

Lumel RE70 00E0

Lumel RE70 00E0 PID Temperature Controller User Manual

Model: RE70 00E0 | Brand: Lumel

1. INTRODUCTION

This manual provides comprehensive instructions for the installation, operation, and maintenance of the Lumel RE70 00E0 PID Temperature Controller. Designed for precise temperature management in industrial applications, this controller offers robust performance and versatile functionality.

2. SAFETY INFORMATION

Always adhere to local electrical codes and safety regulations during installation and operation. Ensure the device is installed in a sealed unit to protect the IP20 rated body from water and excessive dust, even though the front panel is IP65 rated. Disconnect power before performing any installation or maintenance.

3. PRODUCT OVERVIEW & FEATURES

The Lumel RE70 00E0 is a digital PID temperature controller engineered for demanding industrial environments. It is particularly suited for controlling temperature parameters in furnaces, dryers, and injection molding machines, but its versatility extends to other applications requiring precise temperature regulation.



This image displays the front panel of the Lumel RE70 00E0 PID Temperature Controller. It features a bright red LED display, indicating a temperature reading of '233.5'. Below the display, indicators for 'OUT', 'SP', and 'ST' are visible, along with the 'RE70' model designation and 'LUMEL' brand logo. Three grey control buttons are located at the bottom for navigation and setting adjustments.

Key Features:

- **Universal Input:** Supports both RTD (Resistance Temperature Detector) and TC (Thermocouple) sensors, allowing compatibility with a wide range of temperature measurement systems.
- **Single Relay Output:** Provides a single relay output for control.
- **Control Modes:** Offers both On/Off control functionality for basic temperature regulation and advanced PID control.
- **Auto-Tuning:** Features an auto-tuning function for quick and reliable commissioning, automatically calculating optimal PID parameters.
- **Manual Operation Mode:** Allows for flexible manual control over the output.
- **Parameter Configuration:** Supports manual setting or automatic adaptation of PID parameters.
- **Power Supply:** Designed to operate with a 230 V AC supply voltage.
- **Compact Design:** Unit dimensions are 48 x 48 x 93 mm.
- **IP Protection:** Front panel rated IP65 for protection against dust and water splashes; the main body is IP20.

4. INSTALLATION & SETUP

The RE70 00E0 is designed for panel mounting with a standard 48 x 48 mm cutout.

1. **Mounting:** Cut a 48 x 48 mm opening in the control panel. Insert the controller into the opening and secure it using the provided mounting clips. Ensure the panel is sealed around the controller to maintain the IP65 rating of the front panel.
2. **Wiring:** Connect the power supply (230 V AC) to the designated terminals. Refer to the wiring diagram provided with the product for specific terminal assignments.
3. **Sensor Connection:** Connect your chosen RTD or TC sensor to the universal input terminals. Ensure

correct polarity for thermocouples.

4. **Output Connection:** Connect the controlled device (e.g., heater, fan) to the single relay output terminals.
5. **Initial Power-Up:** Once all connections are secure, apply power to the unit. The LED display will illuminate.

5. OPERATING INSTRUCTIONS

The RE70 00E0 offers both On/Off and PID control modes.

1. **Setting the Setpoint (SP):** Use the navigation buttons (typically left arrow, up arrow, down arrow) on the front panel to adjust the desired temperature setpoint.
2. **Control Mode Selection:** The controller supports On/Off and PID control. Consult the detailed product manual for specific instructions on switching between these modes and configuring PID parameters (Proportional, Integral, Derivative values).
3. **Auto-Tuning:** For optimal PID performance, utilize the auto-tuning function. This feature automatically calculates and sets the most appropriate PID parameters for your specific system, ensuring stable and accurate temperature control. Initiate auto-tuning via the control panel interface as per the full manual.
4. **Manual Operation:** The controller also supports a manual operation mode, allowing direct control over the output without relying on automatic PID calculations.
5. **Monitoring:** The LED display continuously shows the current process value (PV) and can typically be toggled to display the setpoint (SP) or other operational parameters.

