

CONTROLLERS,
PROGRAMMERS



GEFRAN



Forty years of experience has distinguished Gefran as the world leader in the design and production of solutions for **measuring, controlling, and driving industrial production processes**.

We have branches in 14 countries and a network of over 80 worldwide distributors.

QUALITY AND TECHNOLOGY

Gefran components are a **concentrate of technology**, the result of constant study and **collaboration with major research centres**. Gefran control instruments are characterised by continuous research and state-of-the-art technology, and provide **accurate control of variables such as temperature, pressure, force, humidity, and displacement**.

Gefran's know-how and experience guarantee **continuous** and practical solutions.

A COMPLETE LINE OF CONTROLLERS

Gefran offers a wide choice of PID controllers, from basic models (BASIC) for simple resistance heating to higher value models (VALUE) with additional preventive diagnostic functions and advanced operator interfaces; from models for valve control with setpoint profiles that can be varied over time (PERFORMANCE) to versions with recorder functions and touch screen graphic display (MULTIFUNCTION).

All models offer advanced PID control algorithms and automatic tuning functions. Multifunction models also offer network connectivity and optional remote access.

SERVICES

A team of Gefran experts works with the customer to select the ideal product for its application and to help install and configure devices (customercare@gefran.com).

Gefran offers a wide range of courses at different levels for the technical-commercial study of the Gefran product range as well as specific courses on *demand*.





PLASTIC



RUBBER



AUTOCLAVE



PHARMACEUTICAL



FOOD



PETROCHEMICAL



TEST BENCHES



HEAT TREATMENT



FURNACES

SOFTWARE

GF_eXpress

Configuration kit for Gefran instruments by means of PC (Windows environment). Lets you read or write all of the parameters of a single instrument via serial connection.

- A single software for all models
- Easy configuration
- Copy/paste, save recipe, trend functions
- Rapid configuration of instruments
- Saving and management of parameter recipes
- On-line trend
- Recovery of factory settings
- Custom linearization
- On-line user manual
- Easy programming with custom messages
- Easy graphics programming with setpoint programmers



BASIC SERIES SIMPLICITY AND HIGH PERFORMANCE



Just a few parameters to adapt easily to standard industrial heating applications.

- Operator interface with double LED display
- Universal input for temperature sensors
- Heat and cool PID controls with automatic tuning
- 2 relay and/or logic outputs
- Loop Break alarm
- Panel Size 1/16 DIN

BASIC SERIES COMPLETE FUNCTIONS



Four different models for a wide range of industrial temperature control applications. Simplicity and practicality combine with experience and know-how in PID control.

- Operator interface with double LED display
- Universal input
- PID heat, cool and heat/cool controls with automatic tuning
- Total and partial load break alarms
- Loop Break alarm
- Up to four relay outputs, logic for SSR
- Analog control and retransmission output
- RS 485 serial communication in Modbus RTU
- 1/16, 1/8, 1/4 DIN and open frame

VALUE SERIES CONTROLLERS THAT SPEAK YOUR LANGUAGE



Innovative PID controllers and temperature programmers that offer precise control plus the widest, clearest, and most complete operator interfaces for all-around easy operation.

- Customizable alphanumeric messages that "speak to the operator" in his language
- Customizable colors, messages, logo
- Full and complete operator interface, at the top of its category in every format
- Easy configuration with Quick Configuration and help on line with scrolling messages
- Copy/paste parameters with Zapper(*), even in the field and without power supply
- Preventive diagnostics with counts of KWh and number of actuator operations
- Ready-to-use configurable logic functions
- Setpoint programmer and motorized valve positioner
- 1/16, 1/8, 1/4 DIN
- Zapper(*)
Battery-powered portable configurator

PERFORMANCE SERIES CONTROLLERS THAT THINK BEFORE THEY TALK



For high-demand control applications, where the controller has to think before acting

- Two independent PID control loops
- Cascade control
- Ratio control between two variables
- Two setpoint profiles, independent, synchronized and non-synchronized
- Function Blocks with logic calculations
- Function Blocks with math calculations and ready-to-use formulas
- On-board saving of work recipes
- Additional I/Os for complete local machine management
- Full and extensive operator interface, at the top of its class in every format, with customizable alphanumeric messages

MULTIFUNCTION SERIES HIGH DEMAND APPLICATIONS



Gefran's top line of controllers offers models with special functions to satisfy the demands of complex applications.

