



**AQUAMONIX**  
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## BT2 TBOX SERIAL TRANSLATOR : 2-WIRE TECHNOLOGY

**Tonick Watering**  
Two Wire Technology

The Aquamonix range of 2-Wire Translators are marketed globally under Tonick Watering.

Tonick translators provide both the power and signaling to a range of field devices via a 2-wire pathway, and are capable of complex control and data collection. Tonick translators can be connected to your control system via a serial MODbus port or a simple multi-wire digital input interface.

The BT2 TBOX connects to the host system via a RS485 serial port, translating MODbus commands into Tonick 2-wire signalling out to the field devices via the 2-wire path. It is a true A/C 2-wire decoder for landscape applications, compatible with Tonick decoder translators.



### FEATURES

- Aluminium DIN rail mount enclosure
- Large terminals on two wire output
- Optional DIN41612 connector with mixed terminals for plug-in capability.
- Conformal coating to allow operation in 95% humidity (non-condensing)
- Operation rated to ambient +70 °C.
- Suitable for use with the complete Tonick decoder family

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## VARIANTS

- Open board format TW.TRN.BT2.TBOX
- DIN mount format

## 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 +5°C Ambient
  - 0.6A at +70°C Ambient
- Recommended inverted power supply is 12VDC - 28VAC, constant, 60Hz (Tonick part number: PSU1228)

**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

- Up to 127 Tonick 2-wire decoders, or Decoder-In-A-Solenoid (DIAS)
- Up to 16 actives (subject to total solenoid loads)
- Allow 45 seconds after power-up before switching decoders
- Custom firmware for OEM systems
- Compatible with all Tonick decoders and with Decoder-In-A-Solenoid (DIAS)
- Compatible with all Tonick sensor decoders for moisture, pressure, water level, flow and digital inputs.

## CPU

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

## FIRMWARE

- Re-writable application in general flash space. Uses Kanda Keyfob programmer

## COMMUNICATIONS

- RS485 half-duplex (+-80V fault, 15kV discharge)
- 9600 Baud, N,8,2 (other formats on request)
- A, B line biasing resistors and 130 Ohm line terminating resistor

## ISOLATION

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

## SLAVE ADDRESS PROGRAMMABLE

- 1...7 using the plug-in DIL switches. Factory Set: Slave address 1

## CONNECTIONS

The Tonick BT2 should be wired as follows:

- AC and AC terminals should be wired to the transformer supply
- L1 is the Field Cable 'Live' terminal (referred to as the 'line')
- L2 is the Field Cable 'Neutral' terminal
- RS485 Terminals
- A (D0), B (D1) are half duplex RS485 signals
- B is more +ve than A during line idle conditions
- COM is the ground of the RS485 circuitry and must be connected to the RS485 0V of host controller
- The RS485 is optically isolated from the Tonick BT2 decoder circuits by at least 1KV to help protect against lightning surges propagating in the host controller

## GROUNDING SYSTEM

- The Earth Stake terminal (EST) MUST be connected to a properly bedded earth stake or plate via a 4mm<sup>2</sup> (#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 Degrees Centigrade 5% to 95% humidity (non-condensing)  
Operation ±5 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)
- Conformal coating with acrylic except fan and terminals

### Approvals

- CE (European) marked and compliant
- RoHS (European) compliant and lead free

### 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.