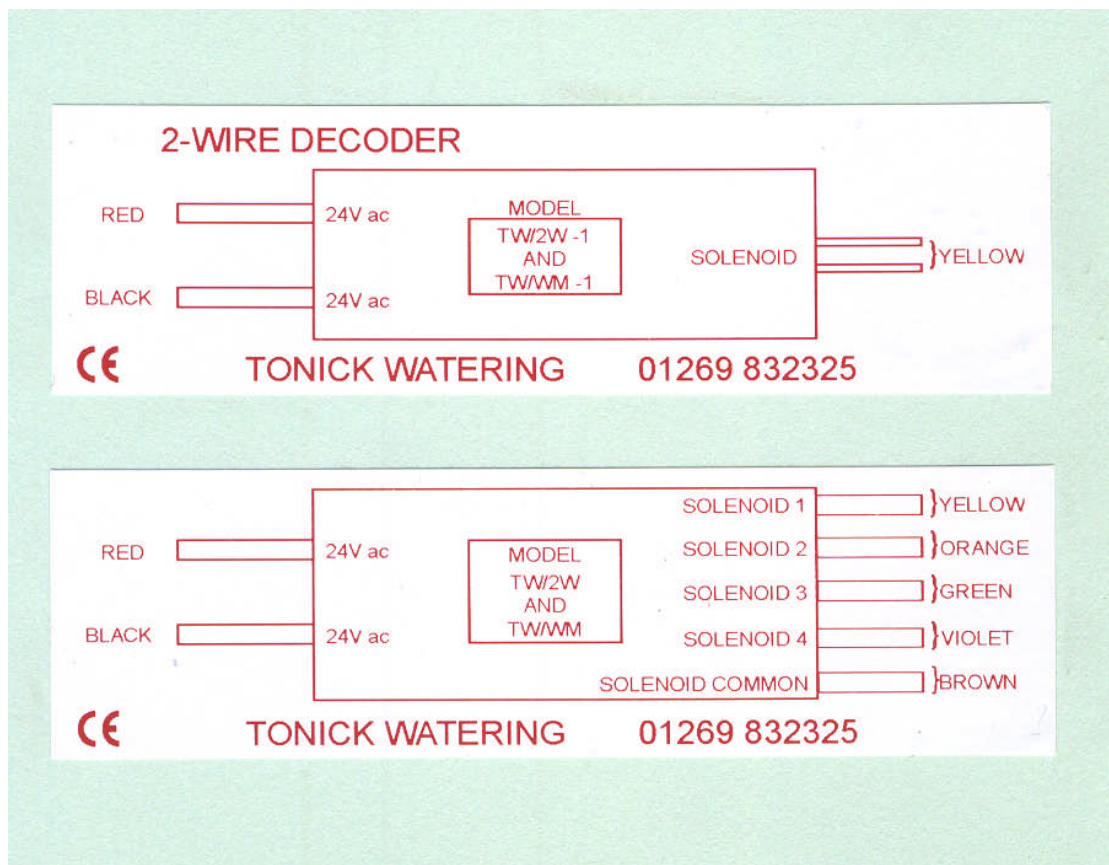


DATA ON TONICK WATERING DECODERS

TW/2W-1, TW/2W-2, TW/2W-3, TW/2W-4

Body Colour:	White, red end caps, embossed "Tonick Watering"
Power Consumption:	Typically 3mA at 26V RMS
Input Voltage Range:	19V RMS to 32V RMS, 50 or 60Hz, Sinusoidal. Other frequencies not allowed.
Solenoid Output:	Full AC input voltage less 1V is continuously applied to the solenoid for the duration of the on-time. No DC or solenoid current reduction is used.
Max. Output:	550mA RMS steady-state per output. (Typically powers 2 solenoids). 1.2A max for all outputs combined (TW/2W-2/3/4)
Temperature Range:	Operating: +5degC to +50degC at 600mA output. Max +60degC at 250mA output. Storage: -10degC to +70degC
Signaling System:	Modulation of AC waveform at AC zero crossing.
Input Power Distortion:	Pure Sinewave. Avoid any distortion of waveform slope or perturbations at the AC zero crossing point or within +/- 1/4 cycle from that point.
Decoder Address Range:	1 – 127 (Use a Tonick 'Watermation/2W' programmer) Outputs in multiple decoders may be programmed to the same address, but will switch simultaneously. Outputs in multiple decoders may be programmed to unrelated addresses.