- 2500 Series for ultra-fast pressure and force controls
- Graphic touch screen controller 2850T and 3850T series for multi loop process control, setpoint profiler and paperless recorder with integrated logic steps / mathematical functions
- Ultra-compact GFXTERM04 series for PID control of 4 independent zones, with a complete range of Fieldbuses. [*]

FIELBUS (*)



CANopen



Modbus TCP/RTU



EtherCAT

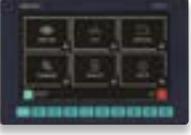
BASIC SERIES		VALUE SERIES	PERFORMANCE SERIES
SINGLE LOOP			DUAL LOOP
Double display		Double/Triple Display	
		Controllers Valve controllers Programmable	
			
	1300	1350	1850
			
	1200	1250	1650
			
450	600	650	850
			
	600 OF		
Cold, Plastics, Packaging, Laboratory furnaces, Chillers, Life Science		Furnaces and heat treatments, test benches, laboratory equipment, life science, autoclaves, climatic chambers, fluid heat control	

MULTIFUNCTION SERIES				
SINGLE LOOP	MULTILOOP			
Triple display	LCD Display Graphic touch screen			
High speed - accuracy	Controllers Programmers Paperless recorder		Controllers for DIN bar attachment, 4 loops	
FIELDBUS*				
		 <p>3850T</p>	198x134 mm	
 <p>2500 (Fieldbus Profibus)</p>	 <p>2850T</p>		96x96 mm (1/4 DIN)	
			48x96 mm (1/8 DIN)	
			48x48 mm (1/16 DIN)	
			90x45x45 mm (Open frame)	
			 <p>GFXTERM04</p>	25x140x140 mm (DIN bar)
Plastics, textile, process	Furnaces, heat treatments, climatic chambers, food, process heat			

SELECTION GUIDE

	BASIC					VALUE		
								
	450	600F	600	1200	1300	650	1250	1350
MAIN FEATURES								
Format	48x48mm (1/16 DIN)	90x45x45mm	48x48mm (1/16 DIN)	48x96mm (1/8DIN)	96x96mm (1/4DIN)	48x48mm (1/16 DIN)	48x96mm (1/8DIN)	96x96mm (1/4DIN)
No. of Control Loops (max.)	1	1	1	1	1	1	1	1
OPERATOR INTERFACE								
Display								
Double LED Display	X	X	X	X	X			
Triple LED Display								
Double LCD Display						X		
Triple LCD Display							X	X
Bargraph							X	X
LCD graphic touch screen								
Alphanumeric messages						X	X	X
Scrolling alphanumeric messages						X	X	X
Keypad								
No. of keys	4	4	4	4	4	4	4	6
INPUTS								
Main inputs								
Sensor type								
Temperature sensor inputs (TC, RTD)	X	X	X	X	X	X	X	X
Temperature sensor inputs Infrared						X	X	X
Linear inputs (mV,V,mA)		X	X	X	X	X	X	X
Pressure and force sensor inputs (4 wires, 6 wires)								
Position sensor inputs (potentiometers, magnetostrictives)								
Accuracy								
Accuracy 0,5% (f.s.)								
Accuracy 0,2% (f.s.)	X	X	X	X	X	X	X	X
Accuracy 0,1% (f.s.)						X (Linears)	X (Linears)	X (Linears)
Sampling time								
120ms	X	X	X	X	X	X	X	X
60ms						X	X	X
20ms								
2ms								
Auxiliary inputs								
CT (ammeter) inputs			X	X	X	X(2)	X(2)	X(2)
Remote setpoint inputs (V, mA)						X	X	X
Valve position feedback inputs (4-20mA, potentiometer)								
Temperature sensor inputs								
Auxiliary input isolation								
Digital inputs								
No.		X (1)	X (1)	X (2)	X (2)	X (3)	X (5)	X (5)
OUTPUTS								
Relay (R)	X (2)	X (5)	X (4)	X (4)	X (4)	X (4)	X (4)	X (4)
Logic (D)	X (1)	X (2)	X (2)	X (3)	X (3)	X (2)	X (2)	X (2)
Triac (T)			X (1)	X (1)	X (1)	X (1)	X (1)	X (1)
Analog (V, mA) (C, W)			X (1)	X (1)	X (1)	X (2)	X (2)	X (2)
Analog output isolation						X	X	X
Total no. of outputs (max)	2	5	4	4	4	5	5	5

