



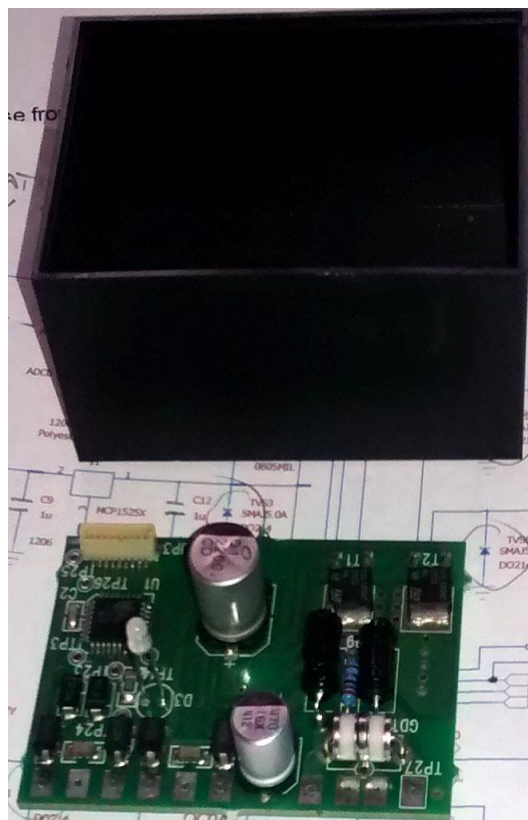
## 4-20mA INPUT SENDER 14 bit Output

The TK-4-20mA sender will receive data from 4-20mA sensors. It has an optional +19V DC output to power sensors.

Housed in a water-tight encapsulated enclosure, 70x50x35mm, the 4-20mA sensor decoder has green LED to make troubleshooting easier.

It is compatible with Tonick BT2 and Irrinet decoder interfaces. Additionally, the Tonick RM-2 Internet-based controller.

The BT2 is an OEM product and can be customised to suit the customer's controller. The range includes a full function Eurocard, down to a pre-programmed microprocessor that can be built into the customer's own controller PCB.



*Illustration 1: temporary picture*

## **SENDER SPECIFICATION:**

### **Wire Colours:**

(Type 99 military specification wires)

### **2Wire Path:**

**Red, Black:** 19-32VAC 50/60Hz. Standby current 12.5mA no sensor powered. 25 mA, sensor powered by Sender 19V and drawing 20mA

### **Sensor:**

**Orange:** Optional transducer power. +19VDC, 25mA max

**White:** Transducer signal (+) 4-20mA. Load 9.1 Ohms

**Blue:** Optional Transducer 0V

When connecting a self-powered sensor, use the white and blue connections. Orange not used. When connecting a sensor that needs power, use orange for sensor+ and white for sensor-. Blue not used.

### **LED:**

#### **Green:**

Flash for 1 second on power up

Flash when being interrogated

### **SENDER OUTPUT:**

4mA input - digital output 733 (decimal)

20mA input – digital output 3660 (decimal)

Drift: TBD. Calculated, 50ppm/DegC

### **NOTES:**

DIAS-compatible and can be used with up to 14 other Senders 1...15.

Must be used with Programmer/Tester **P37** (v3.7) or upwards

Must be used with BT2/Tbox firmware **BT2TboxCCCCv4\_1.hex** and upwards for 14bit sender data compatibility.

### **CALIBRATION OF A-D**

Recalibration of the offset and full scale of the sender may be conducted outside of the factory.

#### **Method:**

Zero Offset. Short out white & blue or leave them open circuit. Program or test the sender on a P37 (or upwards) programmer/tester.

Full Scale: inject an accurate 20.0mA into white (+) and blue (-). Program or test the sender on a P37 (or upwards) programmer/tester.

**GALVANIC ISOLATION:**

The sensor leads Orange, white & blue are galvanically isolated from the 2-wire path leads red & black by up to 5KV peak. This is to limit the conduction of lightning surges.

**OUTPUT DATA FORMAT:**

BT2/Tbox Modbus Register 40-025:

0:7 Least significant 8 bits of sender data

8: Good/Bad data bit. 1 = good, 0 = bad data or no reply

9:14 Most significant 6 bits of sender data

15: always 0



**Part Number:** TK-4-20MA

Tonick Watering.  
Wilsonwells Croft  
Crimond  
Fraserburgh  
Aberdeenshire AB43 8YH  
UK (+44)  
tel: (0)1346 531193  
Mail: [tony@tonick.co.uk](mailto:tony@tonick.co.uk)  
Web: [www.tonick.co.uk](http://www.tonick.co.uk)  
Mobile +44 (0)7595 894484

This is a preliminary data sheet. Specifications subject to change without notice

E. & O. E