DECODER OPERATING DISTANCES

NOTE: Observe the Blind Translator maximum load current with multiple stations.

Conditions:

- Controller output 28VAC at 50Hz
- 10 Bar water pressure
- Solenoid: Bermad S390-2 1.7W AC

Maximum operating distances, metres; active stations near each other

Wire Size	Stations					
	1	2	3	4	5	6
2.5mm2	2900	2100	1600	1300	1100	1000
4mm2	4700	3300	2600	2100	1800	1500
6mm2	7100	5000	3900	3200	2700	2300

Conditions:

- Controller output 28VAC at 50Hz
- 6 Bar water pressure
- Solenoid: Bermad S390-2 1.7W AC

Maximum operating distances, metres; active stations near each other

Wire Size	Stations					
	1	2	3	4	5	6
2.5mm2	4000	2900	2200	1800	1500	1400
4mm2	6500	4600	3600	2900	2500	2100
6mm2	9800	6900	5400	4400	3700	3200

Conditions:

- Controller output 28VAC at 50Hz
- 10 Bar water pressure
- Solenoid: Hunter Heavy Duty 24VAC

Maximum operating distances, metres; active stations near each other

Wire Size	Stations					
	1	2	3	4	5	6
2.5mm2	2700	1700	1300	1000	800	700
4mm2	4500	2800	2100	1600	1300	1000
6mm2	6700	4200	3100	2400	2000	1700

Conditions:

- Controller output 28VAC at 50Hz
- 6 Bar water pressure
- Solenoid: Hunter Heavy Duty 24VAC

Maximum operating distances, metres; active stations near each other

Wire Size	Stations					
	1	2	3	4	5	6
2.5mm2	3700	2300	800	1400	1100	950
4mm2	6250	3900	2900	2200	1800	1400
6mm2	9200	5800	4300	3300	2800	2300

Connecting To Solenoids That Are Commoned.

The Tonick TW/2W-1, single output decoder has a pair of yellow wires for the solenoid output. When installed adjacent to the solenoid, each wire of the decoder output is connected to each wire of the solenoid; the polarity is unimportant.

However, if two or more solenoids are connected through multi-core cable, where one side of each solenoid is connected to a common return, then the polarity of the decoder connection to the multi-core is very important.

In each 2W decoder, there is an electronic switch in just one solenoid output lead, whilst the other solenoid lead is connected directly to the red wire of the decoder's power leads. This solenoid output **MUST** be connected to the solenoid common in the multi-core cable.

To identify the common in the decoder, use one or other of the following methods:

For a single output decoder, TW/2W-1, place one side of a multi-meter on the red the decoder power lead. Using the Ohms range, look for a low resistance (2 Ohms or less) between this and first one, then the other of the decoder's yellow solenoid outputs. The solenoid output lead with the low resistance connection is the 'common'.

The common solenoid lead, so identified, should be marked and wired to the multi-core wire that is connected to the solenoid commons. Usual practice is to tie a knot in the wire.

The multiple output decoders TW/2W-2, TW/2W-3, TW/2W-4, have a brown common wire, which is connected internally to the red lead. When connecting to solenoids, connect one side of each solenoid to the brown lead and the other to the coloured output wire.

Any unused decoder output leads must be protected from contact with water or the ground and may **NOT** be connected together.

Decoder Datecodes.

Tonick decoders are date-coded with one capital letter and one or two numbers. This is engraved into the plastic case near one end cap. It can be interpreted as follows.

A stands for January, February or March.

B stands for April, May or June.

C stands for July, August or September.

D stands for October, November or December.

The number in the date-code pair is the last number of the year.

e.g. **A11** was made in January, February or March 2011

Lightning Warranty.

Tonick provides an exchange replacement decoder in the event that any are destroyed by lightning during the warranty period. (At the time of writing, the warranty period is 5 years). This warranty is confined to the exchange of like-for-like and does not include removal and refitting of the replacement.

To avoid unnecessary delay in receiving replacements, Tonick will send out new decoders before receipt of the damaged ones. However, when reporting the loss, a Returns Authorisation Number (R.A.N.) must be obtained from Tonick Sales (01269 832325). The damaged decoders then should be returned, clearly identified with that R.A.N., before 60 days have elapsed. If not, after that time, an invoice will be raised for the full value of the decoders and their carriage.

Tonick reserves the right to refuse returned decoders that do not have a valid R.A.N.

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E.& O.E.
Specifications subject to change without notice.