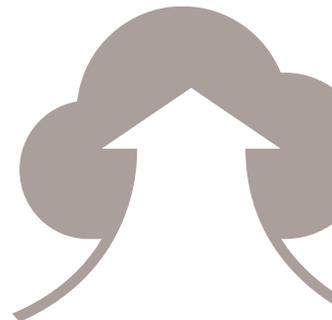
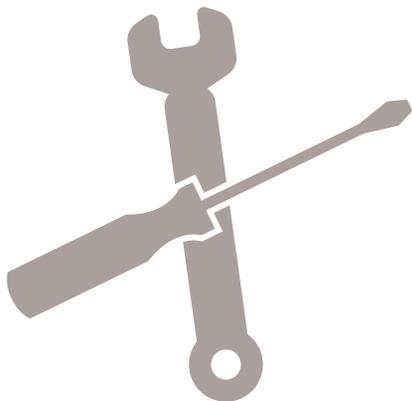
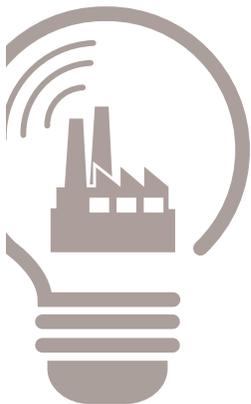


ENG



**AUTOMATION
SOLUTIONS
BY GEFRAN**



GEFRAN

AUTOMATION

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4.0 for Gefran

Industry 4.0: what are we talking about? We're talking about integrating new **digital technologies** to improve industrial plant working conditions, increase productivity and production quality.

Industry 4.0 means smart factory and implies a new factory conception that goes beyond all those actions solely focused on machine development and perfection. Thus, the *smart factory* idea involves the entire company: from design to the *supply chain* up to the production area. The data required and automation instruments that must provide them to create a 4.0 process aim to **globally improve the company**.

4.0 thus involves a change in mentality starting from the selection of operating technologies must suited to the production process and, therefore, to the factory up to corporate *information technology*.

Gefran interprets this new factory vision with a catalogue of 4.0 DNA products that meets connectivity, factory data acquisition, monitoring and diagnostic maintenance needs.

2

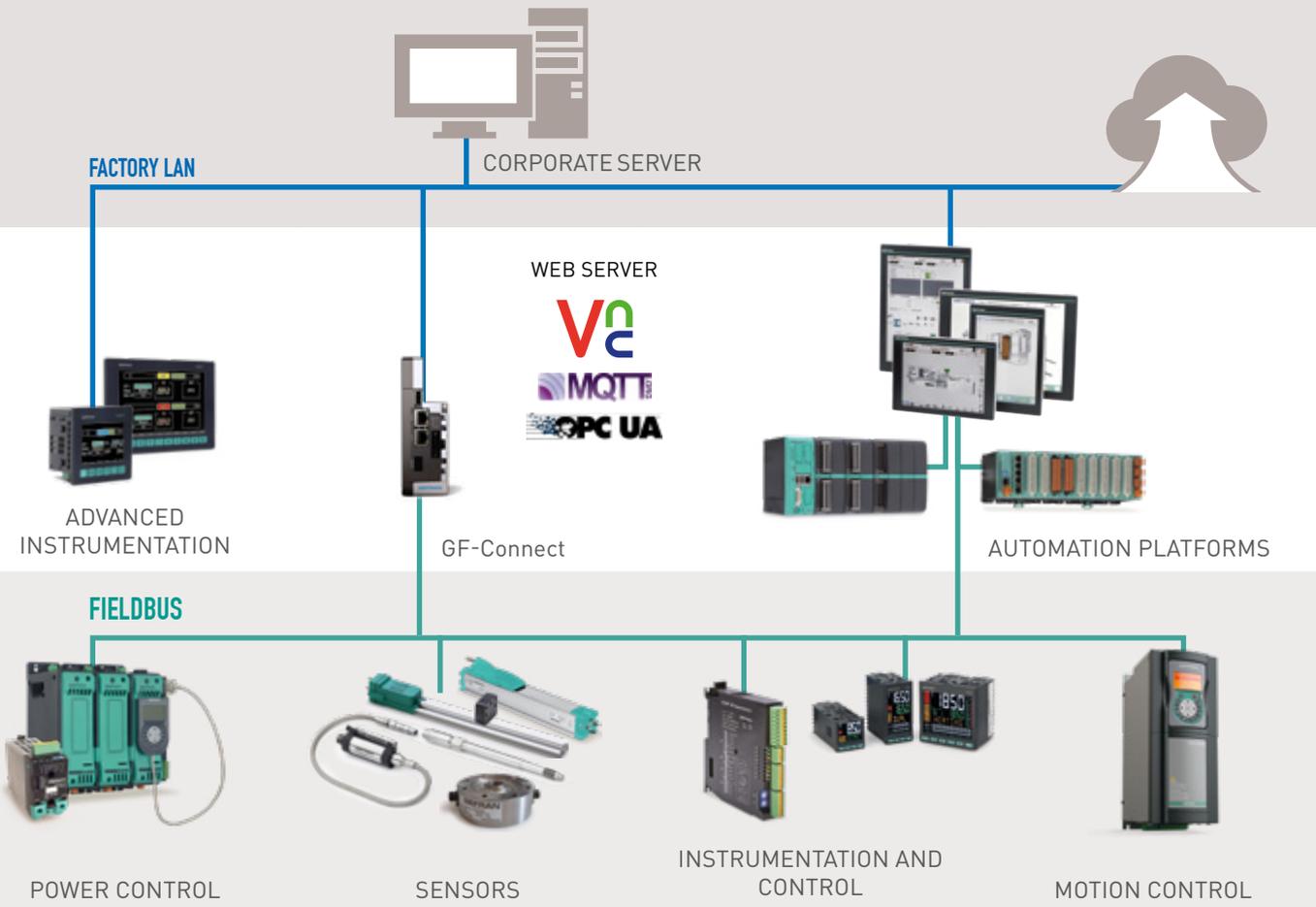
MONITORING and CONTROL

1

DATA ACQUISITION

0

SENSORS and INSTRUMENTATION



INDUSTRY 4.0

Interconnected products and connected to the cloud, to monitor **raw material stock turnover** and plan re-order, **monitor consumption** or **plan maintenance**.

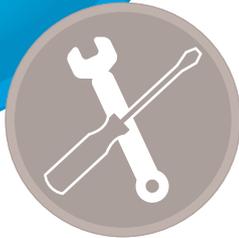
View **monthly production trends**, check **productivity indexes**, machine downtime and statistics through data aggregation according to need.



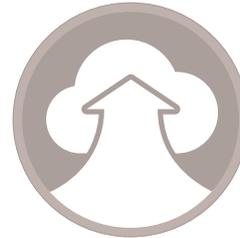
CONNECTIVITY



SMART FACTORY



DIAGNOSTIC MAINTENANCE



CLOUD



BIG DATA ANALYTICS

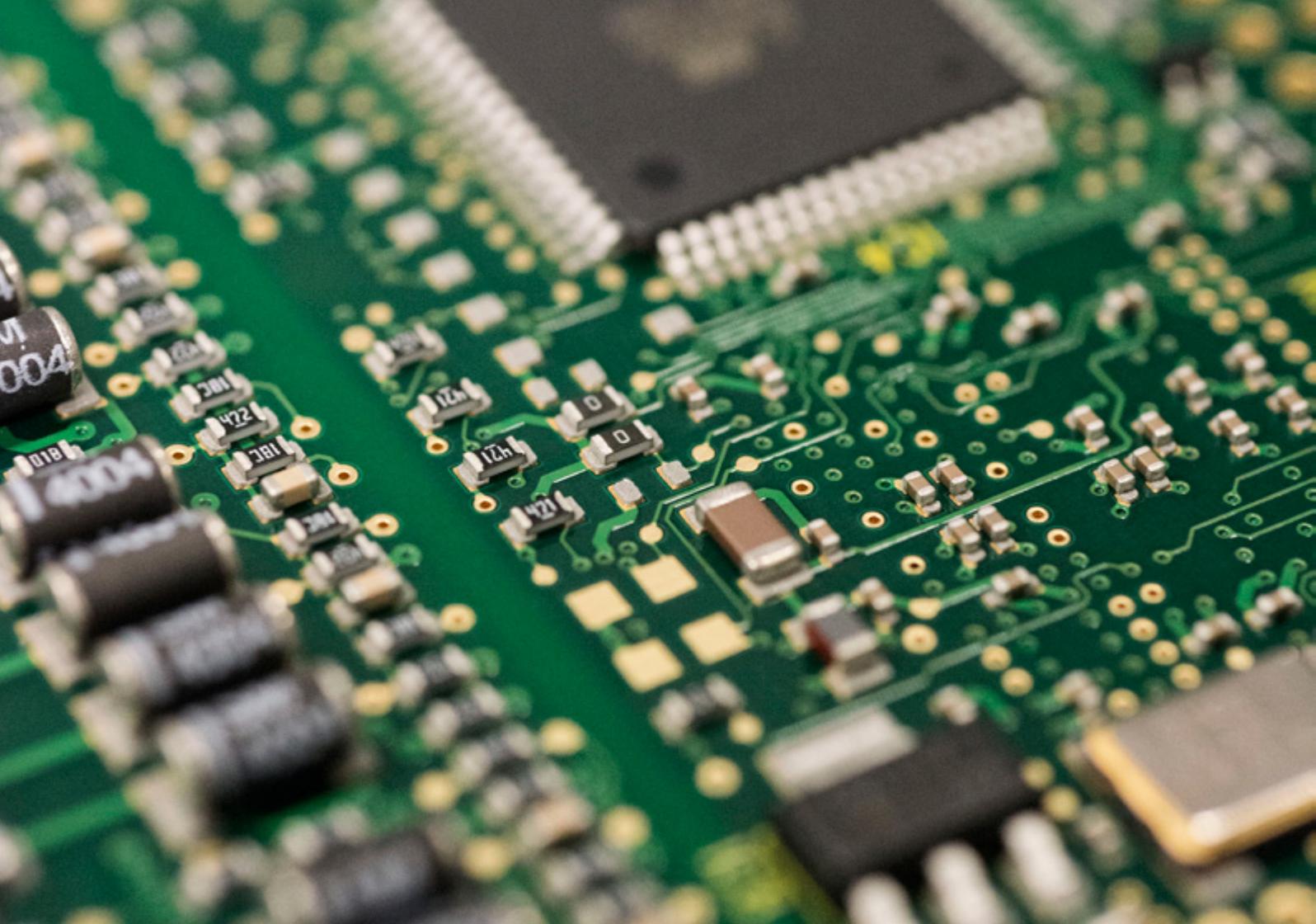


A wide range of products that adapts to the needs of companies that seek to increase their competitiveness thanks to devices that provide **de-localised control** and **connectivity** directly on the field, with functions designed to pursue **energy efficiency, eco-friendly, compliant with the most recent safety regulations**.

