EZ-DM

Decoder Output Module

Installation Guide for ICC2 and HCC Controllers

Hunter®

ENGLISH

The EZ Decoder System is a unique two-wire output option for Hunter ICC2 and HCC controller models only.
- Do not attempt to use this system with any other model or brand of controller.
- Do not attempt to use EZ-1 decoders with any other decoder controller.

EZ Decoders are designed to be easy.
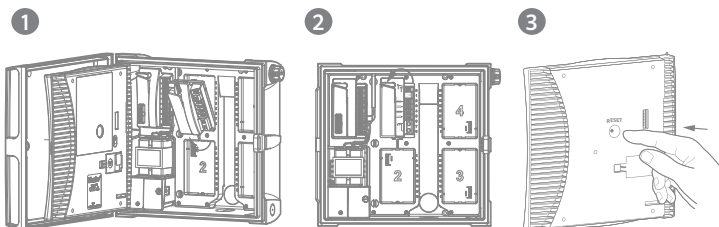They do not require special wire.
- They do require direct burial wire of adequate size for the distance of each wire run (see chart). It is even possible to use existing wire from "conventional" installations to create a two-wire path for EZ decoders.
- The EZ Decoder System does not require waterproof connections in order to operate. However, just as in conventional systems, waterproof connectors should be used to maintain the integrity of the splice and the wire.

Installing the EZ-DM in Hunter ICC2 and HCC Controllers

If the whole system will be two-wire, install the EZ-DM module in the first slot in the controller.
Press the Reset button on the back of the controller face panel for the new module to be recognized.
- Open blue lock lever.
- Insert module tabs into end of slot, and tip into place.
- Close locking lever.
- Press controller Reset button. Controller will then recognize the new module, and the controller size will change to 54 stations.

EZ-DM may also be combined with ICM-800 and ICM-400 modules for "hybrid" operation. They can use "conventional" solenoid wiring and two-wire technology at the same time, up to 54 stations maximum.
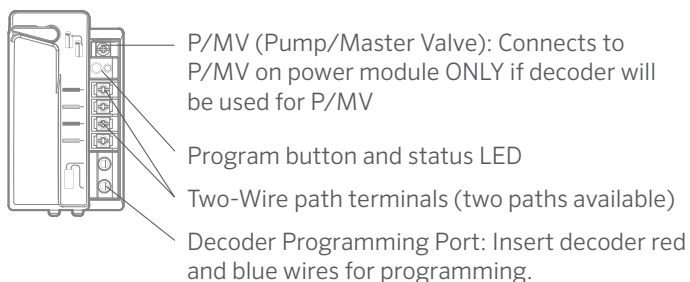It is recommended to install all conventional modules in the lower-numbered slots, and install the EZ-DM in the next available slot.
- The conventional modules will operate the station numbers that are shown on the backplane of the controller, next to the slot.
- The EZ-DM module can operate remaining station numbers up to 54 via the two-wire paths.
- Do not program duplicate station numbers when combining conventional modules and the EZ-DM. If an EZ decoder is programmed to station 1, and there is a conventional module in the first output slot with station 1, both station "ones" will turn on at the same time. This may cause a station error if it causes an overloaded current condition.
- Only program decoder station numbers that are not in use on conventional output modules.

EZ-DM Connections

P/MV (Pump/Master Valve): Connects to P/MV on power module ONLY if decoder will be used for P/MV

Program button and status LED

Two-Wire path terminals (two paths available)

Decoder Programming Port: Insert decoder red and blue wires for programming.

Decoder Programming
- Each EZ-1 Decoder must be programmed with a station number (or as the P/MV) before use.
- Insert EZ-1 red and blue wires into ports on the EZ-DM output module. It does not matter which color goes in which hole. Use the controller face panel (or remote control, if so equipped) to start the station number you want to program into the decoder.
- When the station is shown running in the controller display, press the PRG button on the EZDM. When the LED illuminates on the decoder, the decoder is programmed with that station's number. Write the station number on the decoder label with a permanent marker. It is now ready to install in the two-wire path at a valve location.

P/MV (Pump/Master Valve)

To program P/MV output for decoder: With no stations running, connect the decoder to the port, and press the PRG button on the EZDM. When the decoder LED illuminates, the decoder is programmed as the P/MV output.

IMPORTANT: Connect a jumper wire from the P/MV terminal on the controller power module, to the P/MV terminal on the decoder output module, for decoder operation of P/MV. If the P/MV output will not be used, or if the P/MV is nearby and will be wired directly to the controller without a decoder, do not install a jumper wire. The P/MV output on the controller power module will operate normally if the jumper wire is not connected.

