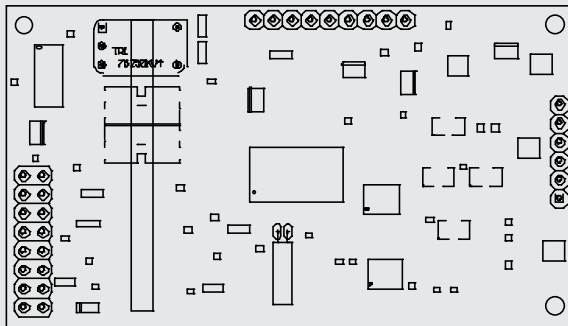


medlab

Two Channel Temperature OEM board

EG 00700

Technical Manual



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Introduction

The EG 00700 eases the task of integrating a medical temperature monitoring system into an existing or newly developed medical monitor.

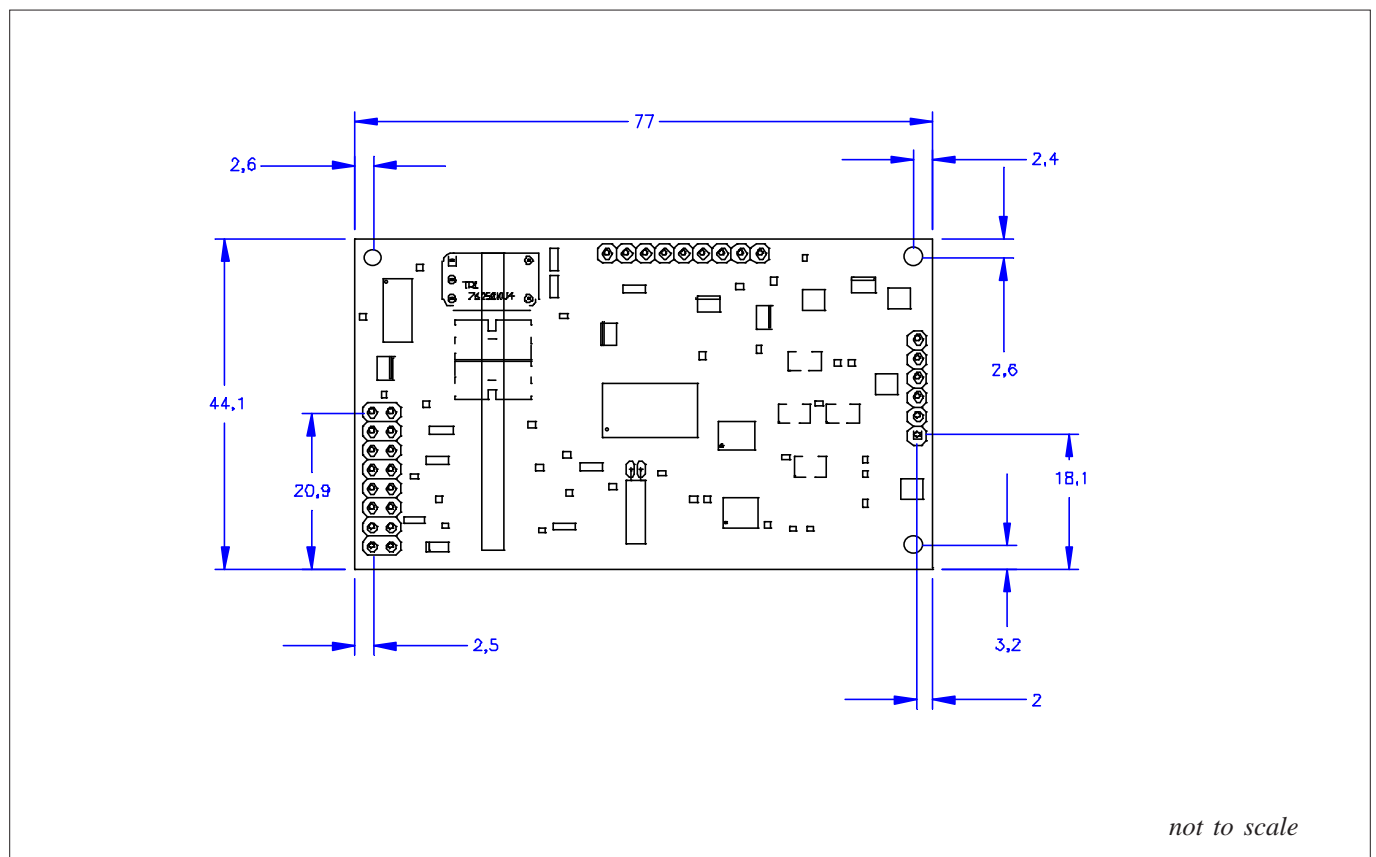
The module is fully compatible with all YSI 400 standard temperature probes.

