

# Application Note

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**Ducer V604 for Temperature Measurement  
of Wave Solder PCB**





## Overview

Temperature is a general term which we talk about in our daily life. In industries temperature plays a vital role in controlling the processes and also in understanding the product conditions. Industries like pharmaceuticals, cement, steel, UPS, PCB manufacturing, electronic product manufacturing, food and beverage have special focus on temperature parameters. A slight deviation in temperature from the required one leads to the complete failure of operations.

## Problem Statement

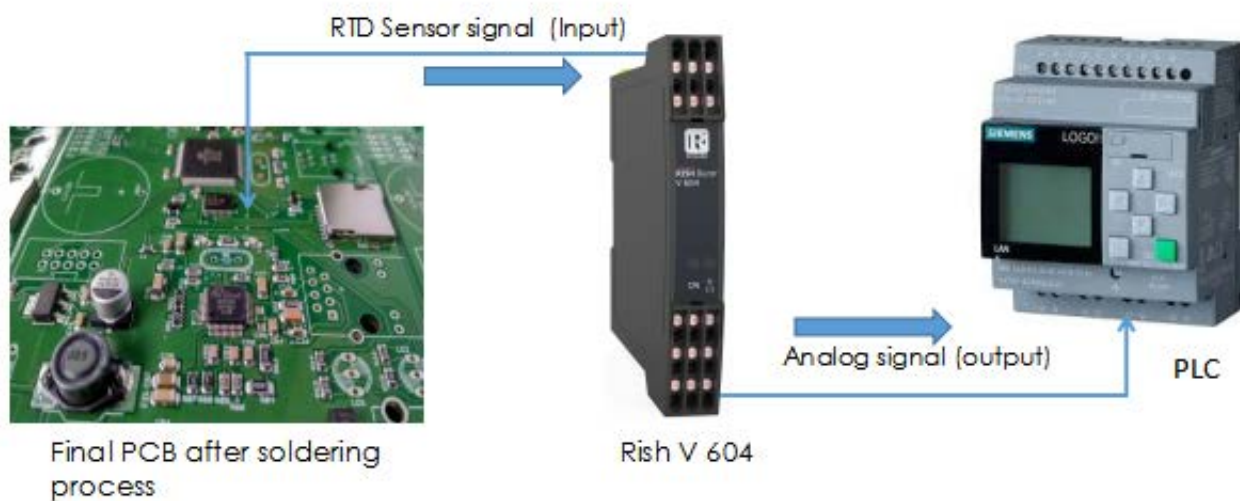
In some UPS manufacturing companies temperature of PCB and surface mount devices from the soldering process is monitored as a standard quality check process to cross check whether the finished PCB product is ok in condition, every device mounted on PCB are in correct alignment and also whether temperature on PCB is not too high or low for changing the alignment of SMD devices. So, the client chased us for offering a product which can help them to monitor the surface temperature of PCB and provide an equivalent analog signal which can be given to the PLC controller. The device should be universally programmable for any sensor and should also be compact in size to mount it inside the panel. Also, a relay alarm indication should be available in the device as a warning purpose.

## Solution

For the above problem Ducer V604. A universal input programmable transducer which can be programmed for Temperature (with Thermocouple and RTD as temperature sensor input), Analog single (4-20mA, 0-10V), Resistance input. The above-mentioned inputs are converted to equivalent 4-20mA or 0-10V DC singles which are further given to either PLC devices or to Display units. Additionally a SPDT relay is provided for indication or tripping purposes.

So, the RTD or TC sensor is placed above the surface of the soldered PCB. Depend on the surface temperature the sensor will provide the signal to Ducer V604. As per the configuration in the device, V604 will provide the equivalent analog single which is further given to the PLC controller. In case the temperature is under the range the PCB is moved forward for the assembly purpose. This is the process added in quality check in some UPS manufacturing industries.

Below image shows the picture of V604 along with the application:



**Fig:- Quality process check after wave soldering**

## Features

- Universal Input (programmed via PC)
- Analogue output signal also programmed on the PC
- Housing only 17.5 mm wide (size S17 housing)
- Wide power supply tolerance
- Electric insulation between circuits (optical isolation)
- Digital measured variable data available at the programming interface
- Automatic signaling of defects and device failure



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