

GEFLEX distributed control

GEFLEX distributed control



GEFRAN

Our Knowhow,
Your Solution.

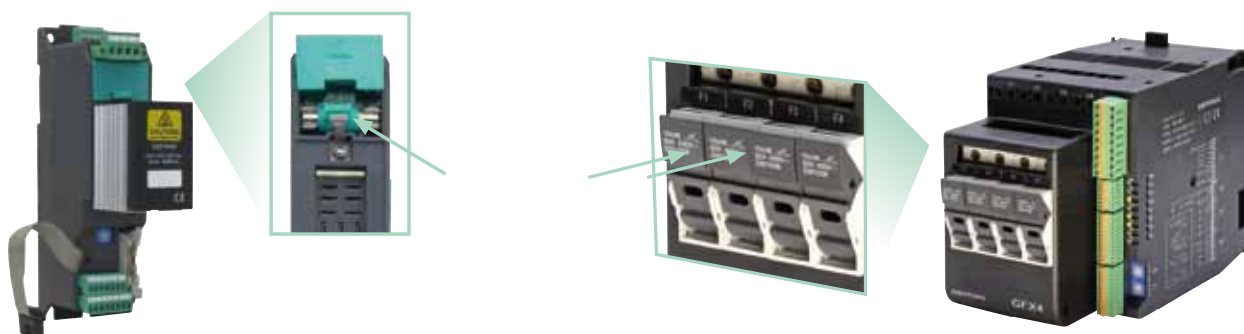
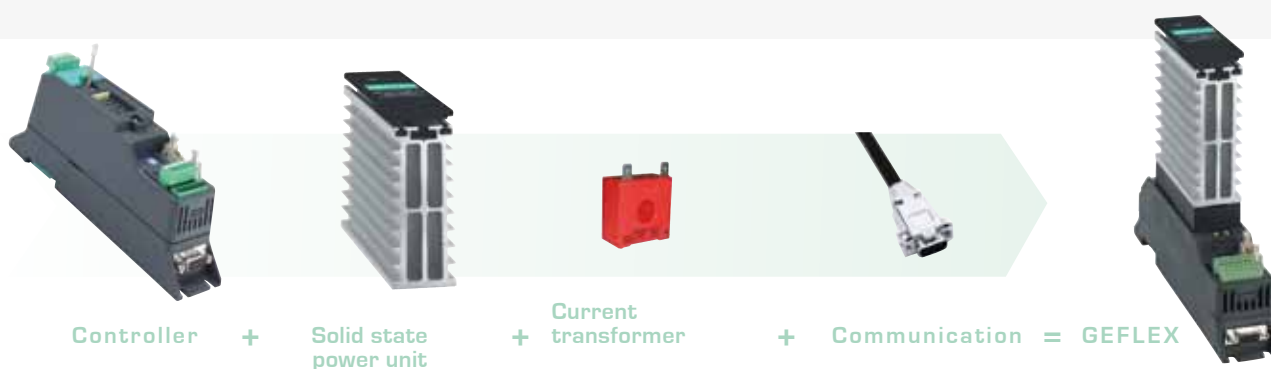
GEFLEX

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.

INTEGRATED SOLUTION

It's an integrated solution: PID controller+diagnostics+power+communication.

A synergy of elements that create an innovative automation product with high technology content.



The Geflex multifunction and GFX4 families also integrate protective fuses.

WHAT DOES IT DO

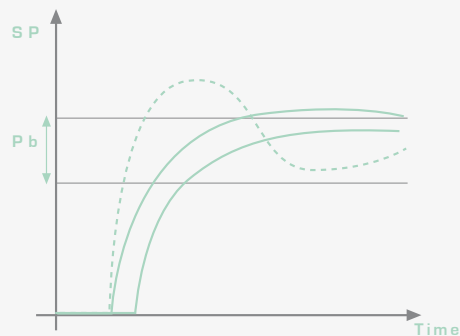
GEFLEX performs a variety of automation functions:

- control with double PID + selftuning/autotuning
- open loop control with power levels received via Fieldbus
- intercepting of variables in alarm status
- acquisition of variables and centralization to SCADA packets
- diagnostics

Each module is completely independent and needs no software writing; PID, alarms and tuning are controlled locally, perfectly closing the control loop.