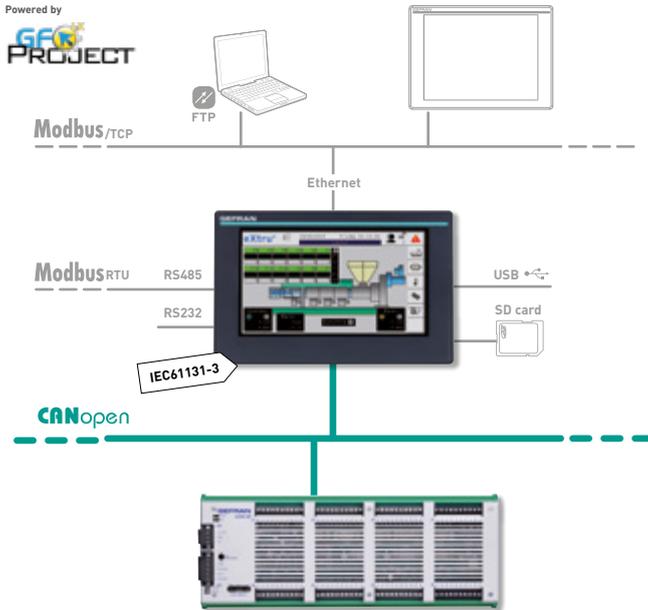
Inverters, sensors, automation platforms, controllers and power controllers that can improve the efficiency of production processes and reduce power consumption by exchanging data with the company IT system relating to the optimised control of processing, reducing set-up times and machine downtime, anticipating maintenance work.

Technology and innovation represent added value in the well stocked Gefran product catalogue. Always attentive to market needs, the company seeks the drive to research and develop technologically advanced and quality solutions for industrial process control in its machine manufacturer customers.

Industry 4.0 is a revolution rich in opportunities: communications between machines, products and people leads to more flexible and efficient production lines and **Gefran has what it takes to help customers gain these new benefits.**



AUTOMATION



GCube Compact / Fit

COMPACT AND CUSTOMISABLE AUTOMATION PLATFORM, CONSISTING OF CONTROL PANELS, SPECIFIC PLCs AND TEMPLATES FOR PLASTIC AND HEAT TREATMENT APPLICATIONS

Compact and customised solution to monitor and view medium/ small size plants and machines. Process control, data logging, PLC all-in-one.

The Fit and Compact platforms have two common elements: GF_Vedo SL series 7" touch screen panel PC and a CANopen communication backbone.

The proposals differ because the Compact platform requires the use of Gilogik II series remote modules, ideal where a wide degree of I/O configurability is required.

On the other hand, Fit, justified by constant and repetitive volumes, is made up of a specific, custom board, designed for applications with a set number of I/Os that can be expanded by using Gilogik II modules or by putting it in parallel with other custom boards.

It is important to emphasise that both Fit and Compact solutions deliver absolutely identical performance and support the same development environment.

Why 4.0?

- CONNECTIVITY WITH CORPORATE "OPERATION AND INFORMATION TECHNOLOGY" SOFTWARE IS GUARANTEED BY THE MODBUS TCP STANDARD
- DEVICES CAN BE REMOTELY CONTROLLED VIA VNC
- THE GF_Project LX DEVELOPMENT ENVIRONMENT, WHICH ALLOWS YOU TO PROGRAM PLCs, HMIs AND CONFIGURE ALL NETWORK AND FIELD DEVICES IN A SINGLE ENVIRONMENT, PROVIDES THE DEVELOPER WITH ALL THE TOOLS NEEDED TO PROCESS, ANALYSE AND STORE DATA THAT CAN THEN BE MADE AVAILABLE AT HIGHER LEVELS

Applications

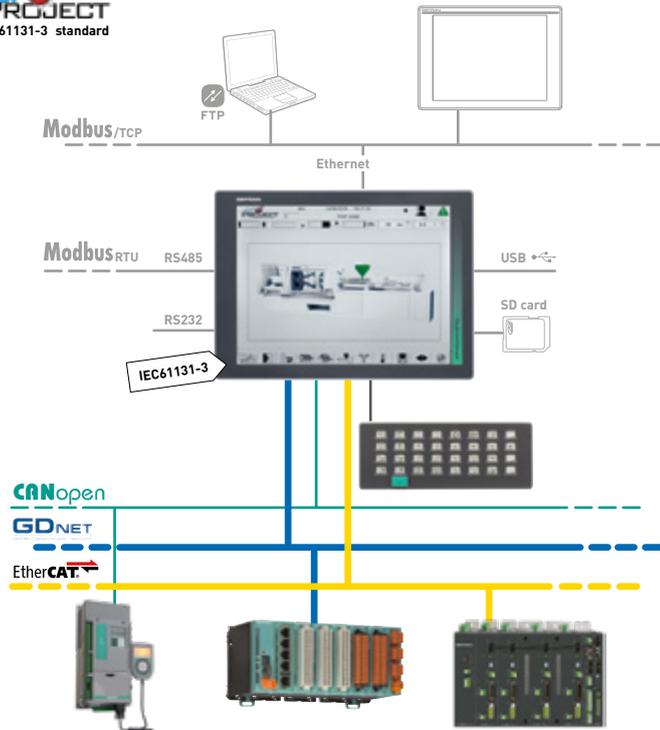
- EXTRUDERS-GRANULATORS
- CO-EXTRUDERS
- HEADER CUTTING UNIT
- MELT PUMP UNIT
- AUXILIARIES
- TEMPERATURE CONTROL
- PARISON CONTROL
- CLIMATIC ROOMS
- STERILISATION

- BAKERY OVENS
- PLASTIC PRODUCTION DRYERS

Technical specifications

- PLC + HMI IN A SINGLE PRODUCT
- INTEGRATED ETHERNET PORT
- WIDE AVAILABILITY OF COMMUNICATION PORTS
- A SINGLE PROGRAMMING ENVIRONMENT
- MULTI-PLATFORM SOLUTION DEVELOPMENT
- PROGRAMMING ACCORDING TO IEC61131-3 STANDARD
- PROGRAMMING LANGUAGES IEC61131 (LD, ST, IL, SFC, FBD)
- ON-LINE DEBUG

Powered by
GFO^{EX}
PROJECT
 IEC61131-3 standard



GCube Modula

AUTOMATION PLATFORM MADE UP OF A PROCESS PANEL, PLC RACK AND SPECIFIC TEMPLATES FOR PLASTIC AND HEAT TREATMENT APPLICATIONS

The GCube Modula platform is a "remote I/O" solution that includes the use of the eView LT series Panel PC and Gilogik II family remote modules.

Specifically, the new eViewLT offers the ability to build an I/Os network based on real-time Ethernet fieldbus (GDNET or Ethercat).

It is a powerful, flexible solution with a high-degree of connectivity, best for applications that require an extensive machine layout.

Why 4.0?

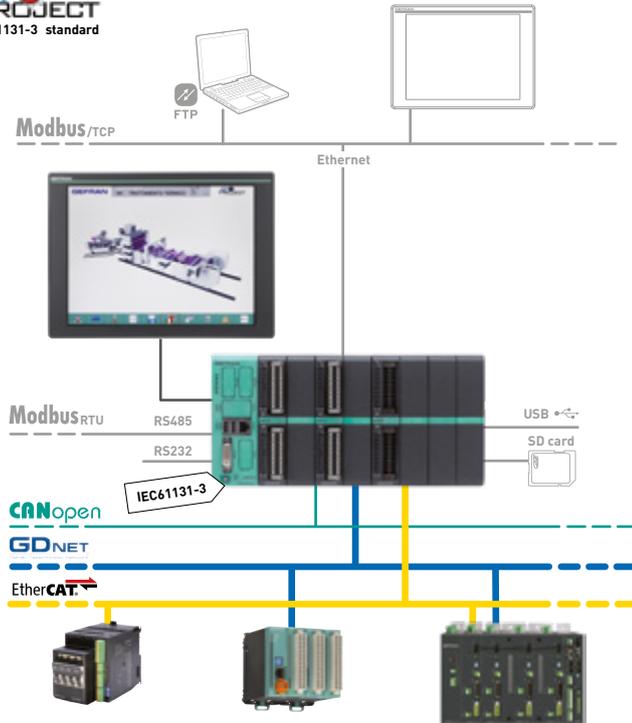
- CONNECTIVITY WITH CORPORATE "OPERATION AND INFORMATION TECHNOLOGY" SOFTWARE IS GUARANTEED BY THE MODBUS TCP, OPC UA AND MQTT STANDARD
- DEVICES CAN BE REMOTELY CONTROLLED THROUGH VNCS AND OFFER A WEB SERVER WHERE CUSTOM PAGES ACCESSIBLE VIA BROWSER FROM ANY DEVICE CAN BE IMPLEMENTED
- THE GF_Project VX DEVELOPMENT ENVIRONMENT, WHICH ALLOWS YOU TO PROGRAM PLCs, HMIs AND CONFIGURE ALL NETWORK AND FIELD DEVICES IN A SINGLE ENVIRONMENT, PROVIDES THE DEVELOPER WITH ALL THE TOOLS NEEDED TO PROCESS, ANALYSE AND STORE DATA THAT CAN THEN BE MADE AVAILABLE AT HIGHER LEVELS MESSAGES AND M2M CAN BE SENT TO AND FROM SMARTPHONES VIA MQTT PROTOCOL

Applications

- INJECTION MOULDING
- EXTRUSION
- BLOW MOULDING
- HEAT TREATMENT

Technical specifications

- INTEGRATED HMI AND SOFT PLC CONTROL PANEL
- SINGLE PROGRAMMING ENVIRONMENT
- WIDE AVAILABILITY OF COMMUNICATION PROTOCOLS
- PROGRAMMING ACCORDING TO IEC61131-3 STANDARD
- PROGRAMMING LANGUAGES IEC61131 (LD, ST, IL, SFC, FBD)
- ON-LINE DEBUG
- CONFIGURABILITY OF ALL DEVICES IN THE GEFRAN CATALOGUE
- INTEGRATED SOLUTION FOR PROJECTS WITH AUTOMATION PLATFORM



GCube Performa

AUTOMATION PLATFORM MADE UP OF A PROCESS CONTROLLER, PLC AND SPECIFIC TEMPLATES FOR PLASTIC AND HEAT TREATMENT APPLICATIONS

The GCube Performa platform stands out for its compact size and the calculation power provided by the combination of operator panels from the ePanel series and from the ePCLogic400 PLC rack.

