

# GEFLEX distributed control

## GEFLEX distributed control



**GEFRAN**

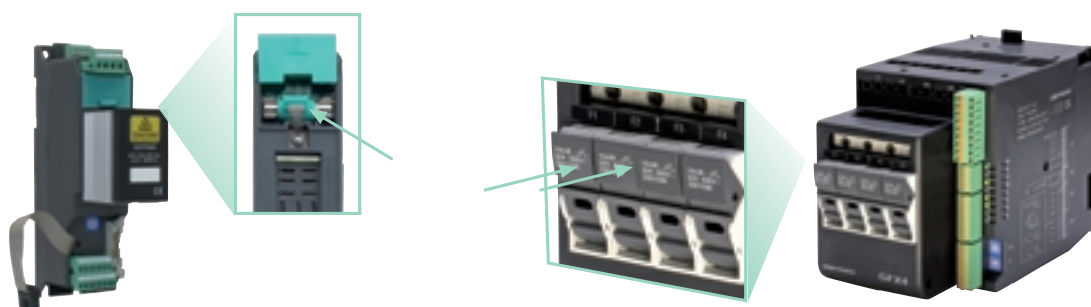
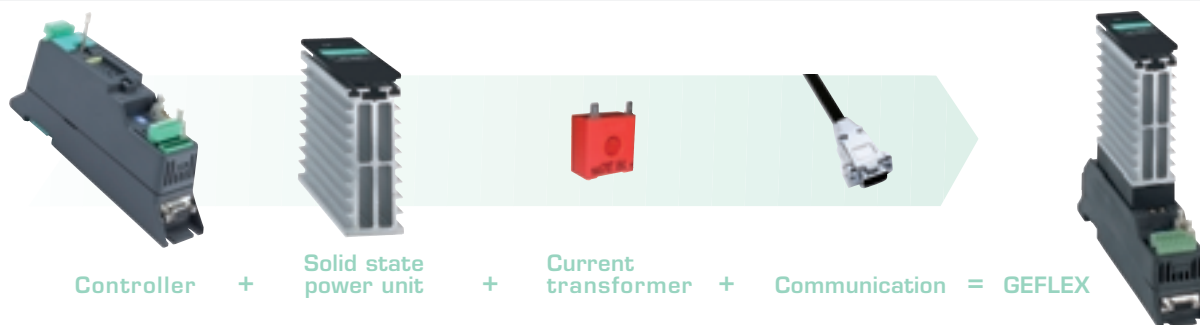
Our Knowhow,  
Your Solution.

# The "GEFLEX system"

Geflex is the modular solution that lets you create back-panel multiloop control systems. Thanks to the use of popular field buses, it integrates easily with a wide variety of automation configurations.

## WHAT IS A GEFLEX MODULE?

It's an integrated solution: PID controller+diagnostics+power+communication.  
This new synergy has led to the creation of an innovative automation product with high technology content.



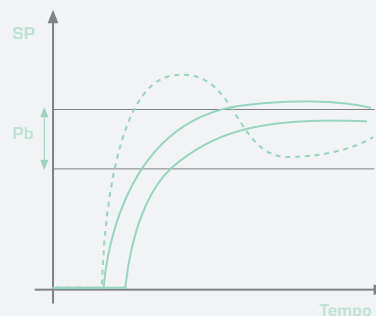
The Geflex multifunction and GFX4 families also integrate protective fuses.

## WHAT DOES IT DO?

Geflex performs a variety of automation functions: control, interception, acquisition.  
Each module is completely independent and needs no software writing; PID, alarms and tuning are controlled locally, perfectly closing the control loop.