Numbers in () are maximum allowed values

PERFORMANCE			MULTIFUNCTION			
						
850	1650	1850	2500	2850T	3850T	GFXTERM04
48x48mm (1/16 DIN)	48x96mm (1/8DIN)	96x96mm (1/4DIN)	96x96mm (1/4DIN)	96x96mm (1/4 DIN); 169x120mm	198x134mm	25x140x140mm
2	2	2	1	8	16	4
X						
	X	X	X			
	X (3)	X (3)	X(2)	X	X	
				X	X	
X	X	X		X	X	
X	X	X				
4	4	4	6	6	10	
X	X	X	X	X	X	X
X	X	X				
X	X	X	X	X	X	X
			X	X	X	
			X	X	X	
X	X	X		X	X	X
X (Linears)	X (Linears)	X (Linears)	X			
X	X	X				X
X	X	X				
				X	X	
			X			
X(2)	X(2)	X(2)		X	X	X
X	X	X	X	X	X	
X	X	X		X	X	
X (2°loop)	X (2°loop)	X (2°loop)	X (1)	X (8)	X (16)	X (4)
X	X	X				
X (3)	X (5)	X (5 + 8)	X (8)	X (32)	X (48)	X (2)
X (4)	X (4)	X (4 + 8)	X (4)			X (6)
X (4)	X (4)	X (4 + 8)		X (32)	X (48)	X (8)
X (1)	X (1)	X (1)				X (4)
X (2)	X (3)	X (3)	X (3)	X (4)	X (8)	X (4)
X	X	X	X			
5	6	22	11	32	48	10

