# EPC3000 Controllers

## Helping deliver an efficient and secure process

Maintain high standards of production
quality and ease your cybersecurity worries

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Eurotherm.
by Schneider Electric

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# Value proposition

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# FIRST PROCESS CONTROLLER CERTIFIED TO ACHILLES CRT LEVEL 1

The EPC3000 **Ethernet enabled** controller is the first to be designed and

certified to meet the stringent **cybersecurity** requirements of **Achilles®**

**Communications Robustness Testing Level 1**

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# Cybersecurity certified

The EPC3000 **Ethernet enabled** controller is the first to be designed and certified to meet the stringent **cybersecurity** requirements of **Achilles® Communications Robustness Testing Level 1**

Achilles CRT Certification ensures products meet industry benchmarks for robustness including security.

- Improve device cybersecurity protection

- Differentiate product offering and company

- Meet industry standards for device security

- Access customers whose vendors need to be Achilles Certified

*"The Achilles certification program is clearly the de facto cybersecurity standard for critical infrastructure sectors and is already adopted by the world's largest suppliers and end-users of industrial control and safety systems."*

US Department of Homeland Security, Cybersecurity

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# Optimize your process

Maximize yield at high quality with products that are built to last

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# Consistent, repeatable results, batch after batch, year after year

- Fast control response without overshoot improves efficiency and maintains quality

- More stable, accurate measurements enable consistent results without operator intervention

- Better reliability and robustness to minimize downtime

- Easy to service and replace if needed

# Low total cost of ownership

- Ready for use out of the box with instant application setup
- Robust battery free design with long service life and high MTBF
- Clear user friendly operation with scrolling help text
- Free expert phone helpdesk and online support
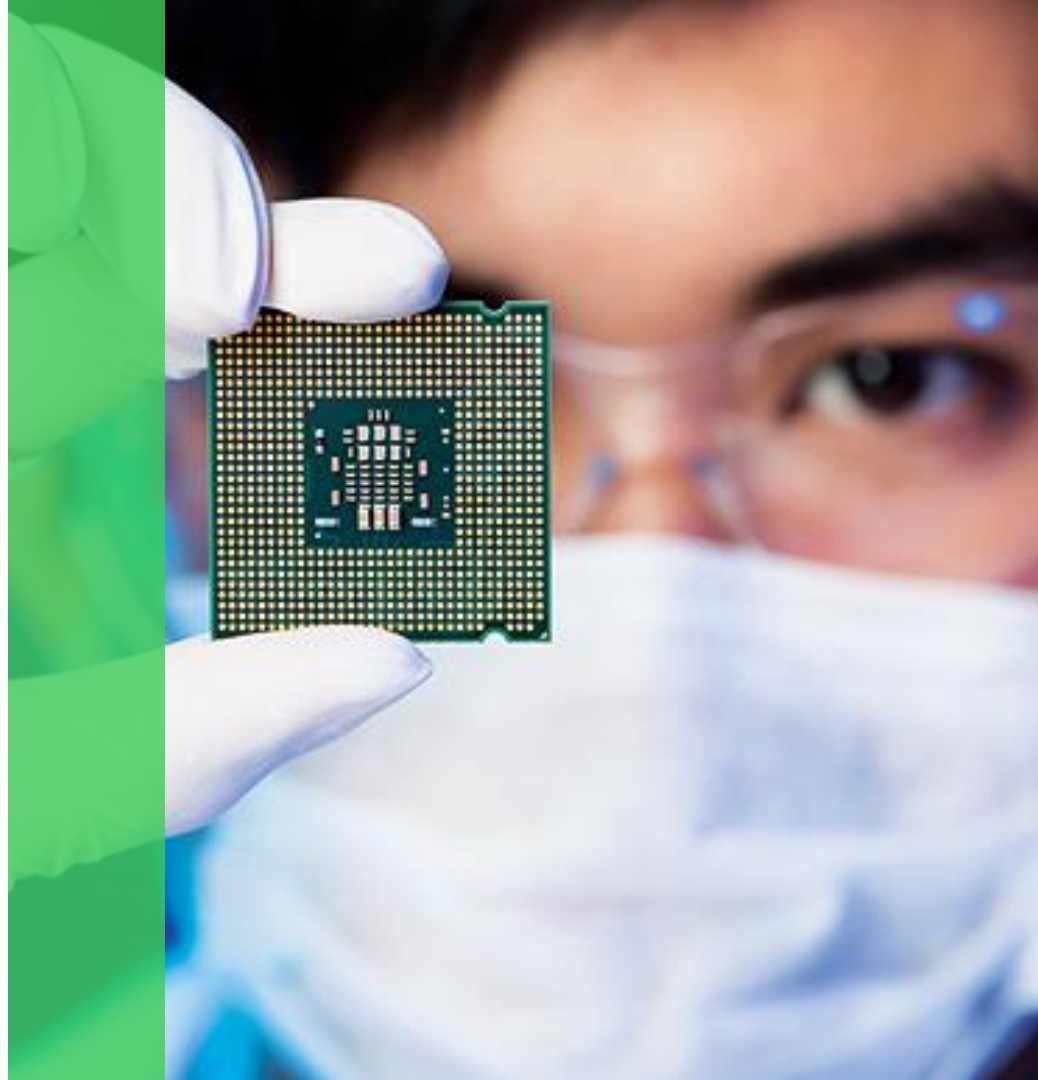- Support contracts available