TEMPERATURE CONTROL



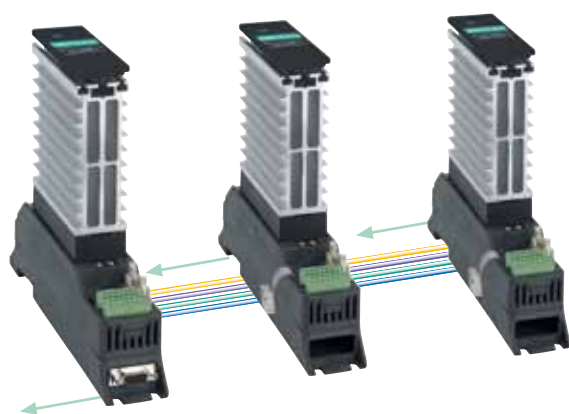
TEMPERATURE CONTROL

ADVANTAGES

- Simplified wiring
- Remote control
- Simplified PLC configuration with reduced physical resources
- Scalability based on applications
- Open platform that dialogs via standards protocols and Fieldbuses

HOW IS IT USED

- This simple, intuitive instrument is "ready to use"
- Connections between modules are already prepared with pre-wired cables and connectors
- It configures quickly from the GFX-OP panel or from PC with GF_eXpress



field bus

GFX 15...120 Ampere



GFX4 16...40 Ampere (four channels)

SCALABILITY

Modularity lets you scale the architecture precisely based on your needs.

As opposed to PLCs, there is no waste of resources, even with different architectures and with only a few zones, without precluding expansions of the configuration in number of channels or additional communication on Fieldbus.