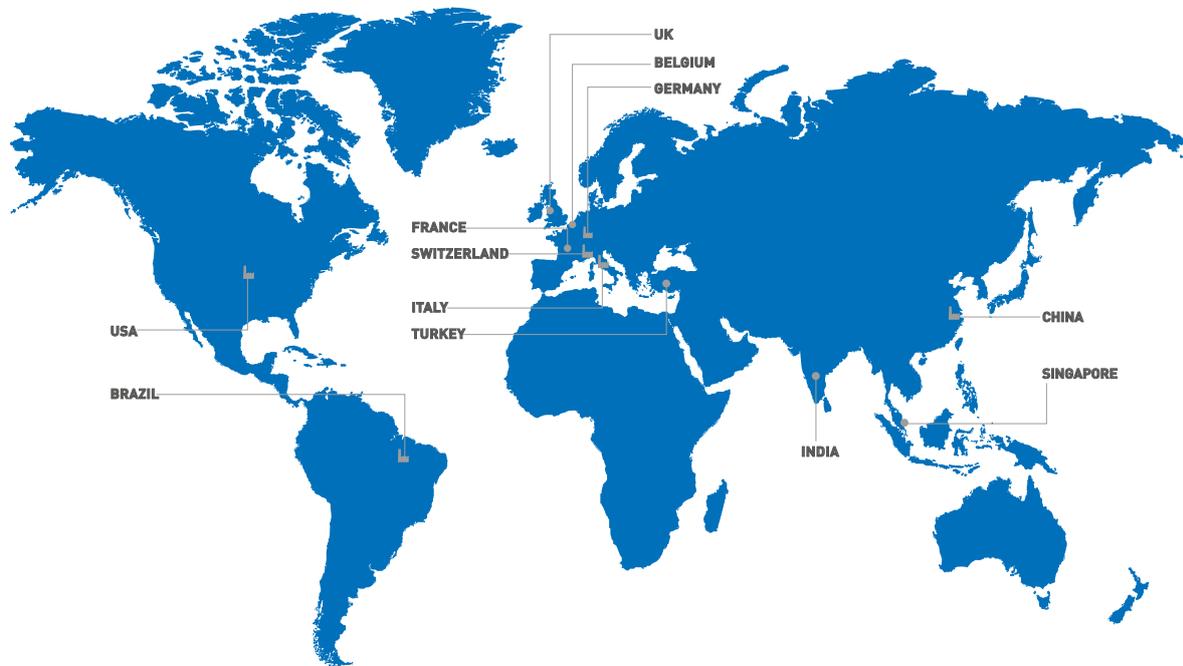
SELECTION GUIDE

	BASIC					VALUE		
								
	450	6000F	600	1200	1300	650	1250	1350
CONTROL FUNCTIONS								
Control								
Single action PID heat, single action PID cool	X	X	X	X	X	X	X	X
Double action PID heat/cool		X	X	X	X	X	X	X
Dual PID (Cascade, Ratio, independent controls)								
PID parameter groups						X	X	X
Self Tuning / Auto Tuning	X	X	X	X	X	X	X	X
Control outputs for motorized valves						X	X	X
Control outputs for motorized valves (with valve position feedback)								
Setpoint programmer								
Number of Programmers		X				X	X	X
Number of programs		1				4	4	4
Number of steps		3				12	12	12
Mathematical calculations								
Data Logger								
Real Time Clock								
Multiple setpoints			X (2)	X (2)	X (2)	X (4)	X (4)	X (4)
Logic operations (Function Blocks)						X (16)	X (16)	X (16)
Timer function						X	X	X
Energy counter/ totalizer						X	X	X
Diagnostics								
Short circuit of main input ("LBA")	X	X	X	X	X	X	X	X
Auxiliary input sensor short circuit ("LBA")								
Interrupted load (total and partial) ("HB")			X	X	X	X	X	X
Short circuit actuator (ex: SSR alarm)			X	X	X	X	X	X
Output switch counters						X (4)	X (4)	X (4)
SERIAL INTERFACE								
RS 485 Modbus RTU protocol		X	X	X	X	X	X	X
FIELDBUS								
Profibus								
Profinet								
CanOpen								
DeviceNet								
Modbus TCP								
Ethernet IP								
EtherCAT								
Configuration with GF_eXpress	X	X	X	X	X	X	X	X
Configuration without Power Supply						X	X	X
Copy / Paste parameters with Zapper						X	X	X
Saved work recipes								
GENERAL DATA								
Operating temperature	0...50°C	0...50°C	0...50°C	0...50°C	0...50°C	-10...55°C	-10...55°C	-10...55°C
Power supply								
100...240Vac	X	X	X	X	X	X	X	X
11...27Vac/dc	X		X	X	X			
20...27Vac/dc						X	X	X
24Vdc								
Auxiliary power supply (for transmitter, potentiometer)								
Front panel protection	IP 65	IP00	IP 65	IP 65	IP 65	IP 65	IP 65	IP 65
CERTIFICATIONS								
CE	X	X	X	X	X	X	X	X
UL	X	X	X	X	X	X	X	X
FM						X	X	
EAC	X	X	X	X	X	X	X	X

* Number of set point profiles for each program

** Max number between Logic and Mathematical functions

PERFORMANCE			MULTIFUNCTION			
						
850	1650	1850	2500	2850T	3850T	GFXTERM04
X	X	X	X	X	X	X
X	X	X	X	X	X	X
X	X	X	X	X	X	
X	X	X	X	X	X	X
X	X	X		X	X	
X	X	X		X	X	
X	X	X		X	X	
X	X	X		X	X	
2	2	2		4 (4)*	8 (4)*	
16	16	16		200	250	
128	128	128		2000	4000	
X (8)	X (8)	X (8)	X	X (200)**	X (200)**	
				X	X	
				X	X	
X (4)	X (4)	X (4)		X	X	X (2)
X (32)	X (32)	X (32)		X (200)**	X (200)**	
X	X	X		X	X	
X	X	X		X	X	
X	X	X	X	X	X	X
X	X	X	X	X	X	X
X (4)	X (4)	X (4)				
X	X	X	X			X
			X			X
						X
						X
				X	X	X
						X
						X
X	X	X	X	X	X	X
X	X	X				
X	X	X	X	X	X	
X	X	X	X	X	X	
-10...55°C	-10...55°C	-10...55°C	0...50°C	0...50°C	0...50°C	0...50°C
X	X	X	X			
X	X	X	X			
X (2)	X (2)	X (2)	X (2)	X	X	X
IP 65	IP 65	IP 65	IP 54	IP 65	IP 65	IP 20
X	X	X	X	X	X	X
X	X	X	X			X
			X			X



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GEFRAN

You know we are there