

Product Specification

Product: Motorola ACE 2-wire Decoder Translator
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Description

- True A/C 2-wire decoder for landscape applications, compatible with the Motorola ACE irrigation controller.

Features

The Motorola ACE 2-wire translator features include;

- Two independent outputs, that can be controlled independently.
- Each output can control up to 127 individually addressed decoders, for a total of 254 stations.
- A RS485 serial bus to communicate with a Modbus RTU protocol.
- Operation rated to ambient +70°C.
- Suitable for use with Tonick 2 wire TW/2W decoders, MK3 decoders and Decoder In A Solenoid.
- Supports a range of sensor input decoders

Electrical

- Supply Voltage 24 ~32 V RMS AC 50 or 60Hz.
- Supply current UP TO 1.3A
- Output Voltage 23-31 V RMS AC
- Output current Max continuous
 - 1.2A at +50°C Ambient
 - 0.6A at +70°C Ambient
- Recommended Inverted power supply is 12VDC - 28VAC, Constant, 60Hz (Tonick part number: PSU1228.)

Electrical (cont,)

Note: Full Line output voltage will be continuously applied to the solenoids connected to 'on' decoders. Attention must be given to the specifications of these solenoids. DO NOT EXCEED THE MAXIMUM OUTPUT CURRENT OF THE OEM DECODER ADAPTOR.

Line signalling (per 2-wire path)

- Up to 127 Tonick 2 Wire decoders, MK3 decoders or DIAS (Decoder In A Solenoid).
- Up to 16 active DIAS 2-Way, 10 active DIAS 3-Way or 4 TW/2W/MK3 decoders and solenoids (Subject to total solenoid loads)
- Allow 45 seconds after power-up, before switching decoders
- Custom firmware for OEM systems.
- Compatible with Tonick Decoders and with Decoder-In-A-Solenoid (DIAS).
- Compatible with all Tonick Sensor decoders for moisture, pressure, water level, flow and digital inputs.
- Jumper link pairs J5 and J8 alter the polarity of the decoder signalling waveform on lines 1 and 2 respectively

Approvals

- CE (European) marked and compliant
- RoHS (European) compliant & lead free
- WEEE (European) compliant (Exempt)

CPU

- 8-bit RISC. 8MIPs. 64K flash / 4K RAM / 4K EEPROM.

Firmware

- Re-writable application in general flash space via Kanda Key-fob programmer.

Communications

- RS485 half-duplex (+80V fault, 15kV discharge)
- 9600 Baud, N,8,2 (Other formats on request)

Isolation

- 1KV between decoder line/ transformer AC input and RS485 circuitry

Slave address programmable

- 1 or 2 using the jumper able link marked J11.
Factory Set: Slave address 1

Connections

The Motorola ACE 2Wire should be wired as follows.

- AC1 and AC1 terminals should be wired to the transformer supply
- FL1 is the Field Cable 1 'Live' terminal (referred to as the 'line')
- FN1 is the Field Cable 1 'Neutral' terminal
- EST1 The Earth Stake terminal (EST) MUST be connected to the earth stake EST1 and EST2 can be connected to just one earth stake. (see below for recommendations)
- AC2 and AC2 terminals should be wired to the transformer supply
- FL2 is the Field Cable 2 'Live' terminal (referred to as the 'line')
- FN2 is the Field Cable 2 'Neutral' terminal
- EST2 The Earth Stake terminal (EST) MUST be connected to the earth stake EST1 and EST2 can be connected to just one earth stake. (see below for recommendations)
- A (D0), B (D1) are half duplex RS485 signals. B is +ve and A is -ve during line idle conditions
- COM is the ground of the RS485 circuitry and must be connected to the RS485 0V of host controller. The 0V of the interface's comms is within +/- 1.5V of the Output 1B.
- The RS485 is optically isolated from the Tonick BT2 decoder circuits by at least 1KV to help protect against lightning surges propagating into the host controller.
- Auxiliary Output 1B. This supplies the Motorola ACE 2Wire CPU and RS485 circuits. FL1, FN1, FL2, FN2 are optically isolated to 3kV from the Auxiliary Output 1B.

Grounding system

- The Earth Stake terminal (EST) MUST be connected to a properly bedded earth stake or plate via a 4mm² (#11 AWG) or larger earth wire. This earth system is not to be regarded as an electrical safety earth. Connection of the EST to a building and/or an electrical earth is NOT permitted.
- Use of the Tonick Line Terminating Unit (LTU) at each termination of the 2-wire path is recommended to complete the lightning protection system.

Environmental

- Storage - 0 to 70°C
5% to 95 % humidity (non -condensing).
- Operation +3 to +70°C, de-rated from 1.2A output at +50°C to 0.6A output at +70°C, 5 to 95 % humidity (non -condensing).

Certificate of Origin

- Manufactured in the EU.

Warranty

- 5-year warranty including damage by lightning.

Please refer to the Tonick OEM Guide for integration information.