Whatever your process, the EPC3000 range achieves the required stability, accuracy and repeatability

Robust design for reliability in demanding environments

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# Engineer outstanding process results

- Precise, fast, temperature measurements with exceptional thermal stability and noise rejection

- 300V Double isolation between inputs, I/O and communications

- Maintain control to tight tolerances even during process disturbances or mains fluctuation

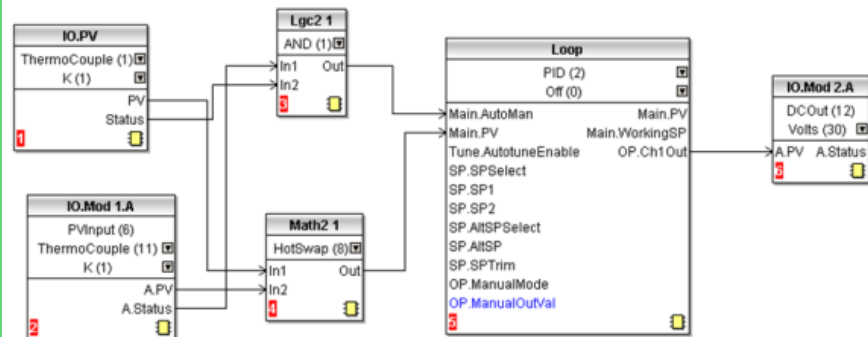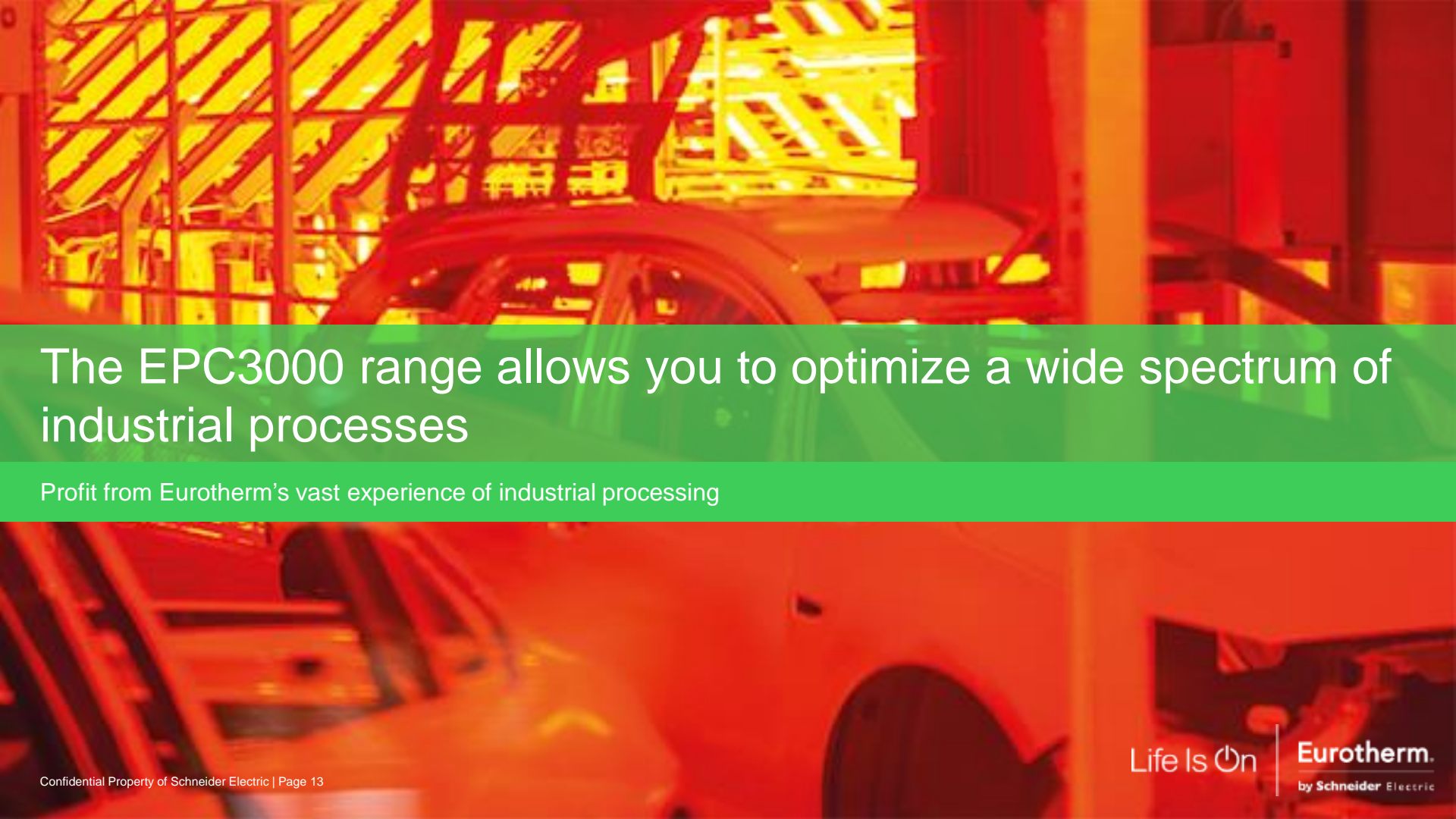- Diagnostics and metrics available online via fast Ethernet connection

# React at the speed of change

Simple intuitive operation, easy and quick to commission, fast to replace and repair

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# Connected and flexible

- Fast Ethernet connection certified to Achilles CRT Level 1 for IIoT connectivity

- Soft wiring to automate custom control and monitoring, including math, totalizers and special functions

- Purchase software functions online only when needed

- Flexible I/O Options

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# The EPC3000 range allows you to optimize a wide spectrum of industrial processes

Profit from Eurotherm's vast experience of industrial processing

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# Meets global standards

- CE cUL, CCC exempt, EAC (CUTR) (formerly GOST) pending
- Achilles CRT level 1 Cybersecurity
- AMS2750E
- CQI-9
- EN14597 TR pending
- NEMA4X for indoor use /IP66 (for washdown)
- RoHS, China RoHS
- Schneider Green Premium

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# Semi Conductors | Composites | Automotive | Aerospace
# Advanced Materials Processing | Laboratories | Food & Beverage
# Glass | Steam Applications | Plastics



Industrial furnaces • Autoclaves • Crystal growing • Atmosphere control • Composite materials processing • Heat exchangers • Climatic chambers • Annealers • Dryers • Ovens • Pasteurizers • Sterilizers Incubators • Boilers • Extruders • Blow molders • Injection molders • Trace heating • Bushing control Disinfection processes • Batch processing • Melt pressure control • Industrial distillation