6. MAINTENANCE

The Lumel RE70 00E0 is designed for reliable operation with minimal maintenance.

- **Cleaning:** Periodically clean the front panel with a soft, damp cloth. Do not use abrasive cleaners or solvents.
- **Inspection:** Regularly inspect wiring connections for looseness or signs of damage.
- **Environmental Conditions:** Ensure the operating environment remains within the specified temperature range (0°C to +50°C) and that the controller body is protected from excessive dust and moisture (IP20 rating).

7. TROUBLESHOOTING

This section addresses common issues you might encounter.

Common Issues and Solutions:

- **No Display/Power:**
 - Check the 230 V AC power supply connection.
 - Verify the fuse (if applicable) in the power circuit.
- **Incorrect Temperature Reading:**
 - Ensure the sensor is correctly connected and is the appropriate type (RTD/TC) for the controller's configuration.

- Check for damaged sensor wiring.
- Verify the sensor is properly installed in the process.

- **Output Not Activating/Deactivating:**

- Check the setpoint (SP) relative to the current temperature (PV).
- Verify the control mode (On/Off or PID) and its parameters.
- Inspect the relay output wiring.

- **Unstable Temperature Control:**

- Perform PID auto-tuning to optimize control parameters for your system.
- Check for external disturbances affecting the process temperature.

8. TECHNICAL SPECIFICATIONS

Refer to the table below for detailed technical specifications of the Lumel RE70 00E0 PID Temperature Controller.


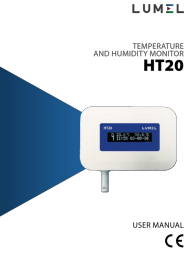


| Feature | Specification |
|--------------------------------|---------------------------------------|
| Model | RE70 00E0 |
| Brand | Lumel |
| Input Type | Universal (RTD, TC) |
| Output Type | Single Relay |
| Supply Voltage | 230 V AC |
| Unit Dimensions (W x H x D) | 48 x 48 x 93 mm |
| Panel Cutout | 48 x 48 mm |
| Operating Temperature Range | 0°C to +50°C |
| Display Type | LED |
| Front Panel IP Rating | IP65 |
| Body IP Rating | IP20 |
| RoHS Compliance | Not Compliant |
| Code Number | 894-6991 |
| Number of Inputs | 1 |
| Number of Outputs | 1 |
| Controllable Temperature Range | -200 °C to 1767 °C (sensor dependent) |

9. WARRANTY & SUPPORT

Information regarding product warranty and customer support is not provided in the available product details. Please refer to the official Lumel website or contact your distributor for warranty terms and technical assistance.

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Related Documents

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|  | <p>LUMEL RE62 Universal Controller User's Manual</p> <p>Comprehensive user manual for the LUMEL RE62 Universal Controller, detailing its application, installation, operation, programming, control algorithms (ON-OFF, SMART PID), alarms, additional functions, RS-485 interface, software updates, technical specifications, and ordering information.</p> |
|  | <p>LUMEL HT20 Temperature and Humidity Monitor User Manual</p> <p>Comprehensive user manual for the LUMEL HT20 Temperature and Humidity Monitor, detailing its application, operation, technical specifications, Ethernet connectivity, Modbus TCP/IP, and archiving features.</p> |
|  | <p>LUMEL N21 Panel Mounted Meter User's Manual</p> <p>User's manual for the LUMEL N21 digital programmable panel mounted meter. This document details the application, design, installation, operation, and technical specifications of the N21 meter, which measures DC voltages, DC currents, and temperature using thermocouples and Pt100 resistance thermometers.</p> |
|  | <p>ND31PLUS Power Network Meter with Ethernet Daisy Chain</p> <p>The Lumel ND31PLUS is a versatile power network meter offering Ethernet daisy chain connectivity, MQTT (IIoT), BACnet/IP, and Modbus TCP/IP protocols. It measures 54 power network parameters, including harmonics up to the 63rd, and features a high-resolution color display, internal memory for data archiving, and multiple communication options for comprehensive power monitoring and analysis.</p> |