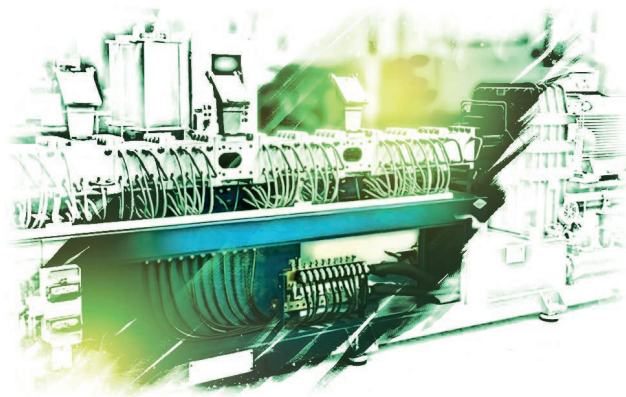




PLASTIC PROCESSING MACHINERY

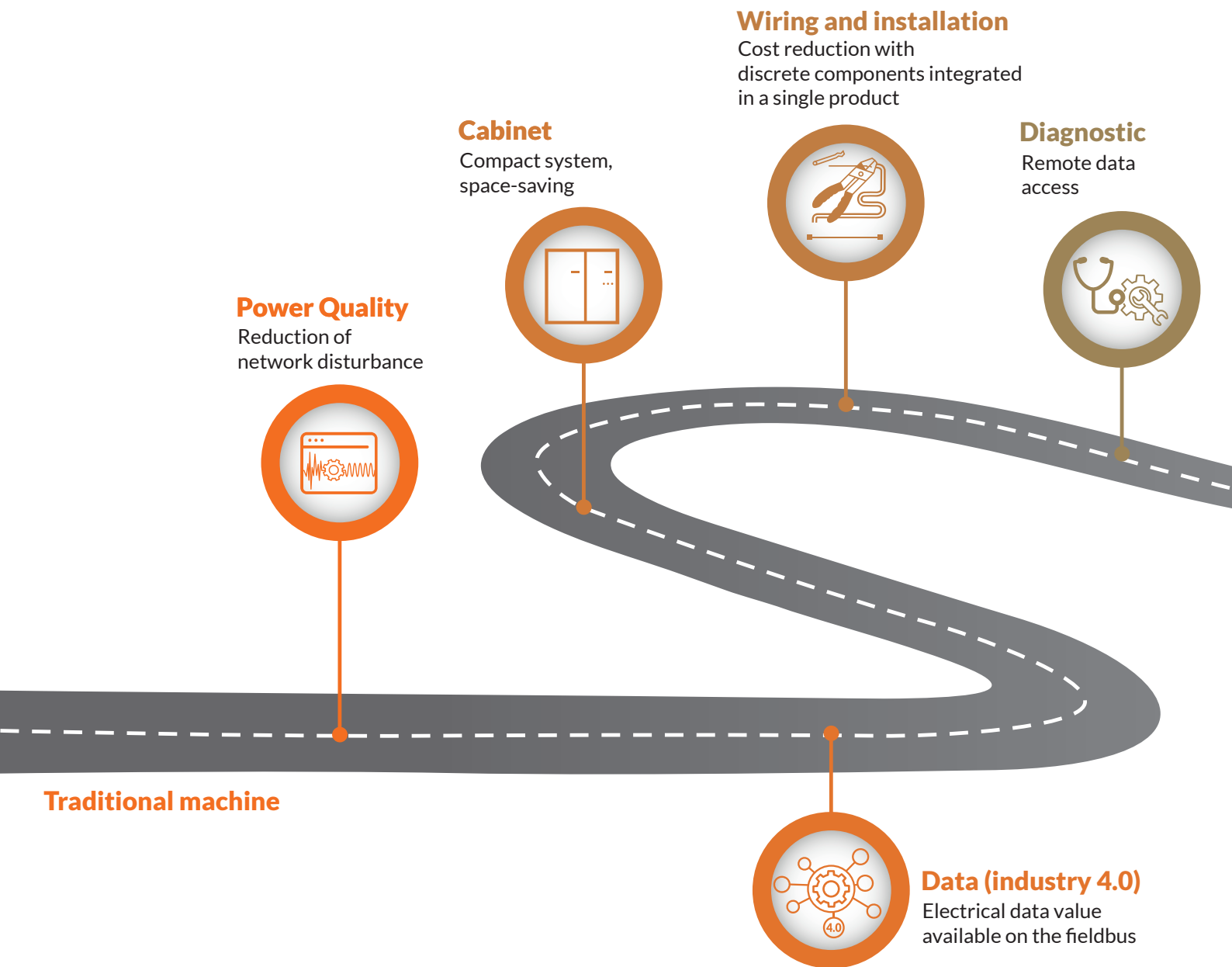
Intelligent control systems



www.cdautomation.com

From tradition to innovation

Find out how to get more modern and efficient plastics machines in 9 steps





Extrusion



Hot Runner molds



Chiller



Packaging



Flow pack packaging



Plastic bag welding



Thermoforming



Press molds



Blowing



Polystyrene cutting



Pharmaceutical



Plastic metallisation

Engineering
Design simplification

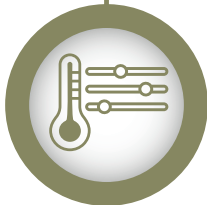


TCO: Total Cost of Ownership

Optimisation extends the life of the machine

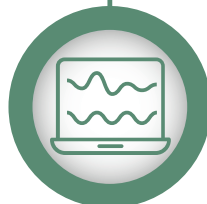


Top-of-the-range modern system



Thermoregulation and Control

Optimisation of thermal cycles



AutoTuning

Optimised tuning for each specific process

Scan the QR Code to explore all our innovative solutions and request more information



What is your energy rating?