It is a powerful, flexible solution with a high-degree of connectivity, best for applications that require a compact machine layout.

The ePCLogic400 rack is integrable and expandable through the Gilogik II series remote I/O range and offers the ability to build networks through real-time Ethernet fieldbus (GDNET or Ethercat).

Why 4.0?

- CONNECTIVITY WITH CORPORATE "OPERATION AND INFORMATION TECHNOLOGY" SOFTWARE IS GUARANTEED BY THE MODBUS TCP, OPC UA AND MQTT STANDARD
- DEVICES CAN BE REMOTELY CONTROLLED THROUGH VNCS AND OFFER A WEB SERVER WHERE CUSTOM PAGES ACCESSIBLE VIA BROWSER FROM ANY DEVICE CAN BE IMPLEMENTED
- THE GF_Project VX DEVELOPMENT ENVIRONMENT, WHICH ALLOWS YOU TO PROGRAM PLCs, HMIs AND CONFIGURE ALL NETWORK AND FIELD DEVICES IN A SINGLE ENVIRONMENT, PROVIDES THE DEVELOPER WITH ALL THE TOOLS NEEDED TO PROCESS, ANALYSE AND STORE DATA THAT CAN THEN BE MADE AVAILABLE AT HIGHER LEVELS MESSAGES AND M2M CAN BE SENT TO AND FROM SMARTPHONES VIA MQTT PROTOCOL

Applications

- INJECTION MOULDING
- EXTRUSION
- BLOW MOULDING
- HEAT TREATMENT

Technical specifications

- INTEGRATED SYSTEM FOR PLC, GRAPHICS AND IO MANAGEMENT
- COMPACT SOLUTION (L <300 mm)
- LOCALLY SCALABLE
- MODULAR BOARDS
- SCALABLE
- MULTI-PLATFORM SOLUTION DEVELOPMENT
- PROGRAMMING ACCORDING TO IEC61131-3 STANDARD
- PROGRAMMING LANGUAGES IEC61131 (LD, ST, IL, SFC, FBD)
- ON-LINE DEBUG
- CONFIGURABILITY OF ALL DEVICES IN THE GEFTRAN CATALOGUE
- INTEGRATED SOLUTION FOR PROJECTS WITH AUTOMATION PLATFORM

650L / 1250L

SAFETY INDICATORS (1/16, 1/8 DIN)

650L indicators are a family of devices designed to intercept overheating in industrial processes.

In the event of alarm, the instruments automatically maintain the fault conditions until reset by the operator.



Reset can be run by the operator from the specific front key (red R), from the digital input (optional) or serial line (optional). The display shows process values, in addition to multilingual scroll messages for diagnostics, alarms.

This information can help to evaluate furnace deterioration and plan maintenance work.

A trigger meter and alarm memory reset timer are available for alarm 1 safety control.

Maintenance on the system where the device is installed is facilitated by the possibility of replacing the instrument at any time, by simply pulling it from the front, without further action.

Commissioning is facilitated by a set up wizard without manual, with few indispensable parameters commented by online help messages. Advanced set up, work recipes and firmware updates are possible via PC with GF_eXpress software even without having to power the instrument.

Why 4.0?

- OPEN SENSOR, SHORT CIRCUIT, WRONG CONNECTIONS
- ALARM THRESHOLDS ON THE PROCESS VARIABLE
- SAFETY ALARM STATE
- TOTAL TRIGGERED ALARM COUNTER
- TOTAL TRIGGERED ALARM TIME
- HIGH PEAK AND LOW PEAK VALUE LOG

Applications

- INDUSTRIAL FURNACES, HEAT TREATMENT SAFETY THRESHOLD OVERTEMPERATURE

Technical specifications

- DIMENSIONS 48×48×80 mm (1/16 DIN)
- ALARM THRESHOLD WITH RELAY OUTPUT TO INTERRUPT LOAD IN THE EVENT THE SAFETY THRESHOLD IS EXCEEDED
- FM CERTIFICATION

- ALARM OUTPUT RETAINED UNTIL ACKNOWLEDGED BY THE OPERATOR
- ALARM RESET FRONT KEY
- ALARM THRESHOLD TRIGGERED COUNT
- ALARM THRESHOLD TRIGGERED TIMER
- OPERATOR INTERFACE WITH WIDE LCD DISPLAY, CUSTOMISABLE, WITH CHOICE OF COLOURS
- DIAGNOSTIC SCROLL MESSAGES, CONFIGURABLE, IN THE SELECTED LANGUAGE
- EASY SETUP, WIZARD, COPY/PASTE PARAMETERS EVEN WITHOUT POWER
- DIFFERENTIATED PASSWORD LEVELS
- CONFIGURABLE UNIVERSAL INPUT FOR THERMOCOUPLES, THERMORESISTANCES, LINEAR INPUTS
- RS485 SERIAL COMMUNICATION IN MODBUS RTU
- EXTRACTABLE FROM THE FRONT FOR IMMEDIATE REPLACEMENT
- SAMPLING TIME 60 ms



650 / 1250 / 1350

PID TEMPERATURE CONTROLLER (1/16, 1/8, 1/4 DIN)

The 650/1250/1350 Series PID temperature controllers are tools that talk to you! They are characterised by the high customisation of colours associated with the PV and SV displays, the colour of the plastic front and logo. Up to 25 32-character alphanumeric messages can be configured in three languages. Language and scroll text selection for diagnostics, alarms, and process status make these controllers clear and comprehensible.

The setup wizard is easy and straightforward, even without a manual, through online help messages.

Advanced set up, work recipe creation, firmware updates can be achieved via PC and GF_eXpress software, even without powering the controllers.

Why 4.0?

- OPEN SENSOR, SHORT CIRCUIT, WRONG CONNECTIONS
- ALARM THRESHOLDS ON PROCESS VARIABLES
- TOTAL AND PARTIAL INTERRUPTED LOAD ALARM THRESHOLDS WITH AMPEROMETRIC TRANSFORMERS
- ACTUATOR MANOEUVRING COUNTERS, WITH ADJUSTABLE THRESHOLDS FOR PREVENTIVE MAINTENANCE WITH RESPECT TO THE LIFE CYCLE
- CONSUMPTION METER IN kWh WITH ALARM THRESHOLDS ON AVERAGE CONSUMPTION AND TOTAL CONSUMPTION
- TOTAL OPERATING HOURS
- CONTINUOUS INTERNAL DEVICE TEMPERATURE MEASUREMENT AND TMAX AND TMIN LOG
- DEVICE DATA STORAGE; SERIAL NUMBER, SAP CODE, OPTIONS

Applications

- FURNACES
- INDUSTRIAL FURNACES, HEAT TREATMENT
- DRYERS
- AUTOCLAVES
- FAST WELDING PACKAGING

- PASTEURIZERS
- WOOD BONDING
- CHILLER
- PLASTIC MATERIAL EXTRUSION

Technical specifications

- OPERATOR INTERFACE WITH WIDE LCD DISPLAY, CUSTOMISABLE, WITH CHOICE OF COLOURS
- 16 FUNCTIONAL APPLICATION BLOCKS
- TIMERS, SETPOINT PROGRAMMERS AND ALGORITHMS TO CONTROL MOTORISED VALVES
- CONFIGURABLE UNIVERSAL INPUT FOR THERMOCOUPLES, THERMORESISTANCES, LINEAR INPUTS
- INPUT FROM REMOTE SETPOINT
- RELAY, LOGIC, ISOLATED ANALOGUE OUTPUTS
- UP TO TWO TA INPUTS FOR INTERRUPTED LOAD DIAGNOSTICS
- RS485 SERIAL COMMUNICATION IN MODBUS RTU
- EXTRACTABLE FROM THE FRONT FOR IMMEDIATE REPLACEMENT
- SAMPLING TIME 60 ms

850 / 1650 / 1850

DOUBLE LOOP PID CONTROLLERS (1/16, 1/8, 1/4 DIN)

The Performance 850/1650/1850 controller series is made up of three operator interfaces with a large LCD screen, with matching custom plastic front colour and logo customisation. It offers a convenient alphanumeric display of 25 32-character messages each, fully configurable and saved in three languages.

The main features include PID dual loop control, two configurable universal inputs for thermocouples, thermal resistances and linear inputs, easy set up wizard without manual, diagnostic functions, preventive maintenance and power control, logic and mathematical functions.

Why 4.0?

- OPEN SENSOR, SHORT CIRCUIT, WRONG CONNECTIONS
- ALARM THRESHOLDS ON PROCESS VARIABLES
- TOTAL AND PARTIAL INTERRUPTED LOAD ALARM THRESHOLDS WITH AMPEROMETRIC TRANSFORMERS
- ACTUATOR MANOEUVRING COUNTERS, WITH ADJUSTABLE THRESHOLDS FOR PREVENTIVE MAINTENANCE WITH RESPECT TO THE LIFE CYCLE
- CONSUMPTION METER IN kWh WITH ALARM THRESHOLDS ON AVERAGE CONSUMPTION AND TOTAL CONSUMPTION
- TOTAL OPERATING HOURS
- CONTINUOUS INTERNAL DEVICE TEMPERATURE MEASUREMENT AND TMAX AND TMIN LOG
- DEVICE DATA STORAGE; SERIAL NUMBER, SAP CODE, OPTIONS

Applications

- INDUSTRIAL FURNACES FOR HEAT TREATMENT, METALWORKS
- HIGH TEMPERATURE FURNACES
- CERAMIC AND PRECIOUS METAL KILNS
- VACUUM FURNACES WITH GRAPHITE ELEMENTS

- TEST BENCHES
- EVEN TEMPERATURE CONTROL CALANDERS
- STEAM GENERATING PLANTS
- TREATMENT OIL & GAS PIPE WELDING

Technical specifications

- OPERATOR INTERFACE WITH LARGE LCD DISPLAY
- DIAGNOSTIC SCROLL MESSAGES, CONFIGURABLE, IN THE SELECTED LANGUAGE
- EASY SETUP, WIZARD, COPY/PASTE PARAMETERS EVEN WITHOUT POWER
- PREVENTIVE MAINTENANCE, WITH ENERGY COUNTERS (kWh) AND LOAD SWITCHING
- 32 FUNCTIONAL APPLICATION BLOCKS
- 8 MATHEMATICAL APPLICATION BLOCKS
- TIMERS, SETPOINT PROGRAMMERS AND ALGORITHMS TO CONTROL MOTORISED VALVES
- ADVANCED CONTROL PARAMETER TUNING
- DIFFERENTIATED PASSWORD LEVELS
- 2 SETTABLE UNIVERSAL INPUTS FOR THERMOCOUPLES, THERMORESISTANCES, LINEAR INPUTS

- 2 PID CONTROL LOOPS
- CASCADE AND RATIO CONTROL
- 2 SETPOINT PROGRAMMERS (128 STEPS IN 16 PROGRAMS)
- RELAY, LOGIC, ISOLATED ANALOGUE OUTPUTS
- UP TO TWO TA INPUTS FOR INTERRUPTED LOAD DIAGNOSTICS
- RS485 SERIAL COMMUNICATION IN MODBUS RTU
- EXTRACTABLE FROM THE FRONT FOR IMMEDIATE REPLACEMENT
- SAMPLING TIME 60 ms





2850T / 3850T

MULTIFUNCTION CONTROLLERS (3.5 "/>

The multifunction 2850T / 3850T controllers are designed to adjust the temperature in production processes.