TEMPERATURE CONTROL



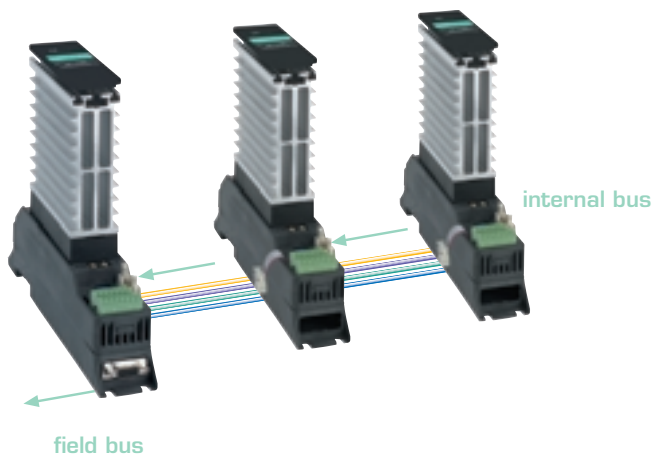
TEMPERATURE CONTROL

### WHY GEFLEX?

- Simple wiring
- Remote control via standard operator interfaces
- Simplifies PLC configuration and reduces required physical resources
- Scalable depending on applications
- Open platform dialogs via standard protocols

### HOW IS IT USED?

- This simple, intuitive instrument is ready to use:
- Connections among the modules are preset.
- The first module has a connector to the field.



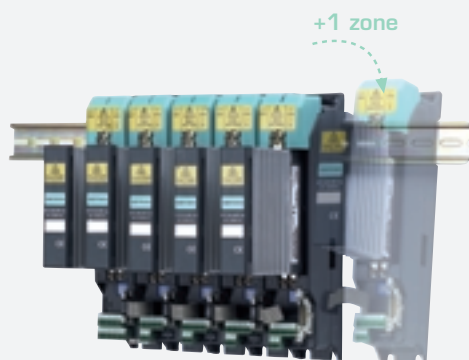
GEFLEX Modularity 1



GEFLEX Modularity 4

### MODULARITY "ONE" AND "FOUR"

Modularity lets you scale the architecture exactly to your needs. There is no waste of resources, even in odd architectures (a typical limit of PLCs). The configuration can always be expanded if necessary.

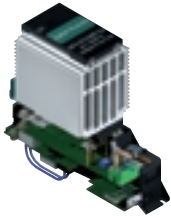


GEFLEX Modularity 1



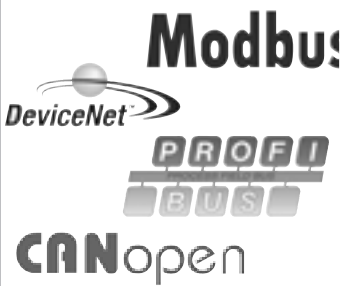
GEFLEX Modularity 4

# CHARACTERISTICS



## ALL IN ONE

Excellent engineering has produced a highly integrated instrument, combining control, power, diagnostics, protection and communication.



## FIELD BUS

All popular field buses are available



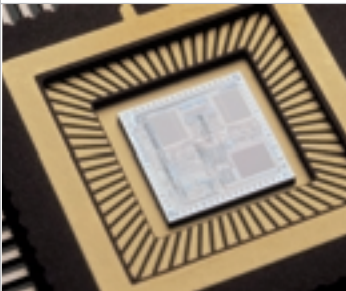
## DIAGNOSTICS

HB alarm: checks correct current absorption  
ERR alarm: checks correct connection of main sensor  
LBA alarms: check correct function of control loop  
Generic alarms with configurable setpoints  
Alarms have AND/OR function



## MODULARITY \ FLEXIBILITY

One or four modularity



## INTELLIGENT UNITS

All units are equipped with CPUs, programmed with powerful algorithms, that manage controls, alarms, and calculation adequate PID parameters (tuning).