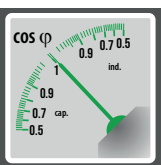


Power Quality



- > Reduction of disturbances on the power supply line.
- > Reduction in heating of electrical cables.
- > Reduction in power loss.
- > Reduction in flickering and harmonics, usually due to the insertion of unsynchronised loads, with a negative impact on power quality.

Power Management



Thanks to the new **REVO POWER NETWORK** control system and **Dynamic Burst Firing** technology for optimising the insertion of electrical loads, we keep Power Factor values very close to 1, minimising energy cost penalties and disturbances fed into the grid.



TRANSIENTS



HARMONICS



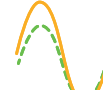
REACTIVE POWER



NETWORK UNBALANCE



OSCILLATIONS



VOLTAGE VARIATIONS



FLICKER



More efficient thermoregulation in 4 steps

- 1 Firing synchronisation.
- 2 Gradual switch-on of low-inertia zones coordinated with high-inertia zones.
- 3 Depending on the process, use innovative heating elements such as infrared emitters.
- 4 Reducing machine downtime:
 - Quality solid state relays with firing modes that extend the life of heaters and thyristor units.
 - It will be possible to predict the failure of heaters via the advanced diagnostic functions of SCR units, so that they can be replaced during scheduled maintenance.

Intelligent control systems in plastics processing machinery

REVO products achieve significant time and cost savings compared to solutions normally applied to conventional temperature control systems consisting of individual components. Our products allow you to reduce your downtime by optimising your processes.

The All in One Unit

Total integration of all components and functionality for the control of electric heating elements in a modular system.

Less overhead

More than 70% less wiring in the control cabinet.

Quick installation

Up to 20% faster, on site.

Reduced footprint

Up to 80% space saving in the control cabinet.

Intelligent diagnostic

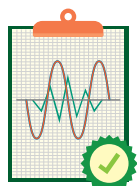
Intelligent diagnostic functions immediately detect and locate load malfunctioning errors and make them immediately available on the fieldbus.

Integrated load management

Software algorithm's optimise performance by distributing the load over the network.

Simple integration of the heating process

Utilize existing libraries, templates and project examples for simple process integration of your heating system to Siemens® or Rockwell PLC's. The TIA Portal® guarantees the complete integration of all components with a shared database.



Power
Quality



Reduce wiring
time



Reduction of
cabinet space



System
integration



Cost
reduction

Choose the optimal solution for each application

Our REVO products offer different power control solutions that can be integrated with PLC systems either in the standard version (power control only) or with integrated temperature control (temperature control + power).

Each system can handle several control channels both in number and power output.



REVO POWER NETWORK Series

Multi-zone solutions with firing synchronisation and fieldbus; firing control based on “Dynamic Burst Firing” algorithm.

- **REVO PN:** up to 24 power zones from 25A 480V max for each unit.
- **REVO PC:** up to 24 outputs for controlling external SSRs with SSR input (30 to 800A 480/600/690V max) and CT for current detection.
- **REVO RT Loop:** System of 3 to 24 single/double intervention temperature control zones that can be associated with one or more channels of REVO PN or REVO PC units.

REVO RT

Integrated multi-zone control unit with thermoregulation and power in one device (All In One) available in 3 versions.