GEFLEX
Modularity 1

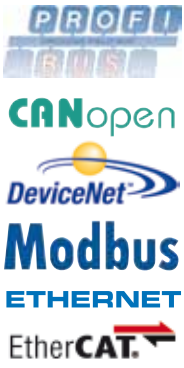


GFX 4
Modularity 4

CHARACTERISTICS AND ADVANTAGES

CHARACTERISTICS

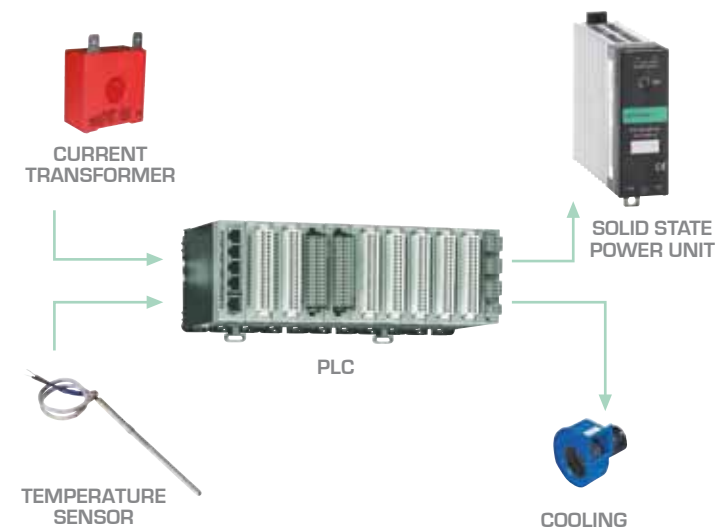
ADVANTAGES

	ALL IN ONE This single unit integrates: • control • power • diagnostics • protection • communication		LESS WIRING Saves wiring and space in the electrical panel.
	FIELDBUS All popular field buses are available: • Profibus DP • CANopen and Euromap 66 • DeviceNet • Modbus RTU • Ethernet Modbus TCP • Ethernet IP • EtherCAT		EASY INTEGRATION The use of popular field buses makes it quick and easy to insert Geflex in a wide variety of automation configurations. Control is free from the type of PLC used.
	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 • Alarm: short circuit SSR, no voltage, overheat		REMOTE CONTROL Geflex can be installed in the process zone and remote-controlled. All fault conditions are controlled and immediately signalled.
	MODULARITY \ FLEXIBILITY One or four modularity for both single-phase and 3-phase loads. Possibility of networks with hundreds of zones.		SCALABILITY Can be precisely scaled to requirements.
	INTELLIGENT UNITS All units are equipped with CPUs, programmed with powerful algorithms, that manage controls, alarms, and calculation of adequate PID parameters (tuning). Specific SW functions are provided on GFX4-IR to control IR lamps and inductive loads.		SIMPLIFIES PLC CONFIGURATION Each Geflex is independent: you can replace the PLC control or scale the CPU.

GEFLEX: THE INTEGRATED SOLUTION

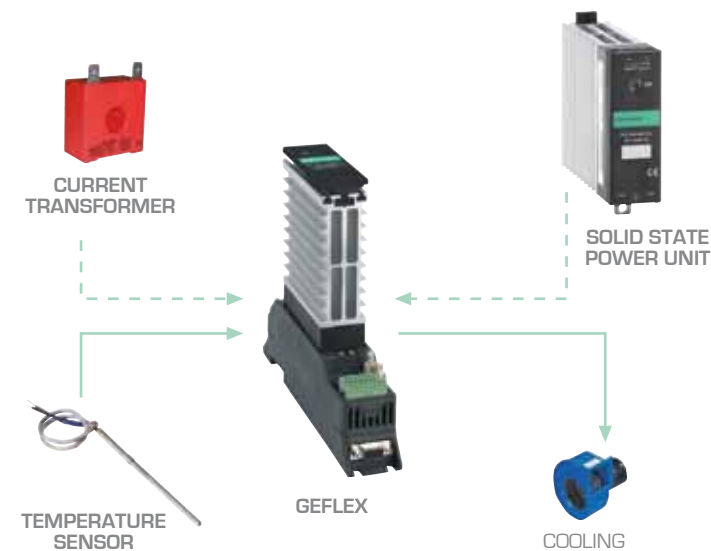
TRADITIONAL

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.



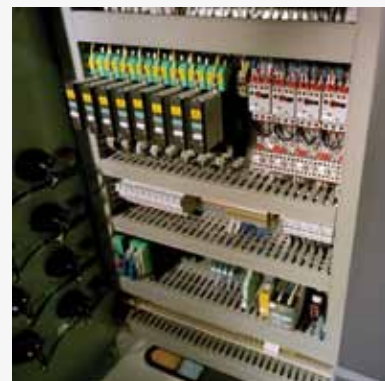
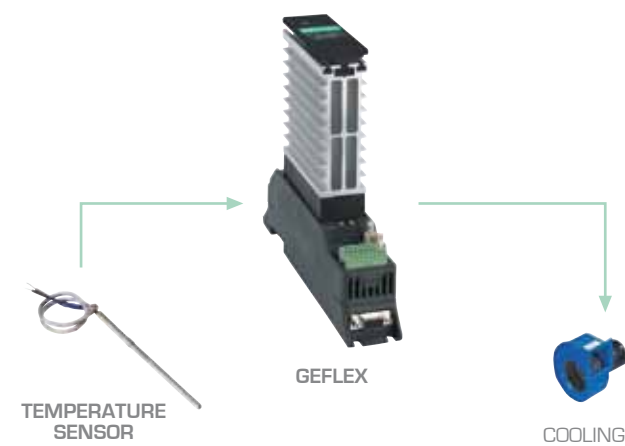
INTEGRATION

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



EVOLUTION

Geflex represents an evolution in temperature control, with advantages of reduced wiring, high diagnostic power, and modularity that provide fewer, simpler, cleaner connections in electrical panels.