The 3.5"/7.0" colour touch screen display allows the operator to easily and quickly interact with the controller, managing actions and parameters. Accessing main functions and page navigation are easier thanks to its 6 function keys, one of which customisable.



GETview

This option allows you create optimised graphic interfaces to control the machinery used. A graphic symbol library is provided for this purpose (buttons, images, data display, etc.) that can be set and linked to the controller variables. Custom pages can be directly set from the display without the need for a PC or external software.



GETlogic

The available logical operators (AND, OR, Timer, Counter etc.) allow you to create custom logic operating sequences integrated with PID, thus obtaining complete and flexible machine control. The available settable mathematical functions (addition, multiplication, division, minimum or maximum value, algorithms, etc.) can be used associated with process values as analog channels and virtual channels, to manage advanced controls, such as ratio controls or custom mathematical formulas.



Multiloop controller

It can control up to 8/16 fully settable PID. Each PID can be used as a control for a single loop, a valve or a ratio control, it can be connected to the profile programmer or be used as a cascade controller. Tuning is performed through advanced algorithms that ensure stable and accurate temperature control, avoiding exceeding set limits or having unstable process control even in critical heat or fast motion processes.



Setpoint programmer

The setpoint profile programmer allows you to set the programs to manage heat treatment cycles. Up to 200/250 programs can be created, internally stored, each containing up to 50 segments. Up to 4 setpoint profiles, a descriptive message, 16 input events (IN), 16 outbound events (OUT), the setpoint value and the HBB alarm threshold can be set for each program.



Recorder/Batch report

The Data Logger function, combined with the Real Time Clock (RTC, rechargeable buffer battery clock) lets you save process data, IN/OUT signals and alarm status in a file (CSV or encoded) with minimum 1 second sampling frequency to be exported via USB key or Ethernet.





Why 4.0?

- OPEN SENSOR, SHORT CIRCUIT, WRONG CONNECTIONS
- ALARM THRESHOLDS ON PROCESS VARIABLES
- CONSUMPTION METER IN TOTAL kWh OR DIVIDED BY SINGLE UTILITY
- ENERGY CONSUMPTION COST CALCULATION
- DEVICE DATA STORAGE; SERIAL NUMBER, SAP CODE, OPTIONS
- SP PROFILE GENERATION PROGRAM STATUS
- RUNNING BATCH IDENTIFICATION
- AVAILABLE DISK SPACE



Applications

- MELTING, SINTERING, NITRIDING FURNACES
- INDUSTRIAL FURNACES FOR HEAT TREATMENT, METALWORKS
- CERAMIC AND PRECIOUS METAL KILNS
- DRYERS
- CLIMATIC ROOMS
- LAB KILNS
- STERILISATION
- COMPOUND MATERIAL AUTOCLAVES

Technical specifications

- OPERATOR INTERFACE WITH COLOUR TOUCH SCREEN DISPLAY, 3.5 "
- UP TO 8/16 PID LOOPS
- CASCADE PID CONTROL, RATIO AND VALVES
- SYNCHRONOUS AND ASYNCHRONOUS PROFILE PROGRAMMER
- UP TO 200/250 PROGRAMS.
- 3 PASSWORD PROTECTED USER LEVELS
- ENERGY METER (kWh).

- CONFIGURABLE LOGIC OPERATIONS.
- CONFIGURABLE MATH FUNCTIONS.
- PROFILE PROGRAMMING WITH RAMPS AND RETENTION.
- DATA LOG WITH REAL TIME CLOCK.
- BATCH REPORT MANAGEMENT.
- TRANSCRIPT OF UNENCRYPTED FILES (CSV) OR ENCRYPTED FOR DATALOG AND PRODUCTION BATCHES.
- SETTING UP CUSTOM PAGES.
- CURRENT AND CLEARED ALARM MANAGEMENT.
- USB FOR DATA EXPORT AND PARAMETER CLONING.
- CONTROL PARAMETER ADVANCED TUNING.
- SETTABLE ANALOG INPUT SIGNAL.
- HMI/SCADA DATA EXCHANGE VIA MODBUS TCP.
- MESSAGE LANGUAGE SELECTION.



GTF MONOPHASE POWER CONTROLLER

The advanced GTF microprocessor static series controls, in compact and optimised sizes, electrical powers with various types of heating elements.

There are many firing modes, all configurable by software, such as zero-crossing with constant cycle time for conventional loads, burst-firing with optimised minimum cycle time, for low thermal inertia systems, average IR wave lamps, half single cycle-zero crossing that controls single semi-conduction or shut down cycles useful for short-wave IR lamps, reduces flickering and limits the generation of EMC disturbance in the power line (only applies to single phase or open triangle loads), phase angle control with current limit for short-wave IR lamps, primary transformers. It completely eliminates load flickering.

Why 4.0?

- SCR IN SHORT CIRCUIT
- BROKEN INTERNAL FUSE
- NO LINE VOLTAGE/UNBALANCED LINE
- TOTAL AND PARTIAL INTERRUPTED LOAD ALARM THRESHOLDS WITH AMPEROMETRIC TRANSFORMERS
- TOTAL OPERATING HOURS
- TOTAL BROKEN FUSES
- CONTINUOUS INTERNAL DEVICE TEMPERATURE MEASUREMENT WITH TRIGGER THRESHOLDS

Applications

- INDUSTRIAL FURNACES FOR HEAT TREATMENT, METALWORKS
- MELTING, SINTERING, NITRIDING FURNACES
- CERAMIC AND PRECIOUS METAL KILNS
- DRYERS
- HEATING SYSTEMS WITH INFRARED LAMPS (LONG, MEDIUM, SHORT WAVE)
- WOOD BINDING MACHINES
- PLASTIC BLOW MOULDING MACHINES
- WELDING APPLICATIONS ON PACKAGING MACHINES
- THERMOFORMING MACHINES

- FURNACES WITH SUPER KANTHAL™ TYPE HEATING ELEMENTS, SILICON CARBIDE

Technical specifications

- CURRENT RANGE FROM 25 A TO 250 A
- RATED VOLTAGES 480VAC AND 600VAC / 690VAC
- FIRING MODE CONFIGURABLE IN "ZERO CROSSING" (FIXED CYCLE, BURST FIRING, HALF SINGLE CYCLE) OR "PHASE ANGLE"
- ANALOG COMMAND INPUT CONFIGURABLE IN: VOLT, MA, POTENTIOMETER (AND DIGITAL IN PWM)
- INTERRUPTED TOTAL AND PARTIAL LOAD ALARM (HB) (OPT)
- COMMUNICATION MODBUS RTU, RS 485 2-WIRE (OPT)
- CURRENT LIMIT (OPT)
- FEEDBACK V, I, P (OPT)
- CONNECTIONS FOR SINGLE PHASE/TWO-PHASE/THREE PHASE APPLICATIONS
- CONFIGURATION FROM PC (VIA USB CABLE - TTL)
- CE, TÜV, UL MARKINGS
- CERTIFICATION SCCR 100KA (UL508)



GTF - Xtra

POWER CONTROLLER WITH MONOPHASE OVERLOAD PROTECTION, MAX 60A

Gefran GTF - Xtra series power controllers combine the functionality of advanced static groups with the benefits of the exclusive integrated overcurrent protection function. This function eliminates the need to use extra-fast protection fuses, dramatically reducing the time and cost of fuse-changing machine downtime. Through constant monitoring of the current in the loads, it is possible to reset the power instantaneously if the current reaches a preset level of safety, thus isolating the power device from the load.

In applications subject to frequent overcurrent and intermittent short-circuits, Xtra power controllers can be programmed to automatically resume when the fault is resolved.

Why 4.0?

- PATENTED INTERNAL ELECTRONIC PROTECTION AGAINST SHORT-CIRCUITS
- MANUAL/FIELDBUS RESET/AUTOMATIC POWER DISTRIBUTION AFTER SHORT-CIRCUIT, WITH SOFT START
- TOTAL NUMBER OF SHORT CIRCUITS
- MAINTENANCE FREE (NO FUSES)

Applications

- METAL HEAT TREATMENT KILNS
- VACUUM FURNACES WITH GRAPHITE ELEMENTS
- HIGH TEMPERATURE FURNACES
- QUICK CUT-OFF ON BLOW MOULDING LINES
- MACHINES AND LINES WITH CURRENT PEAKS AND UNWANTED ARCS
- "FUSE-FREE" SOLUTIONS

Technical specifications

- THE INTEGRATED OVER CURRENT PROTECTION ENSURES COMPLETE PROTECTION FOR ELECTRICAL HEATING SYSTEMS
- DESIGNED FOR HEATING SYSTEMS THAT USE SUPER KANTHAL™ ELEMENTS AND SILICON CARBIDE
- RATED CURRENT AND VOLTAGE UP TO 60 A AND 480 VAC.
- CAN BE SET WITH ALL FIRING SYSTEMS INCLUDING ZERO-CROSSING, HALF-SINGLE-CYCLE, PHASE ANGLE CONTROL.
- WIDE RANGE OF OPTIONS TO CONTROL SPECIFIC APPLICATIONS
- MODBUS RTU COMMUNICATION OPTIONS AVAILABLE



GFW - Xtra

POWER CONTROLLER WITH OVER CURRENT PROTECTION, UP TO THREE PHASES, MAX 100A

Gefran GTF Xtra series power controllers combine the functionality of advanced single-bi-three phase static groups with the benefits of the exclusive integrated overcurrent protection function. This function eliminates the need to use extra-fast protection fuses, dramatically reducing the time and cost of fuse-changing machine downtime. Through constant monitoring of the current in the loads, it is possible to reset the power instantaneously if the current reaches a preset level of safety, thus isolating the power device from the load.