Two-Wire Path Connections and Rules
- The output of the EZ-DM wire paths is 24VAC, 50/60 Hz. Voltage is only present on the paths when stations are active.
- The red and blue wire path terminals on the EZ-DM indicate that they are connected to the EZ-1 decoder red and blue wires, but the wire that extends the two-wire path does not need to be color-coded. It does not matter if the decoder "red" connects to the terminal "blue."
- There is no polarity on the EZ decoder system. Use direct burial-rated irrigation wire.
- The size of the wire determines the effective distance of the two-wire path.
- See the wiring table for distance specifications with various wire sizes.
- Use irrigation-grade wire connectors for all splices. They can be of the same type used for solenoid connections.

American Wire Gauge	Distance Feet	International Wire mm²	Distance meters
18 AWG	908	0.8 mm²	267
16 AWG	1446	1 mm²	333
14 AWG	2292	1.5 mm²	500
12 AWG	3650	2.5 mm²	833
		4 mm²	1333

NOTE: Distances in the Wiring Table are calculated based on 60 Hz for American Wire Gauge, and 50 Hz for International, with wire temperature of 122°F (50°C), and a 10% safety factor.

Converting Existing Wiring
It is possible to convert an existing conventionally wired system to EZ decoder operation by using existing wire bundles to create a two-wire path to each valve location and adding an EZ-1 decoder at each valve.

Tee-Splicing the Two-Wire Paths
Tee-splicing the two-wire path is permissible. Use waterproof connectors in a valve box, and adequate slack at the splices (5 ft/1.5 m) to insure a reliable connection. Size the wire for the most distant decoder from the controller.

Earth Grounding
Earth grounding is not required in the two-wire path. However, it may be added in high-lightning areas for additional protection. Use Hunter model DUAL-S surge arrestors and connect the surge arrestor ground wire to earth ground hardware. Earth grounding hardware should consist of a 8' (2.5 m) copper-clad steel rod, or a copper plate, installed at least 8' (2.5 m) away from the two-wire path.

The ICC2 or HCC controller should be grounded to earth with the ground attachment on side of the transformer cover, to approved earth ground hardware, ideally to a resistance of 10 ohms or less, as shown in the controller installation instructions.

Operation
EZ Decoders do not require special operating procedures, and the programmed decoders will operate exactly like conventionally-wired stations. When a decoder station begins to operate, the EZ-DM light will blink rapidly while first communicating, then blink at approximately one-second intervals during the station run time. When the EZ-1 decoder is actively running, the decoder LED will also blink at approximately one-second intervals. If the decoder light does not blink when the controller display indicates the station is running, the decoder may be either disconnected or damaged.

NOTE: The Hunter ICC2 QuickCheck™ feature cannot work with EZ Decoders! The function will still work with any conventional stations in a hybrid system, but is not intended for use with EZ Decoders.

Troubleshooting

Symptom	Possible Causes	Corrective Action
New Module does not work; station count is incorrect	• Controller was not reset after module installed.	• Press Reset button on the back of the control panel.
Station will not run	• Decoder not programmed or programmed to the wrong station • Decoder or solenoid disconnected • Bad solenoid	• Start manual station activation, and verify station is running in the display. • Inspect decoder, verify the LED is flashing at one-second rate. If not, check for 24VAC at decoder connection to two-wire path. • If light is flashing, decoder is working, check solenoid and connection to wire leads. • If necessary, re-program decoder to correct station number.
P/MV will not operate	• Decoder not programmed as PM/V • Wire jumper not installed	• Re-program decoder with NO stations running. • Install jumper wire between EZ-DM PMV terminal, and PMV terminal on controller power module.
Err message in display Note: When errors occur on the two-wire path, the controller cannot directly identify which station caused a problem (like it can with conventional stations and PMV). Start stations manually to see when the Err occurs.	• Overload condition in the field • Possible short in two-wire path • Possible duplicate station numbers; too many solenoids active • (Station number shown in Err display may not be correct with EZ-DM installed)	• The solenoid is damaged, causing a high current draw; check resistance. • If error occurs on all stations, check for dead short in two-wire path or PM/V output. • Eliminate decoder stations with same number as conventional stations in use.
QuickCheck advances through all zones without results	• QuickCheck not intended for use with EZ Decoders	• N/A

Compliance Information
FCC Notice
This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturer's instruction manual, may cause interference with radio and television reception. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. Operation is subject to the following two conditions:

1) This device may not cause harmful interference.

2) This device must accept any interference received, including interference that may cause undesired operation.

Notice: The FCC regulations provide that changes or modifications not expressly approved by Hunter Industries could void your authority to operate this equipment. These limits are designed to provide reasonable protection against harmful interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

• Reorient or relocate the receiving antenna.
• Increase the separation between the equipment and receiver.
• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
• Consult the dealer or an experienced radio/TV technician for help.

Industry Canada Notice
This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

(1) this device may not cause interference, and

(2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

(1) l'appareil ne doit pas produire de brouillage, et

(2) l'utilisateur de l'appareil doit accepter tout brouillage

radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

CE Notice $C\epsilon$
Hunter Industries hereby declares that this product is in compliance with the essential requirements and other relevant provisions of Directives 2014/35/EU (low voltage) and 2014/30/EU (electromagnetic compatibility).

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