GFX4

4-channel power controller with 4 independent PIDs



with fuses



without fuses

- Up to 40A per zone in single-phase and 3-phase solutions
- Intelligent control functions of maximum total power to prevent instantaneous consumption peaks
- Specific functions for "Hot runners" control

GFX4-IR

4-channel power controller with 4 independent PIDs, specific for IR lamps and inductive loads



with integrated fuses
and disconnecting switches



without fuses

- Up to 40A per zone in single-phase and 3-phase solutions
- Intelligent control functions of maximum total power to prevent instantaneous consumption peaks
- Operation configurable as zero crossing, pulse train, and Half Single Cycle (for short wave IR)
- Phase angle operation
- Softstart, current limit, V, I, P feedback
- Rapid diagnostics of Iac, VAC rms, load interrupt, short circuit

FEATURES

GFX4-IR 30-60-80 kW
4 INDEPENDENT CONTROL LOOPS



with fuses,
TA, TV



without fuses,
con TA, TV

GFX4 30-60-80 kW
4 INDEPENDENT CONTROL LOOPS



with fuses



without fuses

INPUTS

MAIN

Nr.

4

Type

TC (J, K, R, S, T)
RTD (Pt100, JPT100)
0...1V, 0...60mV
0...20mA
custom

Sampling time

120ms

Accuracy

0,2% f.s.

AUXILIARY (optional)

Nr.

4

Type

TC (J, K, R, S, T, custom)
0/12...60mV

Sampling time

480ms

Accuracy

0,2% f.s.

I/V MEASUREMENT

(always, in RMS)

Nr.

4

Type

TA + TV internal

1 or 4 (depending on model)

DIGITAL

Nr.

2

Type

PNP 24V, 8mA

OUTPUTS

MAIN (configurable)

Nr.

4

Type

Total power (at 480V)

30kW

60kW

80kW

Power per zone

7,6kW

15,3kW

19,2kW [23,7 max]

AUXILIARY CONFIGURABLE

(option)

Nr.

4

Type

Relay / Logic / Triac / Continuous

ALARM (configurable)

Nr.

2

Type

Relay

FUNCTIONS

CONTROL

PID heat/cool
(with liquid selection of cooling)
ON-OFF heat/cool

TUNING

SelfTuning, AutoTuning continuous,
AutoTuning OneShot

DIAGNOSTIC

LBA (loop break alarm), HB (heater break),
SBR (sensor break), Short circuit (SSR),
no voltage, 3-phase line imbalance,
phase rotation, overheat, overcurrent

LBA (loop break alarm), HB (heater break),
SBR (sensor break), Short circuit (SSR)

ALARMS (configurables)

Nr.

8

Type

absolute / relative;
direct / inverse / symmetrical; latch

OTHER FUNCTIONS

Type

Dedicated control for IR lamps (HSC); for inductive
loads and TRS single-phase and 3-phase.
V, I, P feedback
Smart power management.

Software off
Soft start
Smart power management.

PROTECTIONS

FUSES

4 fuse-holders

-

4 fuse-holders

-

FIELDBUS

DIGITAL COMMUNICATION

Nr.

1 + 1 (option)

Protocol

Modbus RTU (all models).

Options: Profibus DP, CANopen, DeviceNet, Euromap 66, Modbus TCP, Ethernet IP, EtherCAT

GENERAL DATA

AUXILIARY POWER SUPPLY

24Vdc $\pm 25\%$

CONFIGURATION TOOL

Terminal

GFX-OP (ver. 1.60 and successive)

GFX-OP

PC Software

GF_eXpress

GF_eXpress

GEFLEX 5-10-15A (valve, multifunctions)
SINGLE INDEPENDENT LOOP

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

FEATURES



GFX-M2
master



GFX-S2
slave



GFX-E2
expans.



GFX-M1
master



GFX-S1
slave



GFX-E1
expans.

INPUTS

MAIN

Nr.