These probes are a de-facto standard in most hospitals and medical applications worldwide.

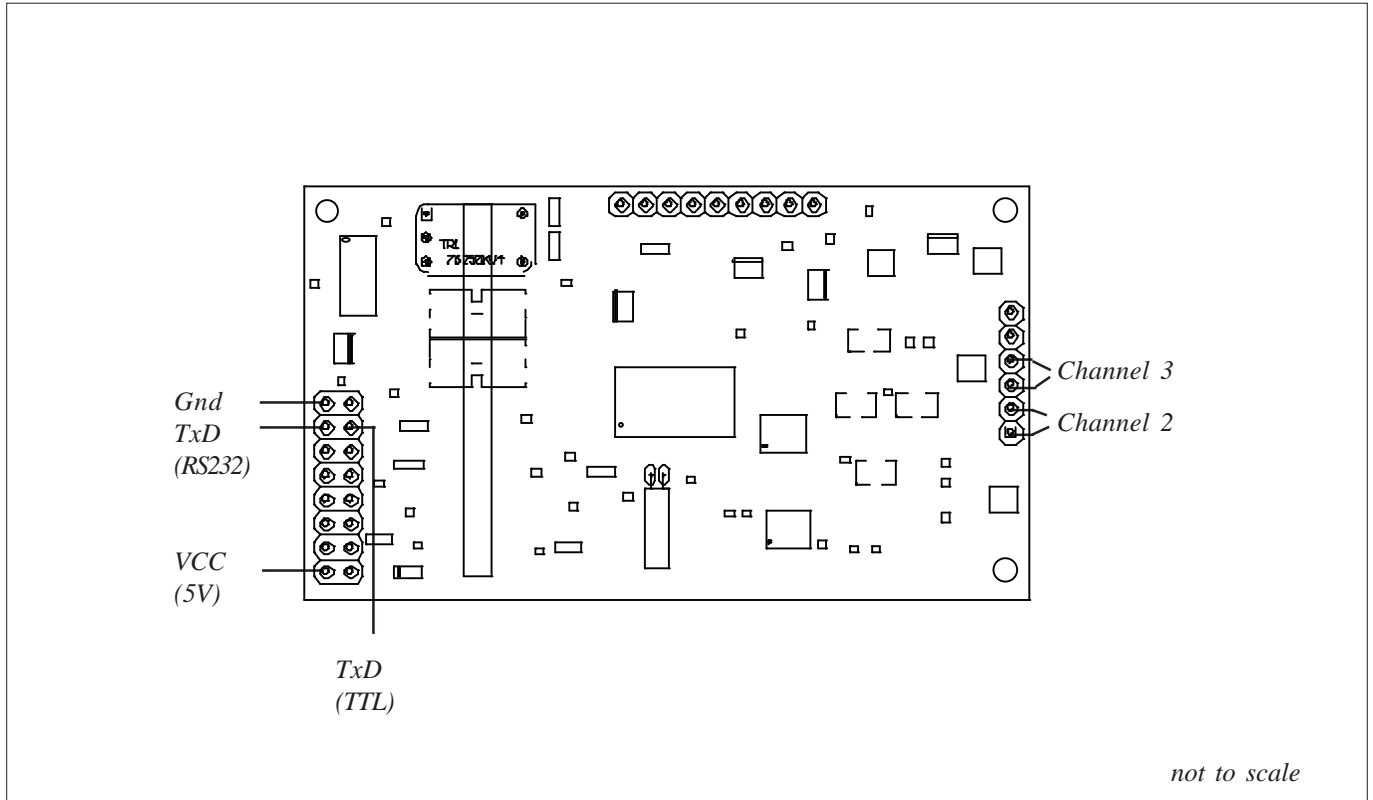
The patient side of the module is fully isolated from the rest of the module, the system includes also the DC/DC conversion for this isolated side. The leakage currents of the board itself are low enough to meet class CF regulations of the IEC 601. The insulation withstands voltages as high as 4000Volt RMS.