# ADVANTAGES



## LESS WIRING

Integrating three instruments in one saves money on wiring, space in the electrical panel



## EASY INTEGRATION

The use of popular field buses makes it quick and easy to insert Geflex in a wide variety of automation configurations



## REMOTE CONTROL

Geflex can be installed in the process zone and remote-controlled. Save on wiring, improve system layout



## SIMPLIFIES PLC CONFIGURATION

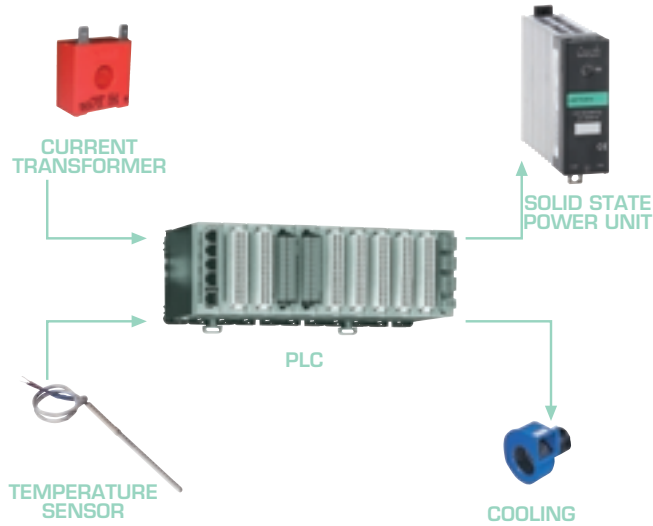
Each Geflex is independent: you can replace the PLC control or scale the CPU



## SCALABILITY

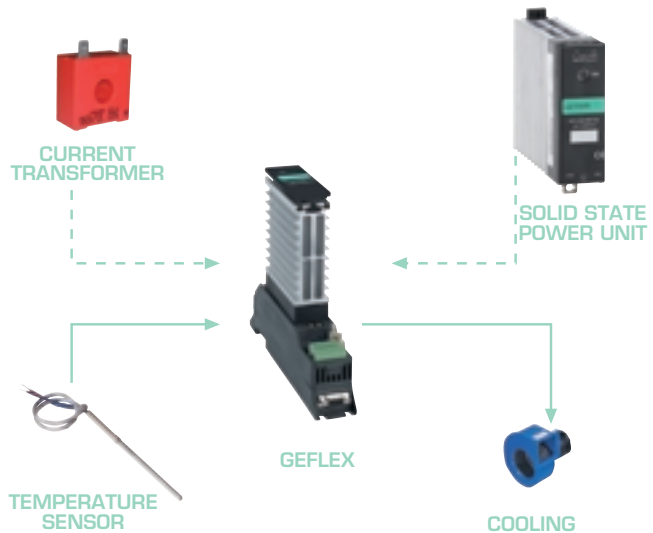
"One" or "four" modularity, flexibility, and easy expansion let you create the exact solution for your needs

# THE INTEGRATED SOLUTION



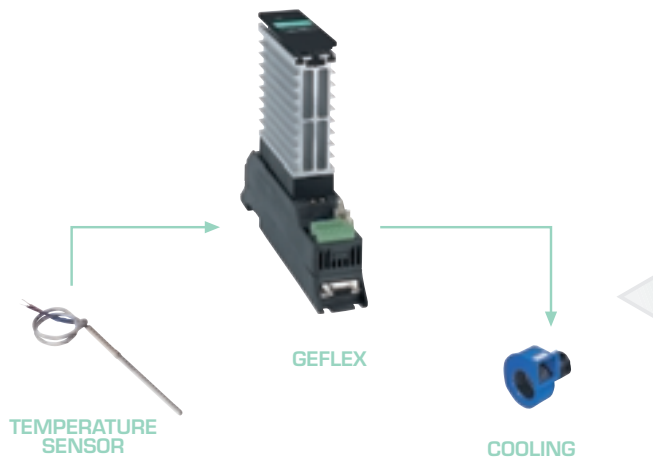
## TRADITIONAL

Traditional temperature control uses a PLC or other instrument connected to temperature sensors and current transformer. In output, it activates a solid state power unit for heating and a cooling system.