1

1

-

1

1

-

Type

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

Sampling time

120ms

120ms

Accuracy

0,2% f.s.

0,2% f.s.

AUXILIARY (optional)

Nr.

1

1

-

-

Type

potentiometer
0/2...10V; 0/4...20mA

Sampling time

240ms

Accuracy

0,2% f.s.

J/V MEASUREMENT

Nr.

1 (option)

1 (option)

1 (option)

1 (option)

1 (option)

1 (option)

Type

CT internal or CT+TV internal

CT internal or CT+TV internal

DIGITAL

Nr.

1

1

-

1

1

-

Type

PNP 24V, 8mA

PNP 24V, 8mA

OUTPUTS

MAIN (configurable)

Nr.

1

1

1

1

1

1

Type

module SSR 5/10/15A
123/440Vac
module R / RR / CC

integrated solid state relay
25 / 40 / 60 / 75 / 90 / 120A; 480Vac

AUXILIARY CONFIGURABLE
(option)

Nr.

1

1

1

1

Type

R / D / C

R / D / C

ALARM (configurable)

Nr.

2

2

2

2

Type

R

R

R

R

FUNCTIONS

CONTROL

PID heat/cool
(with liquid selection of cooling)
ON-OFF heat/cool

PID heat/cool
(with liquid selection of cooling)
ON-OFF heat/cool

TUNING

SelfTuning
AutoTuning continuous
AutoTuning OneShot

SelfTuning
AutoTuning continuous
AutoTuning OneShot

DIAGNOSTICS

LBA (loop break alarm)
HB (heater break)
SBR (sensor break)

LBA (loop break alarm)
HB (heater break)
SBR (sensor break)

ALARMS (configurables)

Nr.

4

4

4

4

Type

absolute/relative
direct/inverse/symmetrical
latch

absolute/relative
direct/inverse/symmetrical
latch

OTHER FUNCTIONS

Type

Software off, Softstart, Hot runners
function

Software off, Softstart, Hot runners
function

PROTECTIONS

FUSES

Extractable (on SSR versions)

External

FIELDBUS

DIGITAL COMMUNICATION

Nr.

