



## TBOX NANO

Battery operated, ultra-low power wireless telemetry unit and for remote applications

### INPUTS & OUTPUTS

|                          |  |
|--------------------------|--|
| Removable I/O connectors | Yes  |
| Maximum I/O points       | 4 x Digital Inputs<br>1 x Digital Output<br>3 x Analogue Inputs<br>1 x RS485 serial port |
| Digital modules          | Built in   |
| Analog modules           | Built in   |

### ANALOGUE INPUTS

|                                 |                                   |
|---------------------------------|-----------------------------------|
| Type of input (not independent) | 2 x 4 - 20mA<br>1 x 0 - 5V        |
| Resolution                      | 20 bits                           |
| Accuracy                        | 0.1% (voltage)<br>0.15% (current) |
| Sensor supply output            | 24VDC                             |

### DIGITAL INPUTS

|                         |                    |
|-------------------------|--------------------|
| Type of input           | Volt free contacts |
| Contact wetting voltage | 5VDC nominal       |
| Input pulse frequency   | 0 - 5Hz            |

### DIGITAL OUTPUT

|                |                   |
|----------------|-------------------|
| Type of output | Solid State Relay |
| Voltage max    | 35 V              |
| Current max    | 200 mA DC         |

### PROCESSOR UNIT

|                  |  |
|------------------|--|
| Type             | Kinetis K66 (ARM Cortex M4) 96Mhz            |
| Flash            | 8MB Flash +<br>2 x 1MB CPU Flash             |
| RAM              | 4MB SRAM +<br>256KB CPU SRAM                 |
| Memory (SD card) | Up to 32GB                                   |
| Real-time clock  | Yes  |
| Event logging    | Expansive historical data storage capability |

### APPROVALS

CE, UL/CSA, C1D2, FCC, IC, RCM, RED

### COMMUNICATIONS

|           |  |
|-----------|--|
| Wireless  | LTE/4G<br>NB-IoT (Cat M1 & NB1)  |
| Local     | USB<br>RS485   |
| Protocols | Modbus (RTU/TCP, Master/Slave), DNP3<br>IEC 60870-5-104<br>Others available on request |

### M2M COMMUNICATION

|                    |   |
|--------------------|---|
| Type (-4E)         | LTE/4G  |
| Type (-M1)         | NB-IoT (Cat M1 & NB1 + GPRS fallback)         |
| LTE Frequencies    | 800, 900, 1800, 2100, 2600                    |
| NB-IoT Frequencies | 700, 800, 850, 900, AWS1700, 1800, 1900, 2100 |

### CONFIGURATION

|                    |     |
|--------------------|-----|
| Local (PC/Laptop)  | Yes |
| Remote via network | Yes |
| Programmable Logic | Yes |

### POWER

|                   |                               |
|-------------------|-------------------------------|
| Battery (default) | 21.6VDC lithium battery 13 Ah |
| Power down modes  | Yes                           |

### ENVIRONMENTAL

|                     |                          |
|---------------------|--------------------------|
| Working temperature | -40°C to +70°C           |
| Storage temperature | -40°C to +85°C           |
| Submersion          | IP68 4 metres for 4 days |

### DIMENSIONS

|        |               |
|--------|---------------|
| Width  | 142mm (5.59") |
| Height | 197mm (7.75") |
| Depth  | 115mm (4.52") |
| Weight | 1.5kg         |

### MOUNTING

Pole, wall, with wire hanger for metering chamber

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