## INTEGRATION

Integration of the current transformer and the solid state power unit in a single module that also controls the process (in ternal PID) provides definite advantages.



## EVOLUTION

Geflex is a step forward in temperature control, with obvious advantages in terms of reduced wiring, elevated diagnostics, and modularity.



# ARCHITECTURES

## JUST ONE CABLE, AND TEMPERATURE CONTROL IS "ON-LINE"

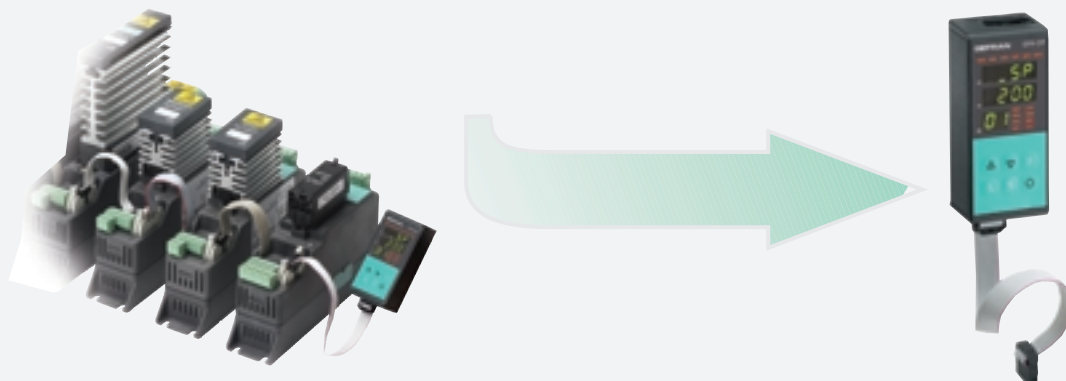
Thanks to the use of popular field buses, Geflex integrates easily to create a wide variety of automation architectures.

## GEFLEX OFFERS A WIDE CHOICE OF FIELD BUSES

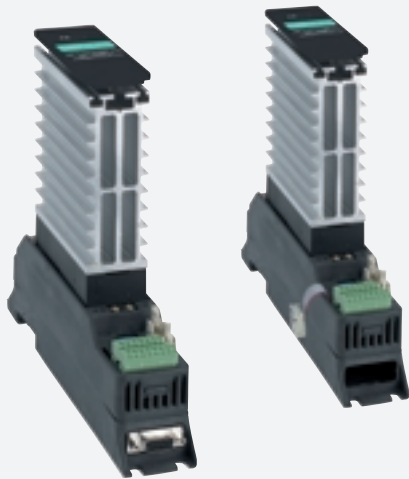


## STANDARD SOLUTION

By means of the GFX-OP accessory it is possible to equip the Geflex with an interface similar to the traditional instruments. For this reason it is extremely fast, realize the configuration and use for the whole range an "operator panel" ready for use.



# GEFLEX



GFX 25

GFX 120

## GFX25-120

Temperature control unit with integrated power solid state relay from 25 to 120 Amp.

### Configurable analog process input

- thermocouples TC (J, K, R, S, T)
- resistance thermometers RTD (Pt100, JPT100)
- linear in voltage (0...60mV, 12...60mV, 0...1V, 200mV...1V)
- linear in current (0...20mA, 4...20mA)
- custom (20mA, 60mV, Pt100, JPT100)

### Configurable digital input

- On\Off
- Manual\Automatic

**Main output** typically used as heating and connected directly to SSR

**Configurable auxiliary input** typically used as cooling, available as relay, digital, analog

### 2 configurable relay outputs

typically used as alarm

**Integrated current transformer CT** (option on GFX25-120)

**Integrated voltage transformer VT** (option on GFX25-120)

Applications: **EXTRUSION, OVENS**



GFX Multifunction/Valves

## GEFLEX MULTIFUNCTION/VALVES

Control unit with removable function groups: 5/10/15A power solid state relay, double analog output, 1-2 relay outputs.