1

1

Protocol

Modbus RTU
Profibus DP
CANopen
DeviceNet

Modbus RTU
Profibus DP
CANopen
DeviceNet

GENERAL DATA

AUXILIARY POWER SUPPLY

24Vdc $\pm$ 25%

24Vdc $\pm$ 25%

CONFIGURATION TOOL

Terminal

GFX-OP

GFX-OP

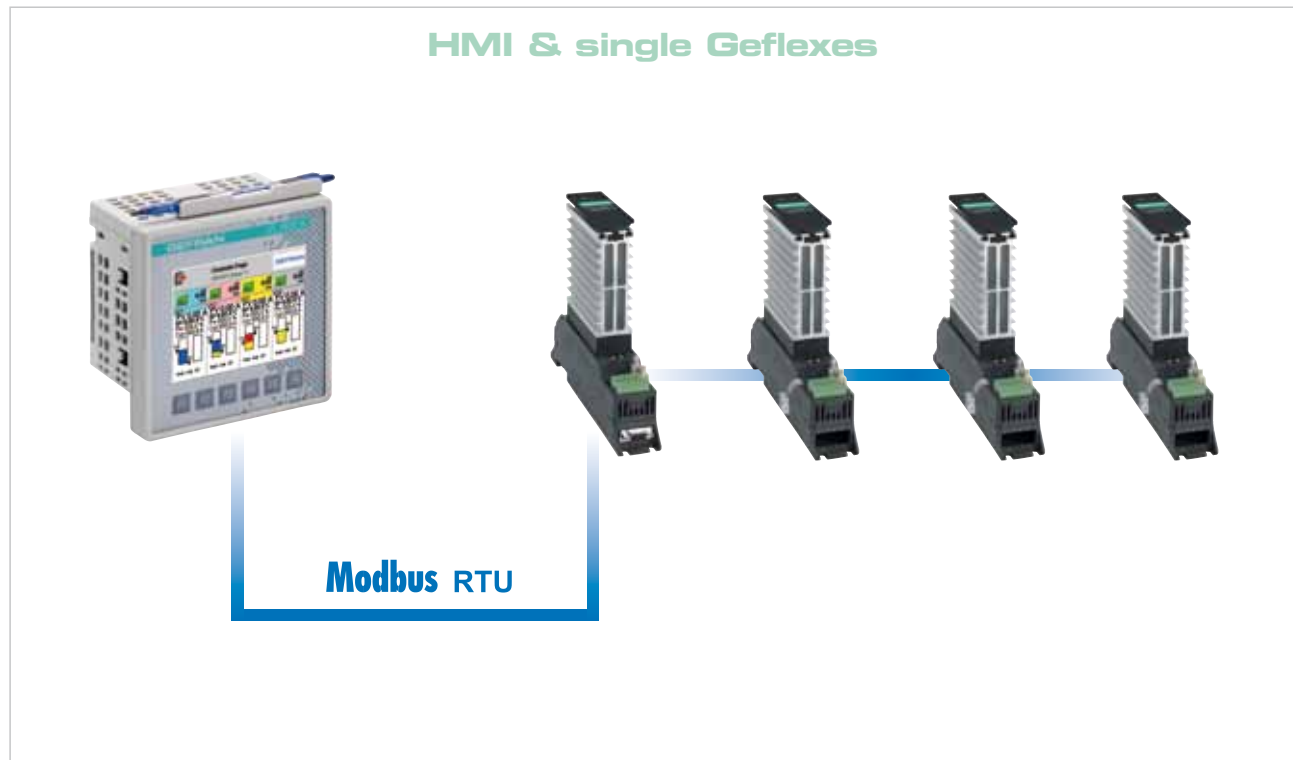
PC Software

GF_eXpress