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# Concepts and positioning

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# EPC3000: Definition and concept

**Cost effective precision performance controller**

- High speed **0.1% high precision** process measurement with **dual input** capability

- Exceptional **thermal stability**

- **Eurotherm PID response** with enhanced overshoot protection and improved autotune

- **Quick Code** setup and application templates including Zirconia atmosphere control

- **Soft wiring functions** with maths, logic, totalizers and specialized blocks

- **Direct Ethernet connection** for IIoT, security tested to **Achilles CRT Level 1**

- **Robust battery free design** with MTBF

- **Global approvals** and certifications

# Technical Summary

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# Overview of features

- **Single loop** heat/cool PID control, Unbounded VP

- **Precision PV Inputs** (0.1%, 20Hz max, low thermal drift), meets AMS2750E accuracy requirements for control

- **Flexible**  Input/Output options

- Setpoint **Programmer** (up to 10x24 programs)

- Fast **Ethernet** with **Achilles CRT Level 1 Certification**

- **RS485** Modbus/EI Bisynch

- **Zirconia** function

- **Recipes** and **User Event Messages**

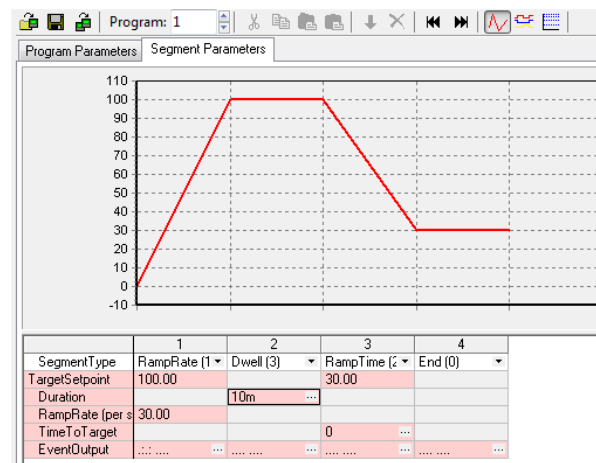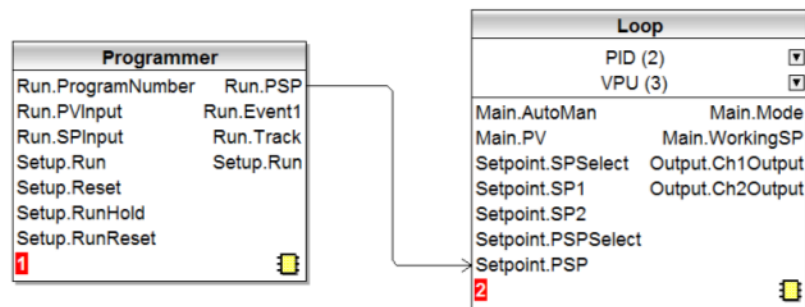- **Graphical user wiring** of functions (math, logic, timer…)

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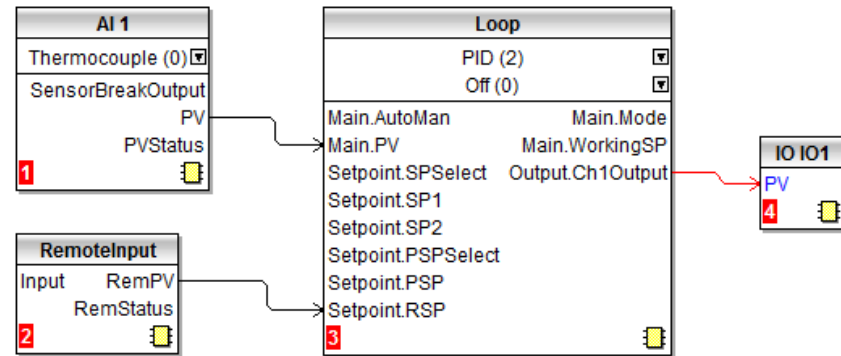
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# Setpoint programmer