In applications subject to frequent overcurrent and intermittent short-circuits, Xtra power controllers can be programmed to automatically resume when the fault is resolved.

Why 4.0?

- PATENTED INTERNAL ELECTRONIC PROTECTION AGAINST SHORT-CIRCUITS
- MANUAL/FIELDBUS RESET/AUTOMATIC POWER DISTRIBUTION AFTER SHORT-CIRCUIT, WITH SOFT START
- TOTAL NUMBER OF SHORT CIRCUITS
- MAINTENANCE FREE (NO FUSES)
- NO LINE VOLTAGE/UNBALANCED LINE
- TOTAL AND PARTIAL INTERRUPTED LOAD ALARM THRESHOLDS WITH AMPEROMETRIC TRANSFORMERS
- CONSUMPTION METER IN kWh
- TOTAL OPERATING HOURS
- TOTAL BROKEN FUSES
- CONTINUOUS INTERNAL DEVICE TEMPERATURE MEASUREMENT WITH TRIGGER THRESHOLDS
- CONTINUOUS COOLING AIR POWER TERMINAL TEMPERATURE MEASUREMENT

Applications

- METAL HEAT TREATMENT KILNS
- VACUUM FURNACES WITH GRAPHITE ELEMENTS
- HIGH TEMPERATURE FURNACES

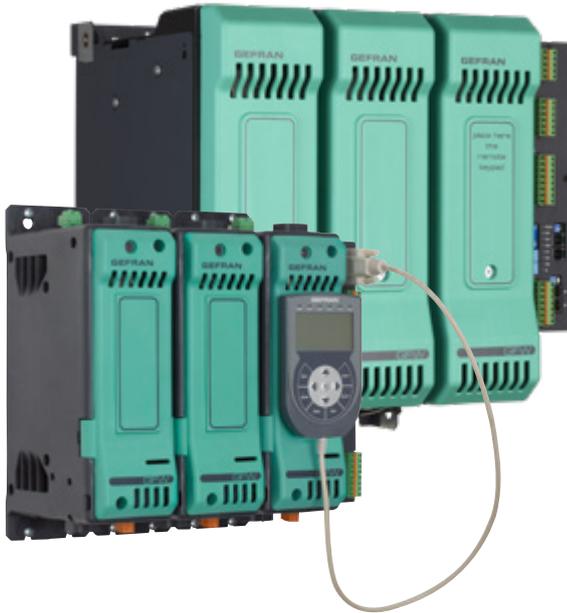
- BOOSTER FOR GLASS LINES
- MACHINES AND LINES WITH CURRENT PEAKS AND UNWANTED ARCS
- "FUSE-FREE" SOLUTIONS
- AUTOCLAVES

Technical specifications

- THE INTEGRATED OVER CURRENT PROTECTION ENSURES COMPLETE PROTECTION FOR ELECTRICAL HEATING SYSTEMS
- DESIGNED FOR SINGLE-BI-THREE PHASE HEATING SYSTEMS THAT USE SUPER KANTHAL™ ELEMENTS AND SILICON CARBIDE
- RATED CURRENT AND VOLTAGE UP TO 100 A (PER PHASE) AND 480 VAC.
- CAN BE SET WITH ALL FIRING SYSTEMS INCLUDING ZERO-CROSSING, HALF-SINGLE-CYCLE, PHASE ANGLE CONTROL
- WIDE RANGE OF OPTIONS TO CONTROL SPECIFIC APPLICATIONS
- OPTIONAL FIELDBUSES: MODBUS RTU/TCP, PROFIBUS, ETHERCAT, ETHERNET IP AND CANopen

GFW POWER CONTROLLER

GFW is more than a controller and more than a static single-bi-three phase unit: it is the integration of these functions in modular mechanical solutions, compact, optimised to control any type of electrical heating in a wide range of potential applications and markets.



The built-in PID controller option directly acquires the thermocouple or thermoresistance signal and controls power through double SCR junctions while it provides physical relay/logic outputs for alarms and/or cooling functions.

Current ranges from 40 A to 600 A with voltage range from 90 Vac to 690 Vac.

The input control can be set and accepts 0-10V, 0/4-20mA , potentiometer and logic signals even with PWN mode for "cost effective" solutions.

The device can also be driven through Modbus RTU serial communication with IN/OUT chain connections, facilitated by RJ10 type plug-in connectors (telephone type), or the device can be driven by various types of Fieldbuses (Optional).

GFW can also be used as an advanced actuator, thus receiving the power reference via analog input, in Volt, mA, potentiometer or from Fieldbus.

In Bi or three-phase configurations, a "Master" module controls synchronism, allowing all control modes to correctly operate (zero crossing or phase angle).

Why 4.0?

- OPEN SENSOR, SHORT CIRCUIT, WRONG CONNECTIONS
- SCR IN SHORT CIRCUIT
- BROKEN INTERNAL FUSE
- NO LINE VOLTAGE/UNBALANCED LINE
- TOTAL AND PARTIAL INTERRUPTED LOAD ALARM THRESHOLDS WITH AMPEROMETRIC TRANSFORMERS
- CONSUMPTION METER IN kWh
- TOTAL OPERATING HOURS
- TOTAL BROKEN FUSES
- CONTINUOUS INTERNAL DEVICE TEMPERATURE MEASUREMENT WITH TRIGGER THRESHOLDS
- CONTINUOUS COOLING AIR POWER TERMINAL TEMPERATURE MEASUREMENT

Applications

- AUTOCLAVES
- HIGH TEMPERATURE FURNACES
- METAL HEAT TREATMENT KILNS
- ALUMINIUM AND ALLOY CASTING/MAINTENANCE KILNS
- VACUUM FURNACES WITH GRAPHITE ELEMENTS
- BOOSTER FOR GLASS LINES

- FLEXOGRAPH MACHINES FOR INK DRYING

Technical specifications

- CURRENT RANGE FROM 40 A TO 600A, 480VAC, 600VAC, 690VAC
- FIRING MODE CONFIGURABLE IN “ZERO CROSSING” (FIXED CYCLE, BURST FIRING, HALF SINGLE CYCLE) OR “PHASE ANGLE”
- PID CONTROLLER FOR INTEGRATED CLOSED LOOP CONTROL (OPT)
- SETTABLE ANALOG INPUT FOR VOLT, MA, POTENTIOMETER AND DIGITAL (PWM)
- BUILT-IN FUSE (OPT)
- INTERRUPTED TOTAL AND PARTIAL LOAD ALARM (OPT)
- CURRENT LIMIT (OPT)
- FEEDBACK V, I, P (OPT)
- CONFIGURATIONS: MONOPHASE, BI-PHASE AND SYNCHRONISED THREE-PHASE
- FIELDBUS (OPT): MODBUS RTU, PROFIBUS DP, CANopen, PROFINET, MODBUS-TCP, ETHERNET IP, ETHERCAT
- KEYPAD FOR PARAMETER SETTINGS/READING (OPT)
- PC CONFIGURATION
- CE, UL
- CERTIFICATION SCCR 100KA (UL508)



GFX4-IR

4 ZONE PID POWER CONTROLLER FOR IR LAMP CONTROL, MAX 80KW

GFX4-IR is a back end control unit for electric power control. Each unit controls four independent PID control loops. It is an extremely compact unit combining various elements typical of an electrical cabinet: controller, static unit, amperometric transformers, fuse boxes (option). This guarantees excellent savings in terms of space and wiring time.

From the functional standpoint, GFX4-IR is controlled by a microprocessor that independently controls the four control loops and runs functions specifically programmed for monophasic and three-phase loads, with low and high heat coefficient, short and medium wave infrared lamps, primary transformer circuits.

Why 4.0?

- OPEN SENSOR, SHORT CIRCUIT, WRONG CONNECTIONS
- SCR IN SHORT CIRCUIT
- BROKEN INTERNAL FUSE
- NO LINE VOLTAGE/UNBALANCED LINE
- ALARM THRESHOLDS ON PROCESS VARIABLES
- TOTAL AND PARTIAL INTERRUPTED LOAD ALARM THRESHOLDS WITH AMPEROMETRIC TRANSFORMERS
- CONTINUOUS INTERNAL DEVICE TEMPERATURE MEASUREMENT WITH TRIGGER THRESHOLDS

Applications

- THERMOFORMING
- BLOW MOULDING
- HEAT CHANNELS FOR INJECTION PRESSES
- FIBRE TEXTURING
- HEAT TREATMENT FURNACES
- WOODWORK MACHINES
- GLASS TEMPERING KILNS
- PRODUCTION LINES, SOLAR PANEL AND SEMI-CONDUCTOR CELLS

Technical specifications

- 4 UNIVERSAL PROCESS INPUTS
- 4 INDEPENDENT HOT/COLD PID
- 4 MAIN OUTPUTS (DIRECTLY CONNECTED TO THE STATIC UNIT)
- 4 AUXILIARY ANALOG INPUTS (OPTION)
- 4 SETTABLE OUTPUTS (OPTION): RELAY/LOGIC/TRIAC/CONTINUOUS
- 2 SETTABLE RELAY OUTPUTS
- 2 DIGITAL INPUTS
- STANDARD COMMUNICATION PORT: MODBUS RTU
- OPTIONAL FIELDBUS PORT: PROFIBUS DP, CANopen, DEVICENET, MODBUS RTU, MODBUS TCP, ETHERNET IP; PROFINET, ETHERCAT
- DIN RAIL MOUNTING



IR-12 / IR-24

MULTI-CHANNEL POWER CONTROLLER

The powerful and compact IR12 and IR24 multi-channel power controllers are the perfect solution for heating systems that use IR lamps of any type. The compact sturdy metal housings, designed for wall mounting, house all the components needed for full control of sets of IR lamps for power usage of up to 60KW in an "all in one" philosophy.

Different models are available: IR-24 with 24 adjustable independent outputs and IR-12 with 12 outputs. Both have Modbus RTU communication options or can be fitted with a Profinet fieldbus.

Why 4.0?