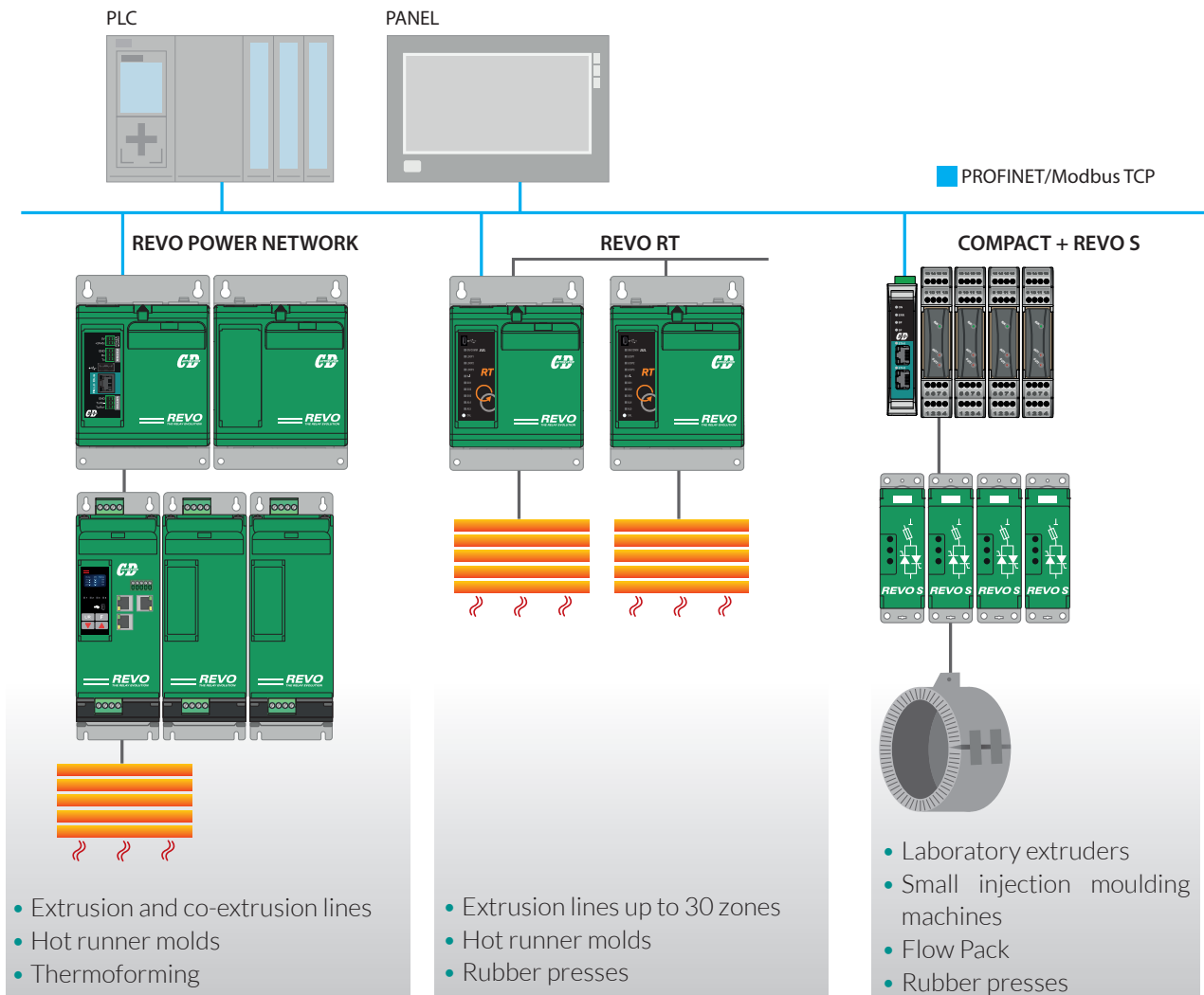


Without
Dynamic Burst Firing
algorithm



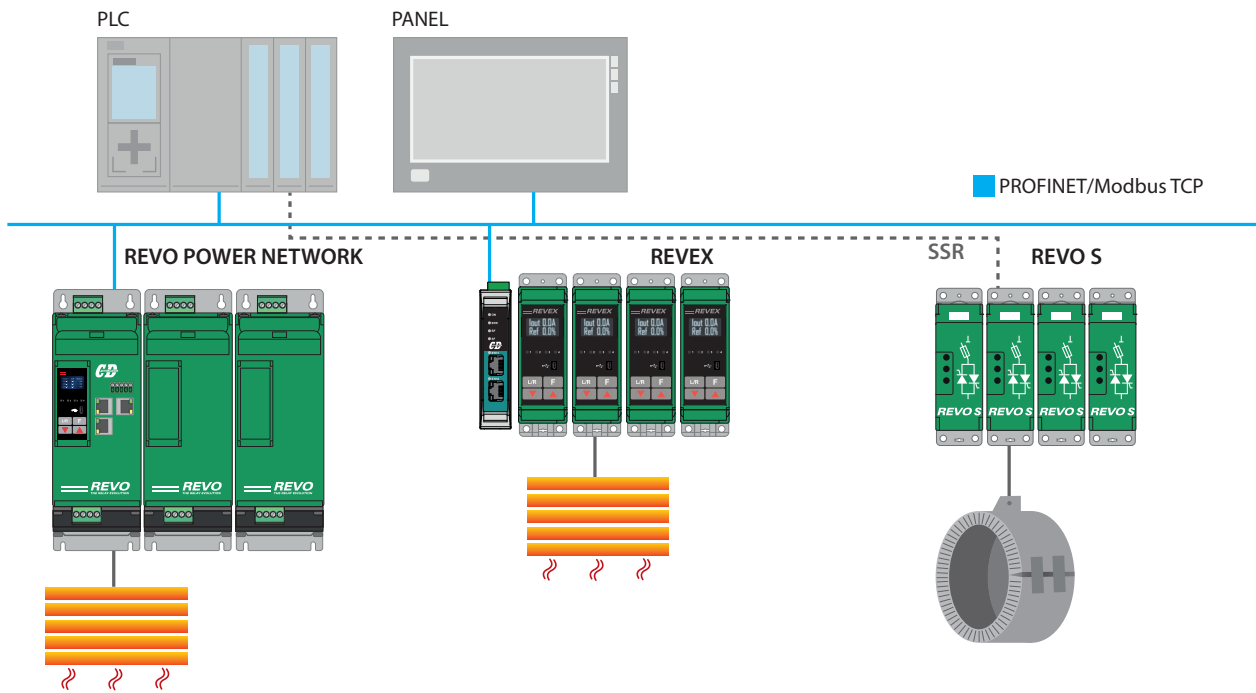
With
Dynamic Burst Firing
algorithm

Power + Thermoregulation Control



Controller & Power	REVO Power Network	REVO Series RT	Compact
PID control	Yes	Yes	Yes
Adjustment type	Hot/Cold	Hot/Cold	Hot/Cold
Load diagnostic	Yes	Yes	Yes
SCR diagnostic	Yes	Yes	Yes
Modularity of Control Channels	3	2, 3	1
Max. zones per node	24	24	24
Firing optimization	Yes	Yes (basic)	No
Electric variable measurements	Yes	Yes	Yes
Armoured resistance	Yes	Yes	Yes
IR lamp short wave	Yes	No	No
Power part	Integrated or with external REVO S	Integrated or with external REVO S	External REVO S only
I Max with integrated power modules	25A-90A	35A, 50A, 75A, 90A	No
I Max with external REVO S	3 to 800A	3 to 210A	3 to 210A
Enable to start	Yes	Yes	No

Power Control



- Extrusion and co-extrusion lines
- Thermoforming
- Injection moulding machines
- Control IRSW lamps
- PET blowing

- Welders
- Cutting Polystyrene
- Plastic metallisation
- IRWS lamps
- PET blowing

- Complete extrusion lines
- Injection moulding machines

Power only	REVO Power Network	REVEX	REVO S
Pulse modulation	Yes	Yes	No
Phase angle modulation	No	Yes	No
Switching ON/OFF at step V for zero	Yes	Yes	Yes
Load diagnostic	Yes	Yes	Yes
SCR diagnostic	Yes	Yes	Yes
Modularity of Power Channels	4	1	1
Max. zones per node	24	24	-
Firing optimization	Yes	No	No
Electric variable measurements	Yes	Yes	No
Armoured resistance	Yes	Yes	Yes
IR lamp short wave	Yes	Yes	No
Power part	Integrated or with external REVO S	Integrated	Integrated
Current	25A / 30 to 800A	30 to 280A	3 to 800A