- Up to 10 Programs, with maximum 24 segments

  - Options for basic 8 segment or advanced

- 8 Segment events

- Ramp Rate or Time to Target

- Call segments to increase segments per program

- Programmable from HMI or iTools

- Backwards compatible with 2400 for communications and function

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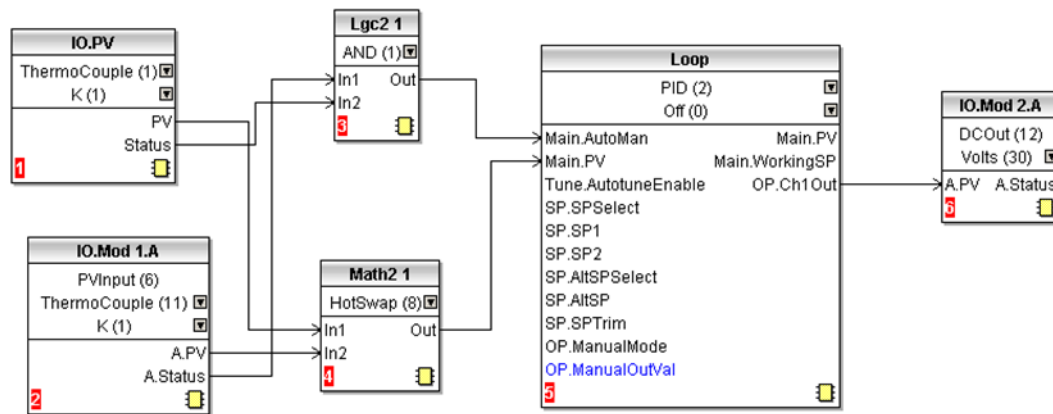
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# Control features

- Single loop control

  - PID, On/Off, Valve position

  - Dual channel (heat/cool)

- Two PID gain scheduling sets

- Supply voltage compensation

- Feedforward for SP/PV or disturbance variables

- Enhanced autotune and better overshoot inhibition

- Enhanced valve positioner function

# Graphical user wiring

- Graphical representation of application

- Pick and place from function block template

- Function block types include Math, Logic, Timers, Totalizers, and Counters

# Recipes

- 5 recipes (memory areas) with max 40 parameters

- Selectable via HMI (including function key), user wiring, communications or BCD

- Very powerful and flexible

# Zirconia function

- Carbon Potential, Dewpoint or Oxygen measurement

- Supports a variety of probes and equations

- **Probe impedance measurement**

- Probe clean output

- Probe soot output

- New IP (Patent pending)

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# High visibility multi-line display

PV units

Alarm icon

Setpoint / working OP

OP units

Scrolling messages

Configurable bargraph

4 to 5 digit PV display, color changes in alarm

Program status info

Status icons

Output status

Configurable buttons



User interface like S3000, with configurable level 1/ level 2 scroll lists

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# Quick Start code



Heat only controller

J Type thermocouple

Full range

No second input

# Quick Start code



EPC 3004

SEt2
SMR9C

Units °C

50A CT

Auto / manual DI

Programmer event outputs

Programmer run / hold DI

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# Robustness and reliability

- Designed under **Tickit Plus** methodology (ISO9001) (LRQ0871739 – LRQA)

- Certified to **Achilles CRT Level 1** for communications vulnerabilities

- Designed to meet **EN14597 TR** (approval pending)

- **Static code analysis** and **automated testing** employed throughout development

- Power on and periodic **self test** to detect memory corruption

- **Battery free design**

- FRAM parameter storage with **extended write lifetime**

- Long design **MTBF**

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# Summary

- EPC3000 – the new **high precision** mid-range controller from Eurotherm

- Uniquely offers **Achilles CRT Level 1 Certification** to meet 21st Century Cybersecurity threats

- **Exceptional thermal stability** and noise rejection

- **Industry leading control performance** delivers more batches at higher quality without dead time or overshoot

- The **performance of a high end controller** at a mid-range price

- **Fully supported** by application experts, helpdesk, and online methods

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