The inputs of the module are shielded against high voltage transients that can be present at the module during some EMC checks and while applying defibrillation pulses to the patient that are capacitively coupled to the temperature probe cable.

The module has two inputs as well as a reference input, that always reads as 38.8°C. This channel can be used as a functional control of the whole system.



Mechanical Dimensions, all values in mm



Connection to the host system and to the sensors

Technical Data

- Temperature OEM Module for medical purposes
- Compatible with all YSI Series 400 Probes
- Accuracy: $\pm 0.1^{\circ}\text{C}$ for an ambient Temperature of 10°C to 40°C
- Measurement range: $20.0 \dots 44.0^{\circ}\text{C}$
- Low Powered, Isolated Module with digital, serial RS232 Interface
- Interface has both TTL and RS232 Levels
- 4000 Volt RMS Isolation of Patient side (CF Type)
- Warm up time less than 30 seconds
- 2 Temperature Channels , 1 Reference channel (38.8°C)
- ASCII Type output, visible on each terminal
- Small size: PCB 77mm x 44mm x 10mm
- Low Power: less than 10mA @ 5 Volts
- Integrated selftest

Serial Data Format

The data is transmitted in serial format, at 9600 baud, 8 bits, no parity, 1 stop bit.

The boards transmits ASCII characters, giving the temperature on the two channels and on the reference channel in centigrades ($\Rightarrow T[^\circ\text{C}] * 10$). For example, 37.5 °C would read as 375 (0x33 0x37 0x35) at the serial outputs.

- The values are transmitted with 0.5 Hz.
- On overflow, the module shows a „!“ after the value.
- If no probe is connected, the value of this channel is followed by a „?“ after a value of 200.
- One data transmission string is always 31 bytes long
- The reference channel is named channel 1
- The channels that can be connected to YSI probes are called channel 2 and channel 3

Description of the transmission:

```
„1“, <bl>, <bl>, <bl>, T1H, T1T, T1O, <bl>, <bl>, „2“, <bl>, <bl>, <bl>, T2H, T2T, T2O, <ER2>, <bl>, <bl>,
„3“, <bl>, <bl>, <bl>, T3H, T3T, T3O, <ER3>, <bl>, <bl>, <0x0d>, <0x0A>
```

T1H hundreds of Temp1

T1T tens of Temp1

T1O ones of Temp1

aso.

<bl> Blank (0x20)

<ER2> Error on channel 2 : <bl> no error
 „?“ no sensor connected
 „!“ temperature out of range

<ER3> Error on channel 3: similar to error 2

Example:

```
1 ___ 387 ___ 2 ___ 200? ___ 3 ___ 392 ___ <0x0d><0x0A>
```

Reference channel: 38,7°C (always reads as 38.8°C, +- 0.1°C)

Channel 2: no sensor connected

Channel 3: 39.7°C

```
1 ___ 388 ___ 2 ___ 450! ___ 3 ___ 372 ___ <0x0d><0x0A>
```

Reference channel: 38,8°C (always reads as 38.8°C, +- 0.1°C)

Channel 2: value out of range

Channel 3: 37.2°C