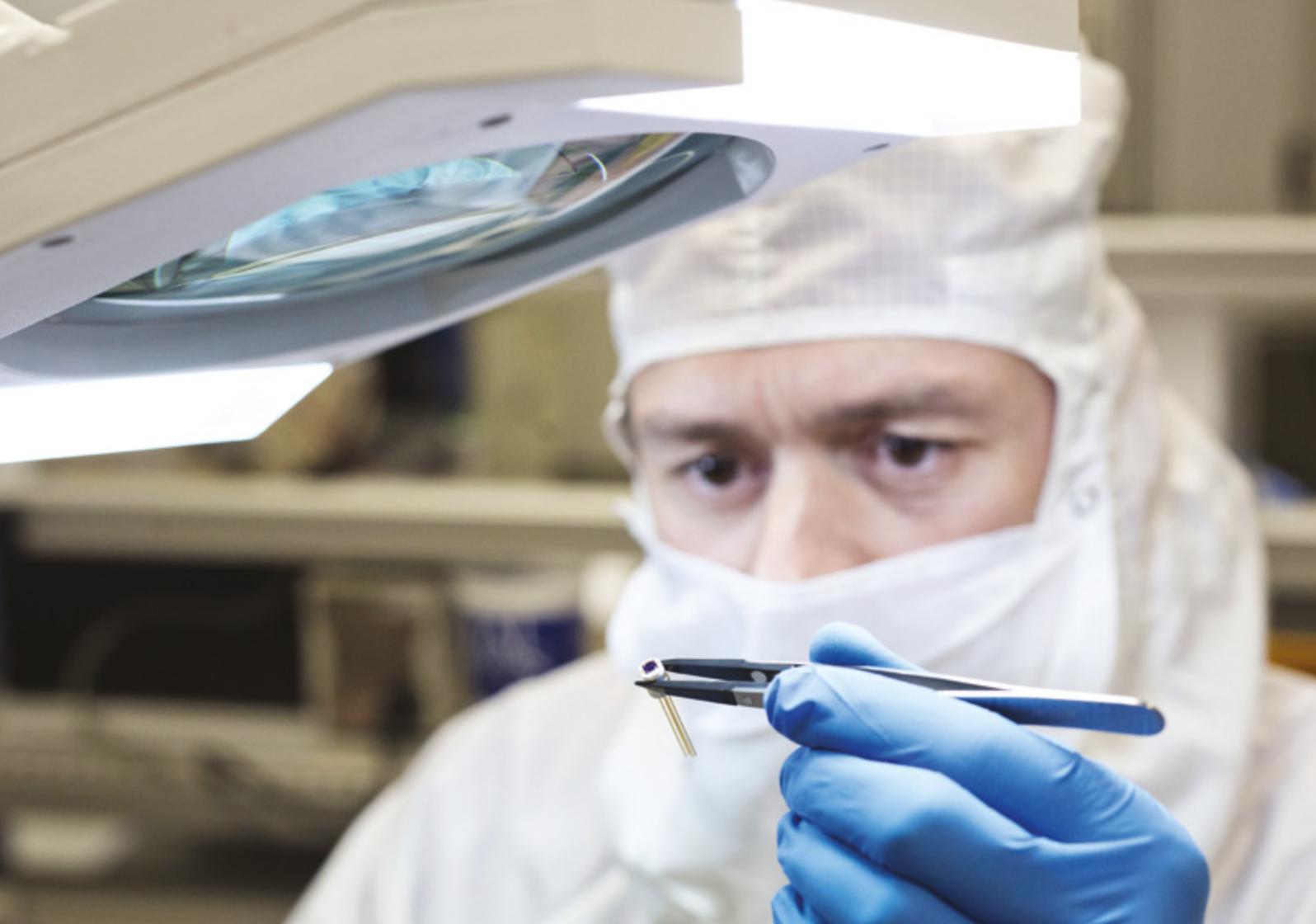
- SCR IN SHORT CIRCUIT
- BROKEN INTERNAL FUSE
- NO LINE VOLTAGE/UNBALANCED LINE
- TOTAL INTERRUPTED LOAD ALARM THRESHOLDS WITH AMPEROMETRIC TRANSFORMERS
- CONTINUOUS INTERNAL DEVICE TEMPERATURE MEASUREMENT WITH TRIGGER THRESHOLDS

Applications

- COMPOSITE AND PLASTIC MATERIAL WELDING
- PREHEATING ON BLOW MOULDING LINES
- THERMOFORMING
- MULTI-CHANNEL APPLICATIONS WITH INFRARED LAMPS

Technical specifications

- 12 AND 24 INDEPENDENT 9A/CH CHANNELS
- CONTROL IN FAST ZERO-CROSSING, HALF-SINGLE-CYCLE AND PHASE-ANGLE
- INTEGRATED EXTRA FAST FUSES
- CURRENT BALANCING WITH TIME-SHARING
- COMPENSATION FOR VOLTAGE FLUCTUATIONS
- VOLTAGE AND CURRENT DIAGNOSTICS (DISCONNECTED LOAD, LINE VOLTAGE)
- SCR TEMPERATURE AND SHORT-CIRCUIT DIAGNOSTICS, OPEN FUSE
- MODBUS AND PROFINET COMMUNICATIONS



SENSORS



KH-C PRESSURE TRANSMITTER (CANopen digital output)

KH/KH-C pressure transmitters are based on technology with film-sensitive element deposited on a steel membrane.

Thanks to the use of latest generation SMD electronics and compact design with completely stainless steel construction, these products are extremely robust and reliable to the point where SIL2 certificates are provided.

They are suitable for all industrial applications, specially on hydraulics on mobile vehicles normally subject to high levels of shock, vibrations, pressure and temperature peaks.

Why 4.0?

- MINIMUM PRESSURE FROM START
- MAXIMUM PRESSURE FROM START
- ELECTRONIC CIRCUIT TEMPERATURE (TO ASSIMILATE TO PROCESS TEMPERATURE)
- PRESSURE VALUE
- DAY, MONTH, YEAR OF LAST CALIBRATION
- TRANSDUCER PRODUCTION DAY, MONTH, YEAR
- FIRMWARE VERSION NUMBER
- SERIAL NUMBER (YEAR AND WEEK OF PRODUCTION)

Applications

- OIL HYDRAULIC CIRCUIT PRESSURE CONTROL
- WATER PRESSURE CONTROL
- HYDRAULIC CYLINDER PRESSURE CONTROL
- IRRIGATION PUMP WATER PRESSURE CONTROL
- DUST REDUCER WATER PRESSURE CONTROL IN CONSTRUCTION SITES
- T.B.M. GREASE PUMP PRESSURE CONTROL

Technical specifications

- MEASUREMENT RANGE: FROM 4 TO 1000 mm
- WORKING TEMPERATURE -40...+125°C
- ANALOGUE VOLTAGE, CURRENT AND DIGITAL ELECTRICAL OUTPUTS IN CANopen AND J1939
- ELECTRICAL CONNECTIONS: EN 175301-803 TYPE A, M12X1 (4-PIN), DEUTSCH DT04-4P (4-PIN), AMP SUPERSEAL 1.5 (3-PIN), METRI-PACK 150 (3-PIN), SHIELDED WIRE (1 M OR HIGHER)



NAK SERIES (K)

PRESSURE SENSORS FILLED WITH SODIUM- POTASSIUM (CANopen digital output)

The Gefran KD series melt sensors are pressure transmitters designed for use in high temperature environments.

The fundamental feature is that you can read the average pressure up to **538°C (1000°F)**.

The construction principle is based on hydraulic pressure transmission; the transfer of the mechanical stress is done by means of an incompressible transmission fluid (NaK - Sodium / Potassium).

Extensimetric technology allows transduction of physical pressure, in electric signal.

Why 4.0?

- MAXIMUM PRESSURE FROM START
- ELECTRONIC CIRCUIT TEMPERATURE (TO ASSIMILATE TO PROCESS TEMPERATURE)
- PRESSURE VALUE
- OPERATING TIME (IN TICK * 5 MINUTES)
- FIRMWARE VERSION NUMBER
- SERIAL NUMBER (YEAR AND WEEK OF PRODUCTION)

Applications

- **EXTRUSION**
 - Linear profiles
 - Compounder
 - Plate lines
 - Tube lines
 - Film for the food industry
- **BLOW MOULDING**
 - Accumulation heads

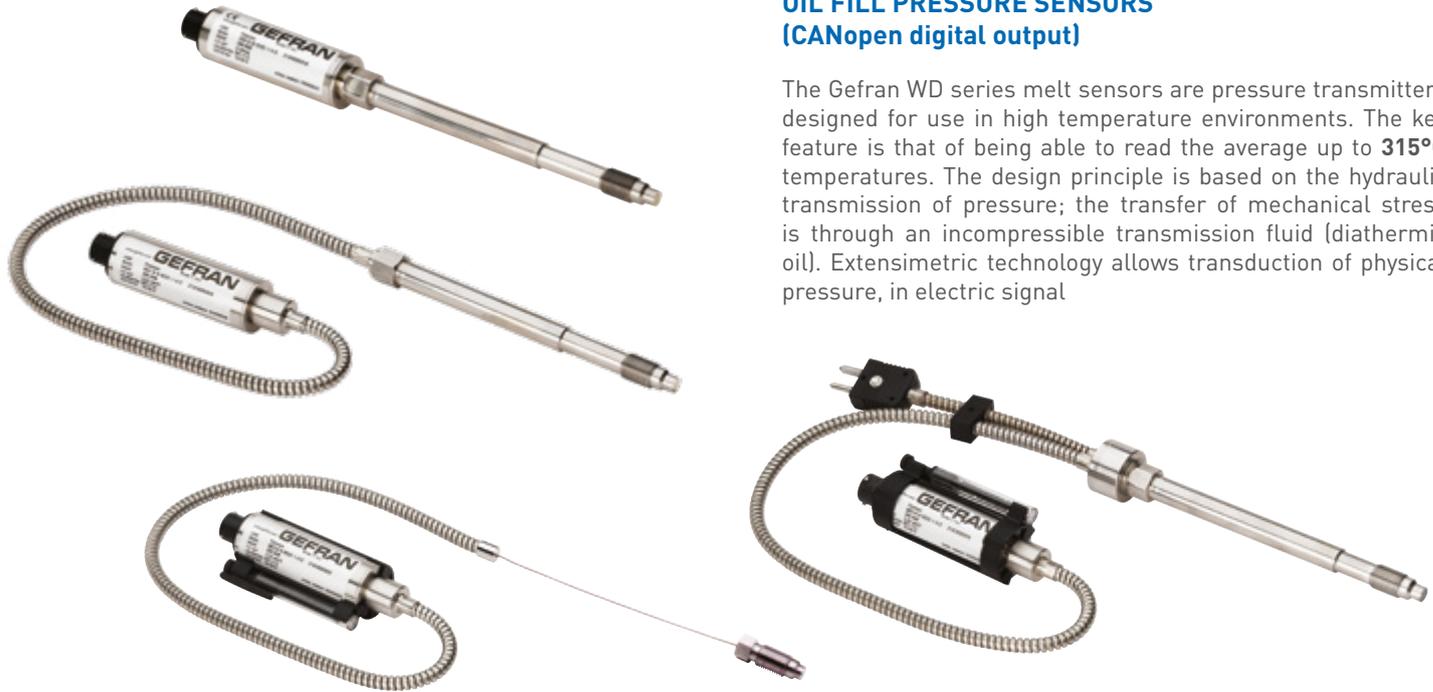
Technical specifications

■ ELECTRICAL

- Digital output signal with CANopen DP404 communication protocol
- 10 Kbaud to 1 Mbaud baud rate (default 500Kbaud)
- Baud rate and node-ID software selection
- Threshold operation and 2 settable alarm thresholds
- "Autozero" to compensate for the influence of temperature.
- Calibration signal 80% FSO

■ MECHANICAL

- Pressure ranges: 0-35 to 0-1000 bar / 0-500 to 0-15000 psi
- Standard Threads: 1 / 2-20 UNF, M18x1.5; other versions available on request.
- Accuracy: $\leq \pm 0.25\%$ FSO (H); $\leq \pm 0.5\%$ FSO (M)
- Hydraulic transmission system to ensure temperature stability (NaK). RoHS-compliant liquid. NaK is defined as safe substance (GRAS).