Power Quality Objective

REVO PN Power Network

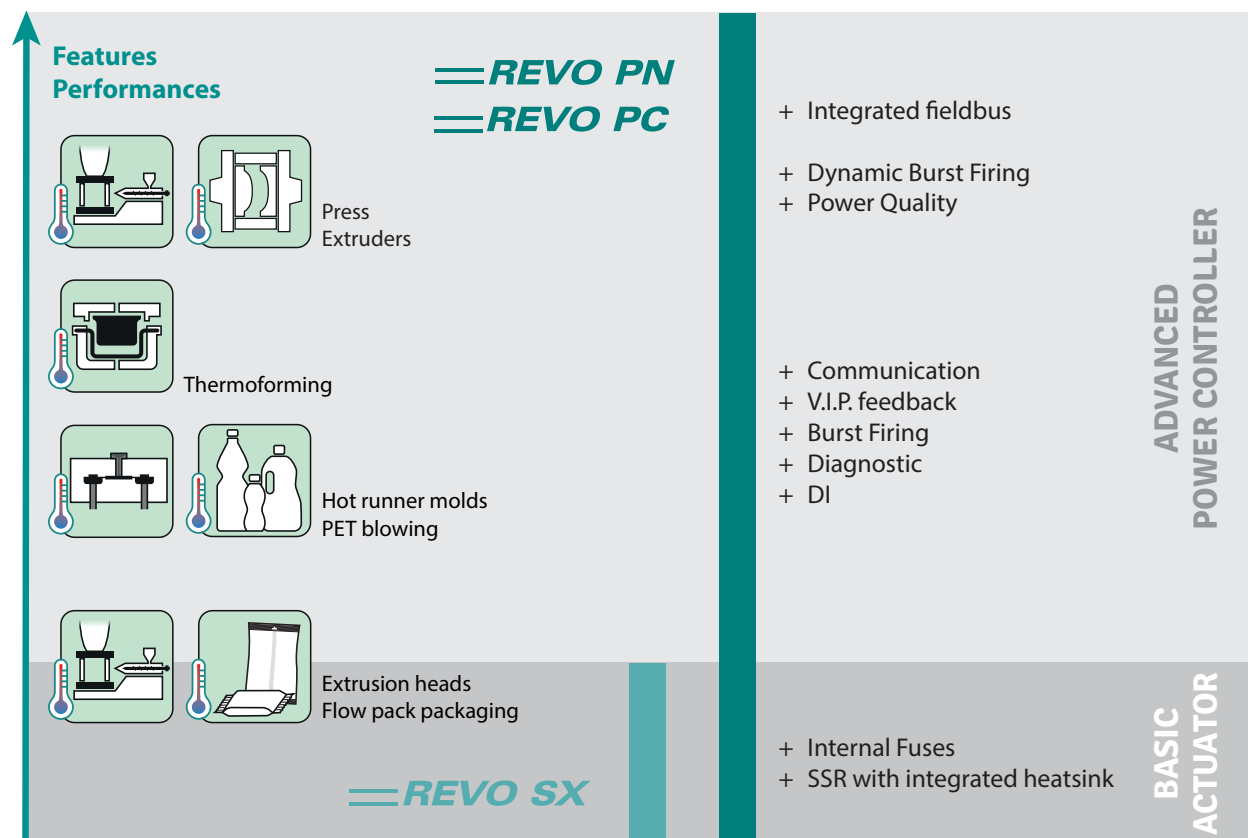


The **most compact and flexible solution** with synchronised firing (max. 25A).

High-performance SCR junctions for controlling complex loads such as short-wave IR emitters (IRSW) with high peak currents.

- For the control of 480V heating elements.
- Distributed solution with wiring contained in small integrated cabinets (plant/board).
- Ideal for controlling emitters/IR lamps in heating processes.
- Space-saving solution with 4 to 24 zones 25A output modules per fieldbus node, I/O modules and optional temperature control boards.
- Engineering Tools for TIA Portal® and Rockwell® PLC examples.
- Possible communication systems integrated in the unit: Profinet, Profibus, Ethernet IP and Modbus TCP.
- Free CD Automation software for configuration.

Multi channel power units



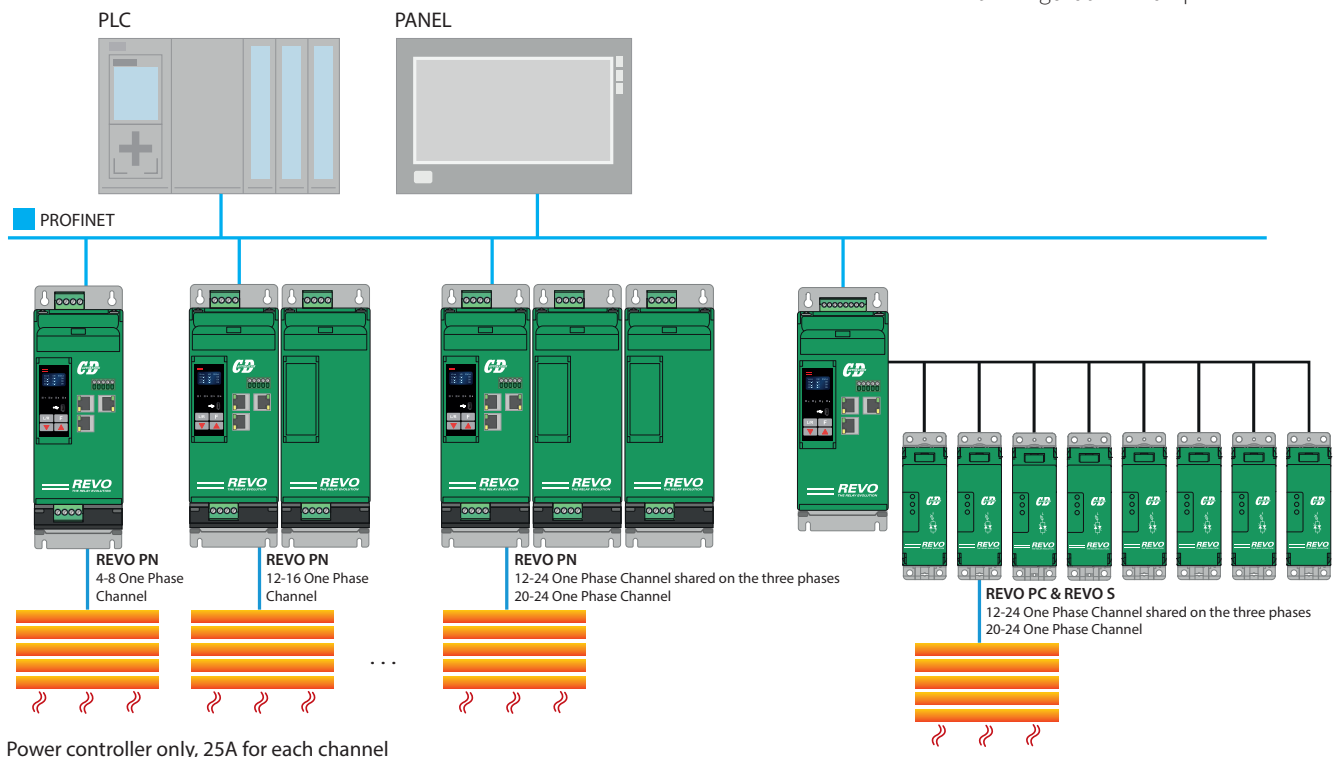
REVO PC Power Controller



The **most flexible** solution with synchronised firing (max 800A). REVO PC uses the same control technology as the Power Network series, but does not include the thyristor power section, which is achieved with REVO S / REVO Sx series units controlled by the REVO PC's synchronisation and communication task.

