TW-ICC-48	ICC Decoder Module
Part # TW-UNI-63	Universal Decoder Module
Part # TW-SEN-8	Universal Sender (feeds data to TW-UNI-63, 8 stations per sender)
Part # TW-TK-DEC-1	Field-programmable 2WIRE Decoder (includes 4 DBY connectors)
Part # DBY	Set of 25 gel-filled, waterproof connectors and 25 yellow wire nuts
Part # DEC-PROG-115	Portable decoder programmer, 115V
Part # DEC-PROG-240	Portable decoder programmer, 240V
Part # TW-DCM	Digital Clamp Meter
Part # Transfrmr-115	Faultfinding Transformer 30V, 5A
Part # TW-2C-14-1000	2-conductor, 14 AWG wire reel, 1000 ft.
Part # TW-2C-14-2500	2-conductor, 14 AWG wire reel, 2500 ft.



Underhill International Corporation

20505 Crescent Bay Drive • Lake Forest, CA 92630 USA
tel: 949.305.7050 • fax: 949.305.7051 • 1.866.863.3744 • www.underhill.us



© 2009 Underhill International Corporation. All original equipment manufacturers, names and products presented in this publication are used for identification purposes only, and we are in no way implying that any of our products are original equipment parts. Hunter® is a registered trademark of Hunter Industries Incorporated.

Form # LIT-2WIRE-B09

2-YEAR Lightning Warranty

With much less wire in the ground to attract lightning, and the field-proven technology of 2WIRE decoders, the Underhill™ 2-wire system offers excellent resistance to lightning damage.

Decoders do not require grounding in the field, but should be connected with DBY waterproof connectors or equivalents. The ICC and Universal Decoder Modules do require proper grounding as described in the instruction manuals.