W SERIES (W)

OIL FILL PRESSURE SENSORS (CANopen digital output)

The Gefran WD series melt sensors are pressure transmitters designed for use in high temperature environments. The key feature is that of being able to read the average up to **315°C** temperatures. The design principle is based on the hydraulic transmission of pressure; the transfer of mechanical stress is through an incompressible transmission fluid (diathermic oil). Extensimetric technology allows transduction of physical pressure, in electric signal

Why 4.0?

- MAXIMUM PRESSURE FROM START
- ELECTRONIC CIRCUIT TEMPERATURE (TO ASSIMILATE TO PROCESS TEMPERATURE)
- PRESSURE VALUE
- OPERATING TIME (IN TICK * 5 MINUTES)
- FIRMWARE VERSION NUMBER
- SERIAL NUMBER (YEAR AND WEEK OF PRODUCTION)

Applications

- **EXTRUSION**
 - Linear profiles
 - Compounder
 - Plate lines
 - Tube lines
 - Film for the food industry
- **BLOW MOULDING**
 - Accumulation heads

Technical specifications

■ ELECTRICAL

- Digital output signal with CANopen DP404 communication protocol
- 10 Kbaud to 1 Mbaud baud rate (default 500Kbaud)
- Baud rate and node-ID software selection
- Threshold operation and 2 settable alarm thresholds
- "Autozero" to compensate for the influence of temperature
- Calibration signal 80% FSO
- Autozero function via software

■ MECHANICAL

- Pressure ranges: 0-35 to 0-1000 bar / 0-500 to 0-15000 psi
- Extensimetric measurement principle with Wheatstone bridge
- Standard Threads: 1 / 2-20 UNF, M18x1.5; other versions available on request.
- Accuracy: $\pm 0.25\%$ FSO (H); $\pm 0.5\%$ FSO (M)
- FDA, CFR178.3620 and CFR172.878 certified oil filling
- Stainless steel 17-7 PH membrane with GTP coating (advanced protection). Coating with features highly resistant to corrosion, abrasion and high temperatures.



MK4-C

PROFILE MAGNETOSTRICTIVE TRANSDUCER (CANopen output)

Non-contact linear position transducer with magnetostrictive technology. The absence of electric contact on the slider eliminates wear and tear issues, ensuring almost unlimited lifespan.

The MK4 CANopen incorporates a microprocessor for measurement processing and for diagnosing the transducer itself.

The CANopen fieldbus communication system enables fast and secure transmission.

The implementation of CANopen DS-301 and Device Profile DS-406 allows easy and fast integration of the transducer in control and automation systems.

Why 4.0?

- MEASURED POSITION CURSOR 1
- MEASURED POSITION CURSOR 2
- SHIFT SPEED CURSOR 1
- SHIFT SPEED CURSOR 2
- CAM EXCESS 1,2,3,4
- FIRMWARE VERSION NUMBER
- SERIAL NUMBER (YEAR AND WEEK OF PRODUCTION)

Applications

- METAL: BEND ANGLE CONTROL/SHEET/PIPE STRAIGHTENING
- STEELWORKS: BRAME/BILLET THICKNESS CONTROL
- PLASTIC: INJECTION UNIT MOVEMENT CONTROL
- PLASTIC: MOULD OPEN/CLOSE MOVEMENT CONTROL
- MARBLE: SANDING ABRASIVE THICKNESS CONTROL
- WOOD: CUTTING BLADE POSITION CONTROL
- GLASS: DOUBLE GLAZING POSITIONING CONTROL
- PAPER: FLEXOGRAPH COLOUR OFFSET POSITION CONTROL
- REEL CHANGE CONTRAST BAR CONTROL: PAPER, METAL, PLASTIC, TISSUE

Technical specifications

- STROKE FROM 50 TO 4000 mm
- ABSOLUTE POSITION AND SPEED MEASUREMENT
- POSSIBILITY OF ONE OR TWO SIMULTANEOUS CURSORS
- INTERFACE CANopen DS-301 V4.01 DEVICE PROFILE DS-406 V2.0
- POSITION RESOLUTION UP 0 2 μ m
- SPEED RESOLUTION UP 0 0.01 mm/sec
- 0.02% LINEARITY ERROR
- REPEATABILITY ERROR UNDER 0.01 mm
- VIBRATION RESISTANCE (DIN IEC68T2/6 12G)
- IP67 PROTECTION

Why 4.0?

- MEASURED POSITION CURSOR 1
- MEASURED POSITION CURSOR 2
- MEASURED POSITION CURSOR 3
- MEASURED POSITION CURSOR 4
- SHIFT SPEED CURSOR 1
- SHIFT SPEED CURSOR 2
- SHIFT SPEED CURSOR 3
- SHIFT SPEED CURSOR 4
- INTERNAL CIRCUIT TEMPERATURE
- FIRMWARE VERSION NUMBER
- SERIAL NUMBER (YEAR AND WEEK OF PRODUCTION)

Applications

- METAL: BEND ANGLE CONTROL/SHEET/PIPE STRAIGHTENING
- PLASTIC: INJECTION UNIT MOVEMENT CONTROL
- PLASTIC: MOULD OPEN/CLOSE MOVEMENT CONTROL
- MARBLE: SANDING ABRASIVE THICKNESS CONTROL
- WOOD: CUTTING BLADE POSITION CONTROL
- GLASS: DOUBLE GLAZING POSITIONING CONTROL

- PAPER: FLEXOGRAPH COLOUR OFFSET POSITION CONTROL
- REEL CHANGE CONTRAST BAR CONTROL: PAPER, METAL, PLASTIC, TISSUE

Technical specifications

- STROKE FROM 50 TO 4000 mm
- POSITION RESOLUTION SETTABLE VIA SOFTWARE UP TO 1µm
- SPEED RESOLUTION UP TO 0.25 mm/sec
- EC DIRECTIVE COMPLIANT (EN 50081-1 50082-1)
- VIBRATION RESISTANCE (DIN IEC68T2/6 12 G)
- IP67 PROTECTION
- POSSIBILITY OF CONTROLLING UP TO 4 CURSORS SIMULTANEOUSLY
- DPV0 PROFIBUS INTERFACE ON RS485 ACCORDING TO IEC 61158

RK5-C

STEM MAGNETOSTRICTIVE TRANSDUCER (CANopen output)

RK-5 is a flange fitted magnetostrictive position transducer, designed to be fully mounted inside oil hydraulic cylinders. The special design combined with a wide range of cursor configurations guarantee RK-5 high installation flexibility and full compatibility with cylinder manufacturer specifications. Working temperature from $-40 + 105\text{ }^{\circ}\text{C}$, for working pressures up to 350 bar, high vibration (25 g) and shock (100g) resistance grant the sensor essential durability for use in heavy-duty environments (i.e. Mobile hydraulics). High performance in terms of read measurement transduction defined as: linearity, hysteresis and repeatability. The CAN fieldbus communication system enables fast and secure transmission. The implementation of CANopen DS-301 and Device Profile DS-406 allows easy and fast integration of the transducer in control and automation systems.



Why 4.0?

- MEASURED POSITION CURSOR
- SHIFT SPEED CURSOR
- FIRMWARE VERSION NUMBER
- SERIAL NUMBER (YEAR AND WEEK OF PRODUCTION)

Applications

- **MOBILE HYDRAULIC**
 - Oil hydraulic cylinder piston position control
 - Crane arm, aerial platform, telehandler boom extension detection
 - Vehicle trim stabiliser extension
 - Suspension position feedback
 - Single axle and multi-axle steering control
 - Variable steering axle width detection
 - Asphalt removal machine mill depth
 - Asphalt deposit machine screed height
 - Vibration amplification system position on vibrating roller machine feedback
 - Vibrating roller: asphalt compression kinematics amplification system control

Technical specifications

- **MEASUREMENT RANGE: FROM 50 TO 2500 mm**
 - IP67 - IP69K environmental protection rating with installed socket connector
 - Pressure resistance up to 350 bar (400 peak bar)
 - Working temperature -40...+105°C
 - Electrical outputs: analogue Voltage, Current and digital in CanOpen



IK4-C

STEM MAGNETOSTRICTIVE TRANSDUCER (CANopen output)

The IK4 absolute transducer with CANopen digital output incorporates a microprocessor for measurement processing and for diagnosing the transducer itself. The CAN fieldbus communication system enables fast and secure transmission. The implementation of CANopen DS-301 and Device Profile DS-406 allows easy and fast integration of the transducer in control and automation systems. The new IK4 range mechanical structure introduces some beneficial innovations for use inside cylinders, including a series of new multi-connector models, the ability to freely rotate the connector head and possibility of replacing internal electronics without removing the transducer from the oil hydraulic cylinder.



Why 4.0?