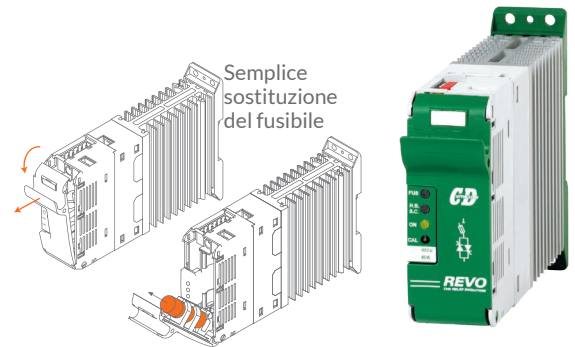
- To control heating elements with maximum voltages of 480V, 600V or 690V, single-phase and three-phase connections.
- Current ratings from 3A to 800A, with extra rapid fuses protection.
- Ideal for controlling resistive loads, IR lamps, resistors for extrusion and injection lines for plastics and elastomers; ovens with IR lamps, multi-zone ovens for glass, steel and ceramics.
- Control of 8 to 24 channels per fieldbus node, including current sensor input for each channel and output for SCR control, I/O modules and optional temperature control boards.
- Engineering Tools for TIA Portal® and Rockwell® PLC examples.
- Possible communication systems integrated in the unit: Profinet, Profibus, Ethernet IP and Modbus TCP.
- Power management for optimising consumption (power factor close to 1).
- Free CD Automation software for configuration.

Profinet configuration example



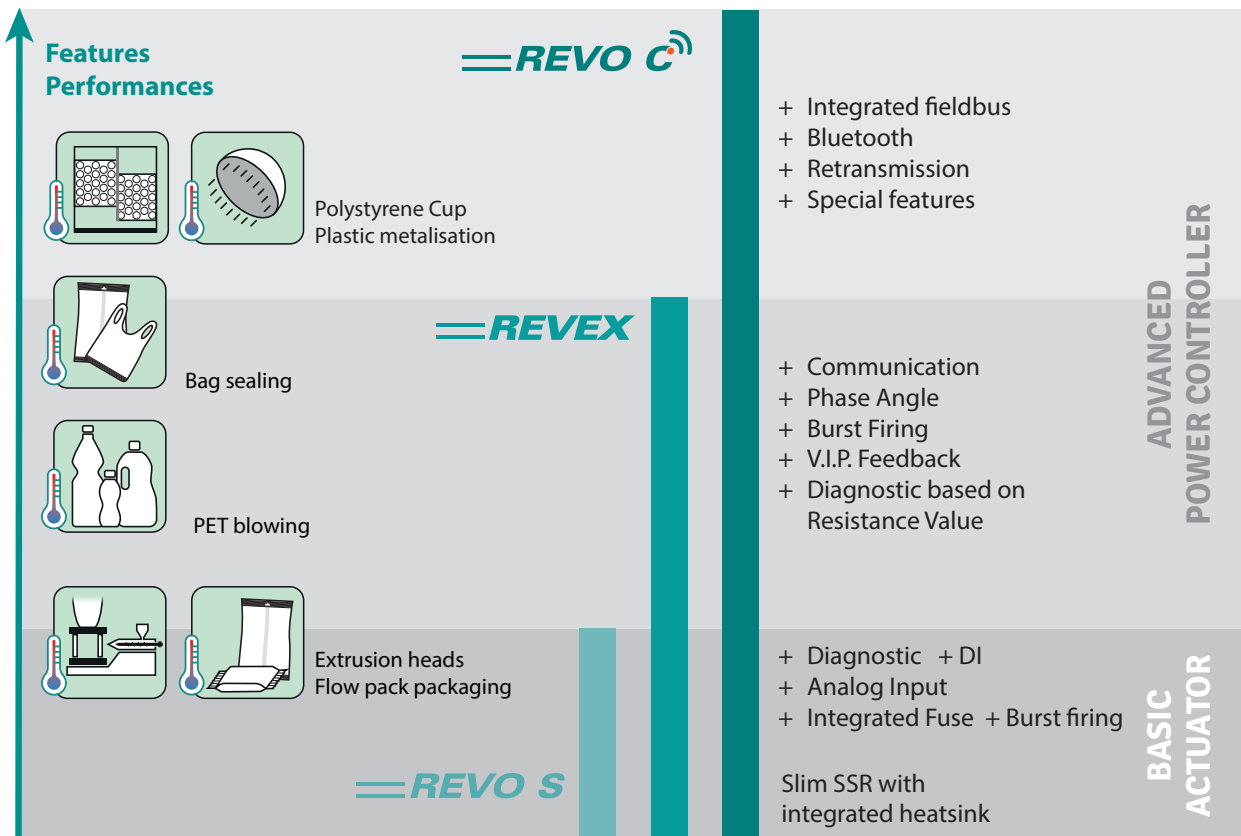
Single loop solutions

REVO S compact static units



REVO S static relays are characterised by high precision and reliability in power control, ensuring optimal operation in all situations. The compact and robust design allows for quick and easy installation, while the wide range of available voltages and currents enables adaptation to different application requirements. With the advanced features of the Power Network series, these power units ensure system control and energy efficiency by synchronising and limiting power for cost reduction.