**Main features: identical to Geflex 25-120**

### Auxiliary analog input (optional)

- potentiometer ( $\geq 1$  kohm)
- linear in voltage (0/2...10V)
- linear in current (0/4...20mA)

**Version for valve control**

Applications: **OVENS, HOT CHANNELS, PACKING**



Module GTS-L 5  
5A solid state relay



Module GTS-L 10  
10A solid state relay



Module GTS-L 15  
15A solid state relay



Module GFX-OUT-CC  
Two analog outputs



Module GFX-OUT-RR  
Two Relay outputs



Module GFX-OUT-R  
Exchange relay



**GFX4**  
with integrated removable fuses



**GFX4**  
without fuses



## GFX4

Temperature control unit with four independent PIDs, integrated power solid state relays for 30KW, 60KW, 80KW power management

### 4 configurable analog process inputs

- thermocouples TC (J, K, R, S, T)
- resistance thermometers RTD (Pt100, JPT100)
- linear in voltage (0...60mV, 12...60mV, 0...1V, 200mV...1V)
- linear in current (0...20mA, 4...20mA)
- custom (20mA, 60mV)

### 4 auxiliary analog inputs for TC/linears (option)

### 2 configurable digital inputs

- On\Off
- Manual\Automatic, reset alarm latch

### 4 configurable main outputs typically used as heating and connected directly to SSR

### 4 configurable auxiliary inputs typically used as cooling, available as relay, digital, analog, triac

### 2 relay outputs typically used as alarm

### 1 or 4 integrated current transformers for timed or simultaneous control of currents delivered to each zone, alarm management (HB)

Serial port for local bus (Modbus RTU protocol)

Serial port for field bus (protocols: Modbus RTU, CANopen, Profibus DP, DeviceNet, Ethernet)

Applications: **INJECTION PRESSES, THERMOFORMING MACHINES, EXTRUSION, PACKING MACHINES**

## GFX\_OP

Operator terminal for field configuration of the entire Geflex range.

### Two types of terminals are available:

- for installation on the Geflex heatsink or on DIN guide
- for installation on the faceplate

### Main characteristics:

- Double display for variables
- Display to identify the communication node
- Six function keys
- LED for diagnostics of inputs/outputs and main Geflex functions
- Ability to upload/download the Geflex configuration (up to a maximum of ten)
- Powered directly by the Geflex

**GEFLEX4 30-60-80 kW**  
 4 INDEPENDENT LOOP CONTROL UNIT


with fuses



without fuses

**GEFLEX 5-10-15A valve multifunctions**  
 SINGLE INDEPENDENT LOOP


Master



Slave



Expansion

**GEFLEX 25-40-60-75-90-120A**  
 SINGLE INDEPENDENT LOOP


Master



Slave



Expansion

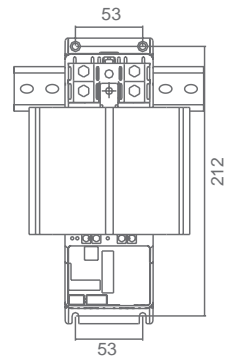
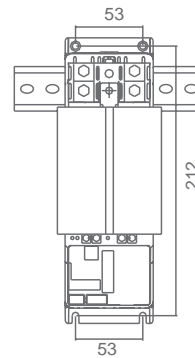
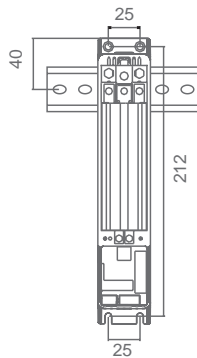
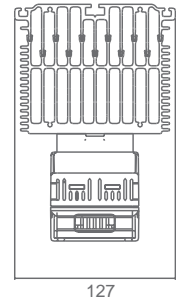
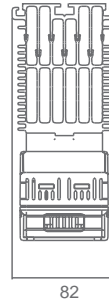
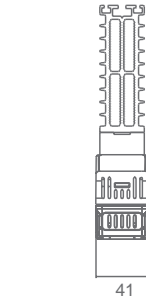
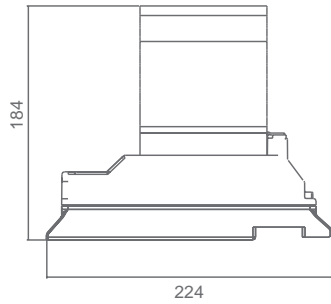
**INPUTS**