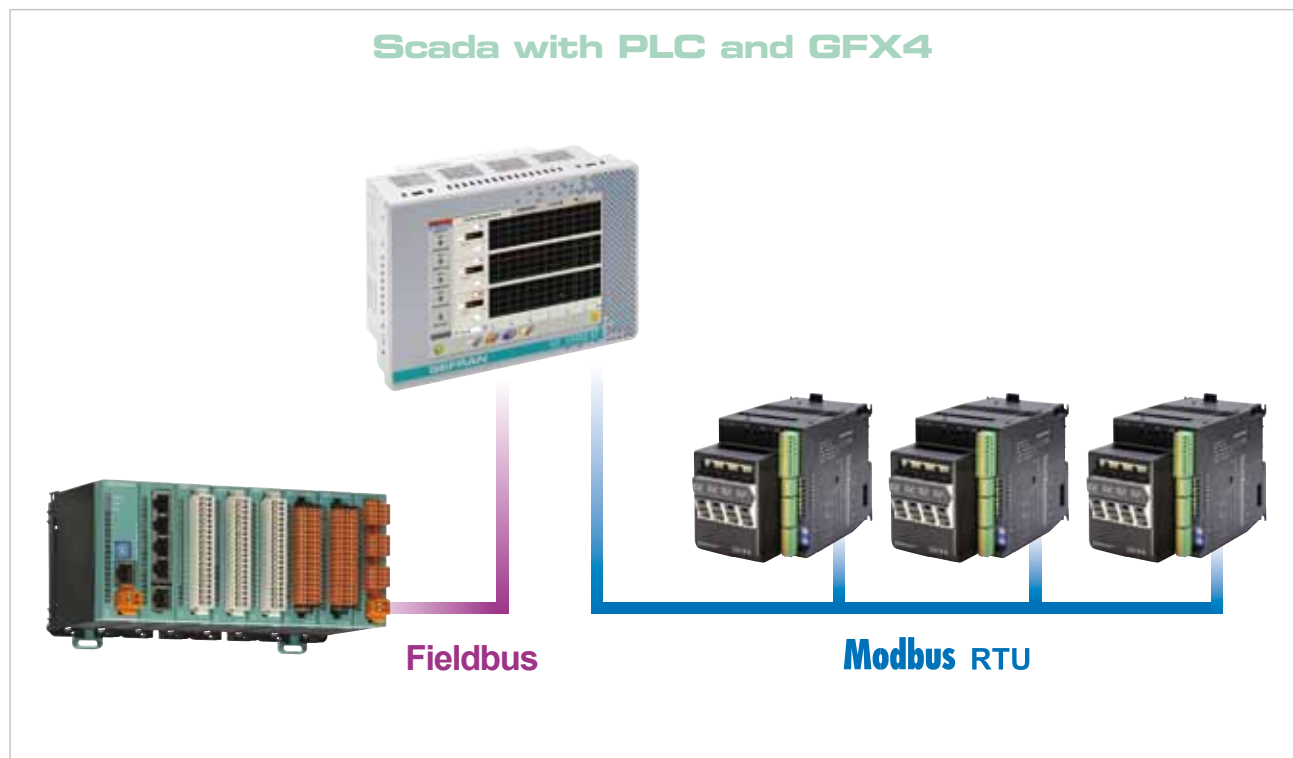
GF_eXpress

ARCHITECTURES

PID controls with single GEFLEXes and HMI
[GF_LOOPER multiloop controller]



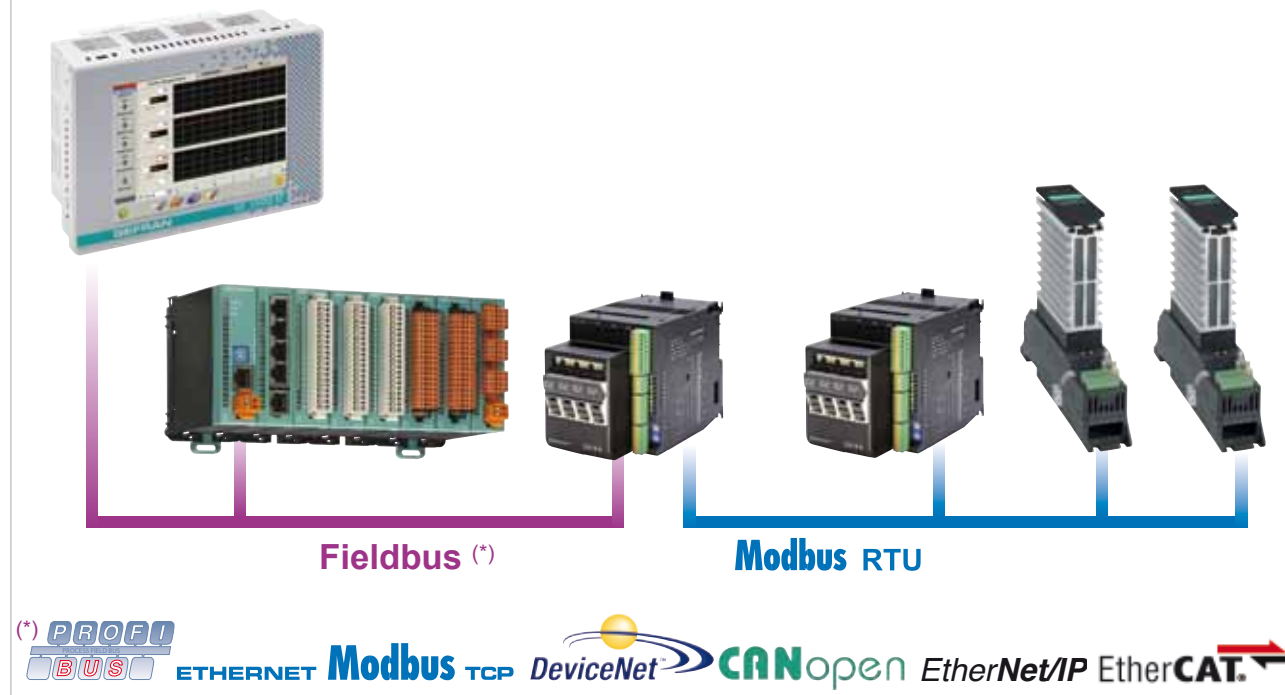
PID controls with GFX4 in complex automation configurations
[GF_PACK EXTRUSION - complete control of Extruders]