- Integrated fuse and fuse holder, 50% space saved.
- Integrated current sensor.
- Current auto-tuning and load diagnostics with alarm relays.
- SCR diagnostic in short circuit.
- Digital input for auto-tuning calibration
- Current from 30A to 800A.
- Up to 40°C in continuous service with side-by-side mounting without derating.



REVEX advanced units



REVEX solid state relays are universal, high-performance control units with flexible configurations. The main feature of these products is that they can be configured according to project requirements, eliminating unwanted options. This type of 'on-demand' solution makes it possible to optimise purchase costs.

Plastic Welding Machines
Cutting Polystyrene
Plastic metallisation



Why REVEX stands for universality?

The REVEX product range is based on powerful microprocessor technology, which allows the solution to be managed 'on demand', guaranteeing power control, input configuration and power modes in a simple way beyond the required options.

A free configuration software allows intuitive configuration of the units.

Products are available from 30A to 280A in single-phase, two-phase or three-phase versions, 480V and 600V max.

REVEX power controllers can be configured in 13 different solutions with the following features:

- Front panel OLED display.
- USB port for configuration.
- Integrated CT for current reading.
- Configurable Heater Break alarm.
- 2 configurable digital inputs (es: ENABLE function).
- 2 software-adjustable inputs without internal jumpers.
- Firing: Single cycle, Half cycle, Burst Firing, Phase Angle, Delayed Triggering, different types of adjustable ramps.
- Configurable feedback modes (V, V2, I, I2, VxI).
- Standard communication RS485 with Modbus RTU.
- Free CD Automation software for configuration.



Industrial PID thermoregulators

With decades of experience in manufacturing complete electrical power control solutions, CD Automation can supply a wide range of industrial temperature controllers for controlling and regulating industrial plants. These can be single loop, multi-loop, programmable, universal and multi-zone. Here are some solutions.

Single Loop: COMPACT

COMPACT, a compact DIN-rail controller, is the ideal solution for devices with few temperature control loops. It has 3 outputs (1 analogue and 2 logic/SSR) and RS485 Modbus RTU serial communication. Let's look at the main features in detail:

- Three outputs: SSR, 0-10V & 4-20mA.
- Optional 6A back-up relays to be connected to the logic outputs.
- Modbus RTU or fieldbus communication via termination module in Profinet or Modbus TCP.
- USB programming port at front of unit for PC connection.
- Free CD Automation software for configuration.



REVO RT Loop

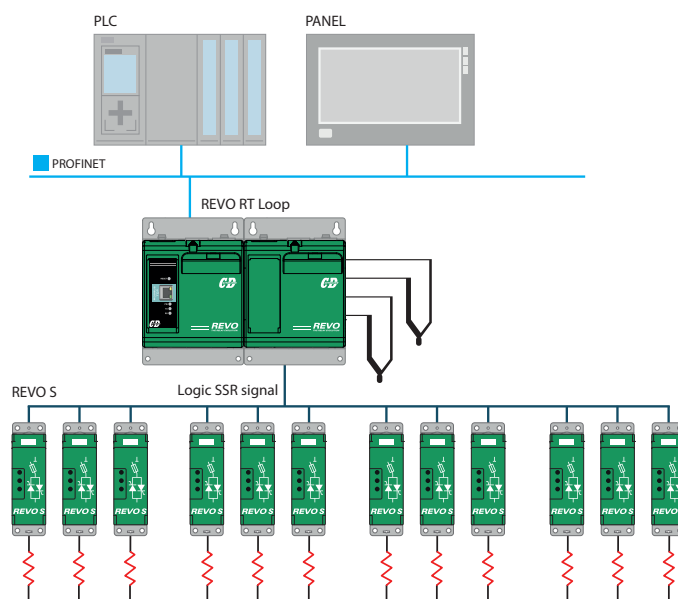
REVO RT Loop is a multi-zone PID controller in a modular rear panel capable of managing single- or dual-trip zones. Heating management is via logic outputs to be connected to external static units, which allow the control of electric heaters.

RT Loop can operate independently or dialogue with a PLC; it is designed to replace single-loop controllers on systems with many zones or to take the temperature control part away from the PLC.

It is a modular system, where each module contains one or more 3-loop controller boards.

Each controller board includes:

- 3 process inputs configurable as thermocouple or analogue.
- 3 SSR outputs for controlling external REVO S static units, for heating control.
- 3 Current sensor inputs for heater break alarm.
- 4 Relays used for alarm or cooling output.
- 1 Relay used for start function.
- 1 Digital input.
- Energy optimisation function, called "ECO"
- Soft start.
- WatchDog on serial communication
- Autotuning.
- 100ms sampling time.
- Several types of process alarms available.
- Up to 24 zones per branch with Fieldbus or 90 zones with Modbus RTU communication.