		with fuses		without fuses		GEFLEX 5-10-15A valve multifunctions SINGLE INDEPENDENT LOOP		GEFLEX 25-40-60-75-90-120A SINGLE INDEPENDENT LOOP		FEATURES	
		4		4		1		1		NR.	
		TC (J, K, R, S, T), RTD (Pt100, JPT100), 0...1V, 0...60mV, 0...20mA custom		TC (J, K, R, S, T), RTD (Pt100, JPT100), 0...1V, 0...60mV, 0...20mA custom		TC (J, K, R, S, T), RTD (Pt100, JPT100), 0...1V, 0...60mV, 0...20mA custom		TC (J, K, R, S, T), RTD (Pt100, JPT100), 0...1V, 0...60mV, 0...20mA custom		TYPE	
		120ms (total) 0,2% f.s.		120ms 0,2% f.s.		120ms 0,2% f.s.		120ms 0,2% f.s.		SAMPLING TIME	
		4		1		1		-		NR.	
		TC (J, K, R, S, T custom), 0/12...60mV		Potentiometer 0/2...10V 0/4...20mA						TYPE	
		480ms (total) 0,2% f.s.		240ms 0,2% f.s.						SAMPLING TIME	
		1 or 4 (depending on the models)		1 (opt)		1 (opt)		1 (opt)		NR.	
		TA+TV internal		TA internal or TA + TV internal		TA internal or TA + TV internal		TA internal or TA + TV internal		TYPE	
		2		1		1		1		NR.	
		PNP 24V, 8mA		PNP 24V, 8mA		PNP 24V, 8mA		PNP 24V, 8mA		TYPE	
<b>OUTPUTS</b>											
		4		4		1		1		NR.	
Total power (480V)		30 kW		60 kW		80 kW		SSR built-in 25/40/60/75/90/120A 480Vac		TYPE	
Power zone		7,6 kW		15,3 kW (23,7 max)		19,2 kW (23,7 max)				NR.	
		4		1		1		1		NR.	
		R/D/T/C		R/D/C		R/D/C		R/D/C		TYPE	
		MAIN Configurable		MAIN Configurable		MAIN Configurable		MAIN Configurable		AUXILIARY Configurable (opt.)	

R/D/T/C	R/D/C	R/D/C	R/D/C	TYPE	ALARM Configurable
2	2	2	2	NR.	
R	R	R	R	TYPE	
<b>FUNCTIONS</b>					
PID heat/cool (with liquid selection of cooling) ON-OFF heat/cool	PID heat/cool (with liquid selection of cooling) ON-OFF heat/cool		PID heat/cool (with liquid selection of cooling) ON-OFF heat/cool	TYPE	CONTROL
Selftuning Autotuning continuous Autotuning Oneshot	Selftuning Autotuning continuous Autotuning Oneshot		Selftuning Autotuning continuous Autotuning Oneshot	TYPE	TUNING
LBA (loop break alarm) HB (heater break) SBR (sensor break)	LBA (loop break alarm) HB (heater break) SBR (sensor break)		LBA (loop break alarm) HB (heater break) SBR (sensor break)	TYPE	DIAGNOSTIC
8	4	4	4	NR.	ALARMS configurables
Absolute/relative Direct/reverse/symmetrical Latch	Absolute/relative Direct/reverse/symmetrical Latch		Absolute/relative Direct/reverse/symmetrical Latch	TYPE	
Software OFF	Software OFF		Software OFF	TYPE	OTHER FUNCTIONS
Softstart	Softstart		Softstart		
<b>PROTECTION</b>					
N. 4 fuse-holders	Extractable (on SSR versions)			TYPE	FUSES
<b>FIELDBUS</b>					
1+1 (opt.)	1		1	NR.	
Modbus RTU (all models)	Modbus RTU		Modbus RTU		
Profibus DP (opt.)	Profibus DP		Profibus DP		DIGITAL COMMUNICATION
CANOpen (opt.)	CANOpen		CANOpen		
DeviceNet (opt.)	DeviceNet		DeviceNet		
<b>GENERAL DATA</b>					
24Vdc ± 25%	24Vdc ± 25%		24Vdc ± 25%		AUX. POWER SUPPLY
GFXOP	GFXOP		GFXOP	TERMINAL	CONFIGURATION TOOL
Winstrum	Winstrum		Winstrum	PC SOFTWARE	