ARCHITECTURES

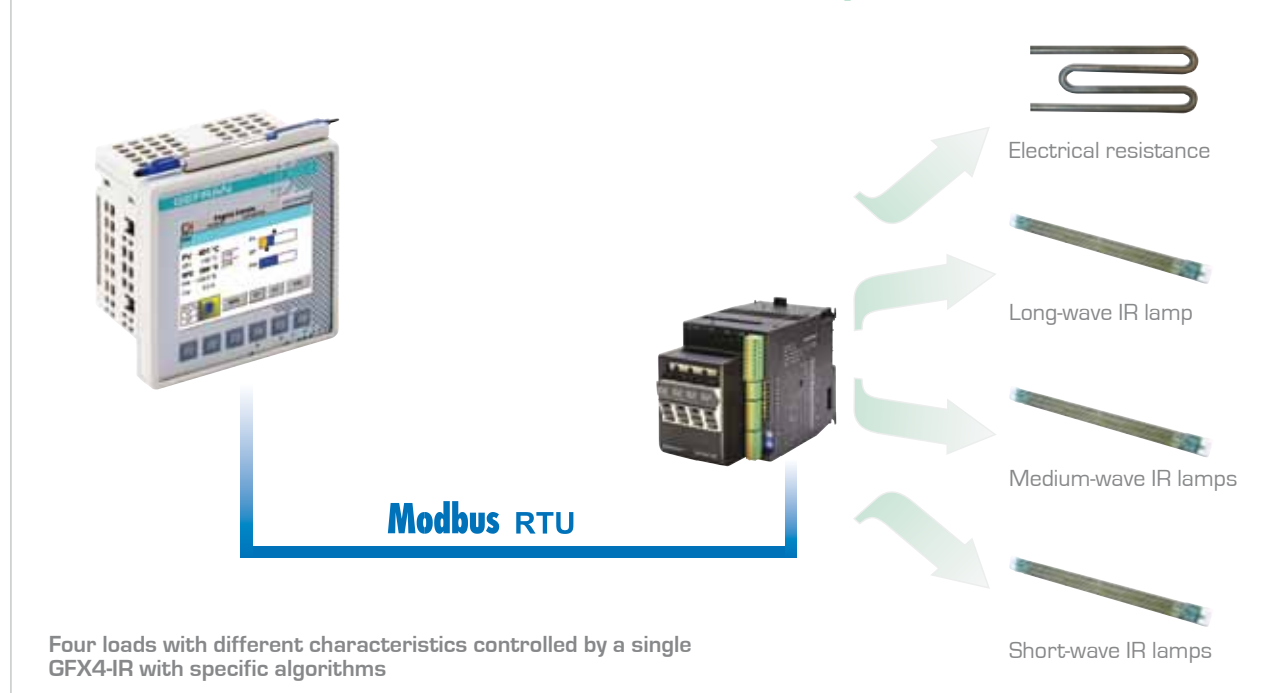
Mixed PID controls with GFX4 and GEFLEX integrated on Fieldbus

Soft PLC with Fieldbus



Control of electrical resistances and IR lamps with GFX4-IR

GFX4-IR with IR lamps



APPLICATIONS

PACKAGING



PHARMACEUTICAL



EXTRUSION



BLOW MOLDING



HEAT
TREATMENT



FURNACES FOR
GLASS



SEMICONDUCTORS



HOT CHANNELS



THERMOFORMING



WOOD-WORKING
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