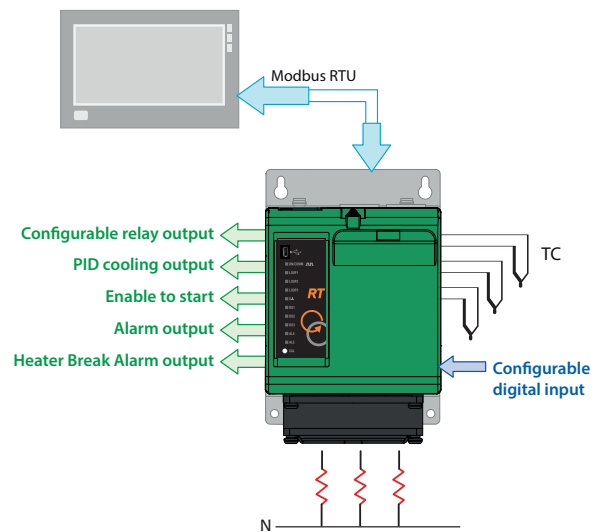
Multi Loop Systems with Integrated Power

Multi Loop: REVO RT

Multi-loop controllers are used to control different types of plastics machines in systems that require more than one control loop within a single system.

REVO RT offers temperature and power regulation integrated in a single package and includes:

- Two to three single/double action control loops.
- Two to three SSR static units configurable in single-phase or three-phase.
- Integrated fuse holder with extrarapid fuses.
- Current transformers.
- Load and SCR diagnostic.
- Outputs for alarms/fan.
- Modbus RTU communication.
- Free CD Automation software for configuration.

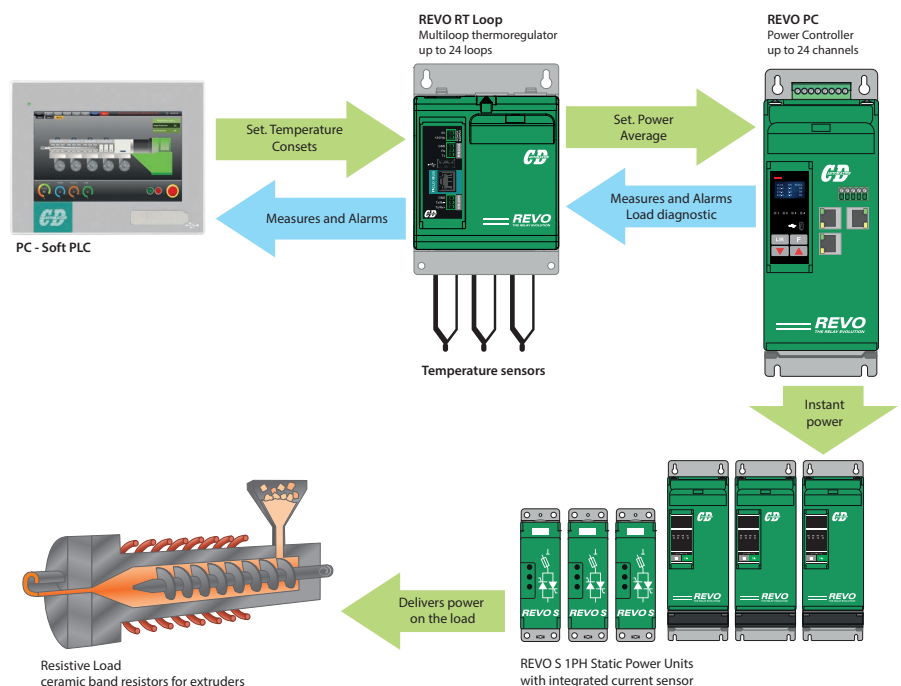


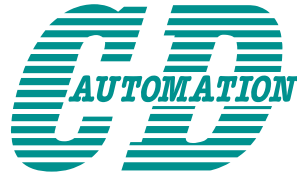
REVO Power network

REVO RT Power Network is the top-of-the-line solution for the integrated control of multi-loop heating systems. With this system it is possible to integrate the precision of thermal processes with energy optimisation, making the combination of temperature control and power the 'added value' to your process. REVO Power Network consists of a temperature control area realised with the REVO RTL system that communicates with a dedicated bus to the power area realised with REVO PN/PC.

This combination provides a single communication node to the network with the sum of the advantages of the individual products

- 2 to 24 single or double tripping controllers per node.
- A single communication port for controlling the main control and power parameters.
- Free CD Automation software for configuration.





Controllers, Drives & Automation

 Products made in Italy

Worldwide distribution and service

CD Automation Country Locations



CD Automation, a leader in the control of heating elements, has been offering top quality solutions in the field of industrial temperature control for over thirty years. The company supplies thyristor power units and SCR power controllers, making it the leading partner in the industry.

CD Automation offers a support service for the development, optimisation, sustainability and energy efficiency of thermal processes, improving plant power quality.

Our team will be at your disposal to deepen, analyse and optimise your applications.

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