# DIMENSIONS

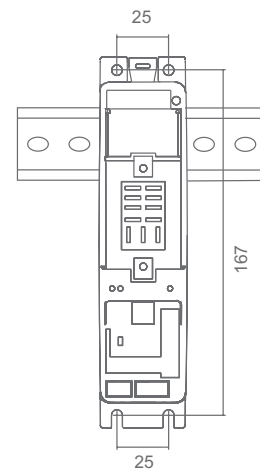
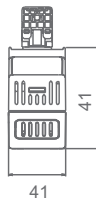
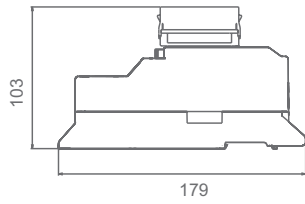
## Geflex 25-120



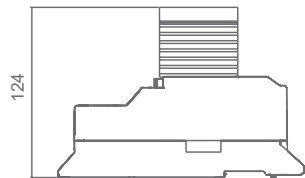
## Geflex multifunction

Base with "5A solid state power unit" module or "Double continuous output" or "Double Relay"

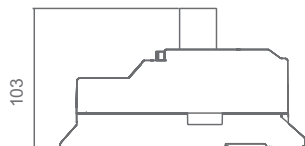
Base Mounting on electromechanical plate with quick coupling to DIN EN50022 guide or with 5mA screws



Base with "10/15A power solid state unit" module

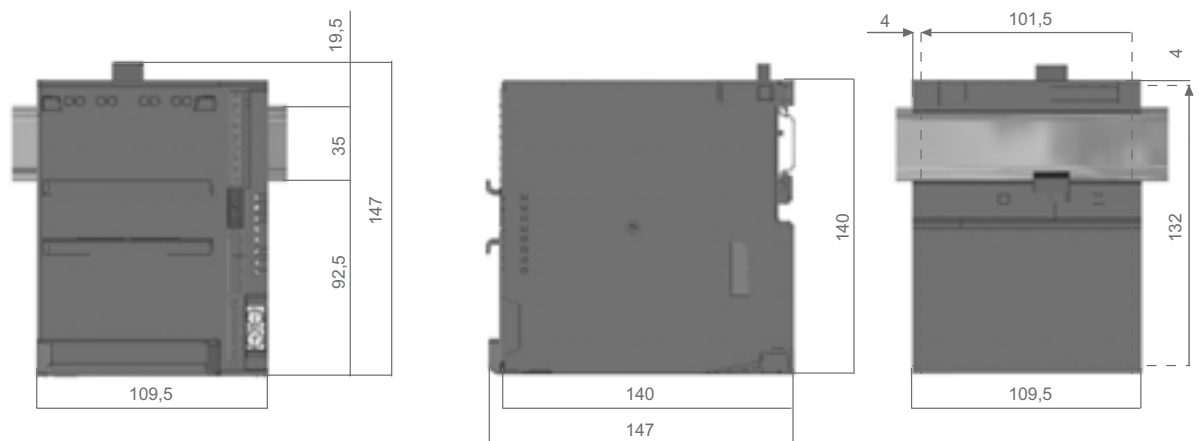


Base with "Base with Relay" module"

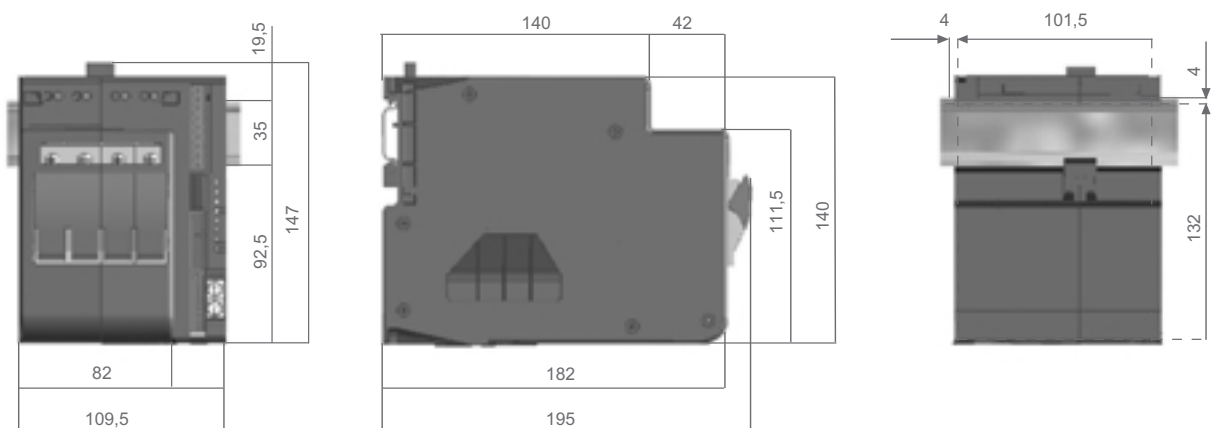


## GFX4

Model GFX4  
without fuses-holders



Model GFX4  
with fuses-holders



# GFXTERMO4

and if the integrated power offered by GFX4 is not enough, it is possible to use a solution without static group integrated ..... more flexible.



## GFXTERMO4

Temperature control unit with four independent PIDs

### 4 configurable analog process inputs

thermocouples TC (J, K, R, S, T)  
resistance thermometers RTD (Pt100, JPT100)  
linear in voltage (0...60mV, 12...60mV, 0...1V, 200mV...1V)  
linear in current (0...20mA, 4...20mA)  
custom (20mA, 60mV)

### 4 auxiliary analog inputs (option)

available as CT/voltage analog inputs, read external CTs

### 2 configurable digital inputs

On\Off  
Manual\Automatic, reset alarm latch

### 4 configurable main outputs

typically used as heating (for direct control of solid state relays)  
available as digital

### 4 configurable auxiliary inputs (option)

typically used as cooling, available as relay, digital, analog, triac

### 2 relay outputs

typically used as alarm, available as relay

### Serial port 1 for local bus

Modbus RTU protocol

### Serial port 2 for field bus

protocols: Modbus RTU, CANopen, Profibus DP, DeviceNet,  
Ethernet Modbus TCP

**Applications: HOT CHANNELS, THERMOFORMING MACHINES,  
EXTRUSION, PACKING MACHINES**

# Applications

<p>PACKAGING</p> 	
<p>EXTRUSION</p> 	<p>BLOW MOLDING</p> 
<p>HEAT TREATMENT</p> 	<p>FURNACES FOR GLASS</p> 
<p>SEMICONDUCTORS</p> 	<p>HOT CHANNELS</p> 
<p>THERMOFORMING</p> 	<p>INJECTION</p> 

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