- MEASURED POSITION CURSOR
- SHIFT SPEED CURSOR
- INTERNAL CIRCUIT TEMPERATURE
- FIRMWARE VERSION NUMBER
- SERIAL NUMBER (YEAR AND WEEK OF PRODUCTION)

Applications

- METAL: BEND ANGLE CONTROL/SHEET/PIPE STRAIGHTENING
- STEELWORKS: BRAME/BILLET THICKNESS CONTROL
- PLASTIC: INJECTION UNIT MOVEMENT CONTROL
- PLASTIC: MOULD OPEN/CLOSE MOVEMENT CONTROL
- MARBLE: SANDING ABRASIVE THICKNESS CONTROL
- WOOD: CUTTING BLADE POSITION CONTROL
- GLASS: DOUBLE GLAZING POSITIONING CONTROL
- PAPER: FLEXOGRAPH COLOUR OFFSET POSITION CONTROL
- OIL HYDRAULIC CYLINDER PISTON POSITION CONTROL
- REEL CHANGE CONTRAST BAR CONTROL: PAPER, METAL, PLASTIC, TISSUE

Technical specifications

- STROKE FROM 50 TO 4000 mm
- ABSOLUTE POSITION AND SPEED MEASUREMENT
- INTERFACE CANopen DS-301 V4.01 DEVICE PROFILE DS-406 V2.0
- WIDE RANGE OF CONNECTORS FOR ELECTRICAL CONNECTIONS
- POSITION RESOLUTION UP TO 2µm
- SPEED RESOLUTION UP TO 0.01 mm/sec
- AISI 316 STEM, NIPPLE, HEX FLANGE
- OPERATING TEMPERATURE: -30°...+75°C
- VIBRATION RESISTANCE (DIN IEC68T2/6 12G)

IK4-P

STEM MAGNETOSTRICTIVE TRANSDUCER (Profibus output)

Non-contact linear absolute position transducer with magnetostrictive WAVE technology. Communication interface on Profibus that permits the integration of complex systems with significant communication distances, guaranteeing data exchange speed and security.

The absence of electric contact on the slider eliminates wear and tear issues, ensuring almost unlimited transducer lifespan.

The countless advantages includes the reduced size to facilitate installation, the high protection grade for use in heavy-duty environments, high performance in terms of linearity, repeatability and vibration and shock resistance to guarantee a high level of reliability.



Why 4.0?

- MEASURED POSITION CURSOR 1
- MEASURED POSITION CURSOR 2
- MEASURED POSITION CURSOR 3
- MEASURED POSITION CURSOR 4
- SHIFT SPEED CURSOR 1
- SHIFT SPEED CURSOR 2
- SHIFT SPEED CURSOR 3
- SHIFT SPEED CURSOR 4
- INTERNAL CIRCUIT TEMPERATURE
- FIRMWARE VERSION NUMBER
- SERIAL NUMBER (YEAR AND WEEK OF PRODUCTION)

Applications

- METAL: BEND ANGLE CONTROL/SHEET/PIPE STRAIGHTENING
- STEELWORKS: BRAME/BILLET THICKNESS CONTROL
- PLASTIC: INJECTION UNIT MOVEMENT CONTROL
- PLASTIC: MOULD OPEN/CLOSE MOVEMENT CONTROL
- MARBLE: SANDING ABRASIVE THICKNESS CONTROL
- WOOD: CUTTING BLADE POSITION CONTROL

- GLASS: DOUBLE GLAZING POSITIONING CONTROL
- PAPER: FLEXOGRAPH COLOUR OFFSET POSITION CONTROL
- OIL HYDRAULIC CYLINDER PISTON POSITION CONTROL
- REEL CHANGE CONTRAST BAR CONTROL: PAPER, METAL, PLASTIC, TISSUE

Technical specifications

- STROKE FROM 50 TO 4000 mm
- POSITION RESOLUTION SETTABLE VIA SOFTWARE UP TO 1µm
- SPEED RESOLUTION UP 0 0.25 mm/sec
- EC DIRECTIVE COMPLIANT (EN 50081-1 50082-1)
- VIBRATION RESISTANCE (DIN IEC68T2/6 12 G)
- IP67 PROTECTION
- POSSIBILITY OF CONTROLLING UP TO 4 CURSORS SIMULTANEOUSLY
- DPV0 PROFIBUS INTERFACE ON RS485 ACCORDING TO IEC 61158



GRA/GRN

HALL EFFECT SINGLE TURN ANGULAR SENSOR WITH/WITHOUT SHAFT (CANopen output)

Non-contact Hall technology for practically infinite sensor lifespan fully eliminating primary element wear.

Various product configurations are available for easy installation.

The high IP protection grade, shock and vibration resistance and high performance in terms of electromagnetic compatibility make these products suited for the main applications in the mobile hydraulic world.

Developed to ensure a sturdy and reliable version for applications such as farming equipment, earth movement machines and lifting machines

Angular sensor for measurement range up to 360° with possibility of programming on analogue in +15° steps.

Why 4.0?

- MEASURED ANGLE
- SHIFT SPEED
- NO MAGNET ERROR
- FIRMWARE VERSION NUMBER
- SERIAL NUMBER (YEAR AND WEEK OF PRODUCTION)

Applications

- **MOBILE HYDRAULIC**
 - Front or rear steering angle detection
 - Thrust bearing position control
 - Stabiliser feet position
 - Accelerator pedal position
 - Suspension position detection
- **INDUSTRIAL**
 - Reel change contrast bar control: paper, metal, plastic, tissue

Technical specifications

- MEASUREMENT RANGE: FROM 15° TO 360° (INTERMEDIATE RANGE WITH 15° STEP)
- ENVIRONMENTAL PROTECTION RATING: IP67 - IPX9K WITH SOCKET CONNECTOR INSTALLED (AMP VERSION) AND IP68 (WIRED VERSION)
- WORKING TEMPERATURE -40....+85°C
- ANALOGUE VOLTAGE, CURRENT AND DIGITAL ELECTRICAL OUTPUTS IN CANopen/SAE J1939 14BIT
- ELECTRICAL CONNECTIONS: AMP SUPERSEAL 6P 282108-1; CABLE OUTPUT 18 AWG 1.65 mm OD
- SINGLE AND REDUNDANT CIRCUIT



GIB / GIG / GIT

SINGLE/DOUBLE AXIS INCLINOMETERS (CANopen output)

MEMS technology entry level inclinometer. Small size, high performance, easy installation; high IP grade, shock and vibration resistance and high electromagnetic compatibility make this sensor suited for mobile hydraulic applications.

Developed to ensure a sturdy and reliable version for applications such as farming equipment, earth movement machines and lifting machines



Why 4.0?

- MEASURED ANGLE
- ELECTRONIC CIRCUIT TEMPERATURE
- FIRMWARE VERSION NUMBER
- SERIAL NUMBER (YEAR AND WEEK OF PRODUCTION)

Applications

- **MOBILE HYDRAULIC**
 - Vehicle anti-tipping detection
 - Aerial platforms - operator cabin levelling with the ground
 - In combination with external GPS ground self-levelling
 - Load roll-over control
 - Vertical, horizontal drills: drill angle
 - Bitumen spray rod layout compared to ground gradient

GIG model technical specifications

- MEASUREMENT RANGE: FROM $\pm 10^\circ$ TO $\pm 85^\circ$ (XY DUAL AXLE), $\pm 180^\circ$ (Z SINGLE AXLE)
- RESOLUTION: FROM 0.05° ($\pm 10^\circ$) TO 0.1° ($\pm 180^\circ$); 0.05° FOR CANopen VERSION
- ENVIRONMENTAL PROTECTION RATING: IP67 VERSION WITH M12 AND IPX9K CABLE VERSION
- WORKING TEMPERATURE: $-40\dots+85^\circ\text{C}$
- ELECTRICAL OUTPUTS: ANALOGUE VOLTAGE, CURRENT AND DIGITAL IN CANopen
- SINGLE AND REDUNDANT CIRCUIT



GSF

WIRE POSITION TRANSDUCER (CANopen output)

Potentiometric technology wire linear sensor. High performance, high IP grade, shock and vibration resistance and high electromagnetic compatibility make this sensor suited for mobile hydraulic applications. Developed to ensure a sturdy and reliable version for applications such as farming equipment, earth movement machines and lifting machines

Why 4.0?

- MEASURED POSITION
- ELECTRONIC CIRCUIT TEMPERATURE
- FIRMWARE VERSION NUMBER
- SERIAL NUMBER (YEAR AND WEEK OF PRODUCTION)

Applications

- **MOBILE HYDRAULIC**
 - Crane arm, aerial platform, telehandler boom extension detection
 - Vehicle stabiliser extension position feedback
 - Crawler steering control
 - Bitumen deposit rod opening closing

Technical specifications

- MEASUREMENT RANGE: FROM 1800 TO 8300 mm (ANALOGUE OUTPUTS: SET ZERO/SPAN FOR INTERMEDIATE STROKES)
- IP67 ENVIRONMENTAL PROTECTION RATING WITH INSTALLED SOCKET CONNECTOR
- WORKING TEMPERATURE -40....+85°C
- ELECTRICAL OUTPUTS: ANALOGUE VOLTAGE, CURRENT AND DIGITAL IN CANopen
- SINGLE AND REDUNDANT CIRCUIT



MOTION CONTROL



ADV200

FIELD-ORIENTED VECTOR INVERTER FOR INDUSTRIAL APPLICATIONS

The ADV200 inverter series is an innovative drive concept, the result of constant technological research and of the experience that Gefran has gained while always working alongside the key operators in the sector.

Designed and developed to meet the real needs of System Integrators and machine manufacturers and to guarantee the utmost innovation and economic competitiveness in international markets. Based on extreme mechanical modularity and on a powerful programming platform that is intuitive and completely “open”, the ADV200 offers absolute flexibility of integration with the highest level of performance in any system architecture of the most modern automation.

Why 4.0?

- MOTOR SPEED
- TORQUE CURRENT
- ACTIVE CURRENT
- TORQUE VARIATION
- OUTPUT POWER
- OUTPUT COS PHI
- DISSIPATER TEMPERATURE
- MOTOR TEMPERATURE
- TOTAL DRIVE ON/OFF HOURS
- OVERLOAD ACCUMULATION CONDITION
- COMPLETE INVERTER VARIABLE AND PARAMETER READ/
WRITE AVAILABILITY
- GLOBAL INFORMATION ON INVERTER TYPE

Applications

- PLASTIC: EXTRUDER, INJECTION MACHINES
- METAL: ROLLING PRESSES, SHEET METAL PROCESSING AND
CUTTING PLANTS
- WATER: PURIFICATION AND PUMPING PLANTS

- AIR: INDUSTRIAL AIR CONDITIONING AND VENTILATION
- LIFTING: INDUSTRIAL PLANTS
- TEST BENCHES: TEST SYSTEMS

Technical specifications

- POWER RANGE FROM 0.75 kW TO 1.8 MW
- POWER 3PH 400VAC...690VAC
- INTEGRATED EMC FILTERS ON THE WHOLE RANGE
- DC SIDE INDUCTANCE UP TO 132 kW
- DOUBLE OVERLOAD MODE FOR "HEAVY-DUTY" AND/OR "LIGHT"
SERVICE
- MAN/MACHINE INTERFACE IN 10 LANGUAGES
- PROGRAMMING KEYPAD WITH 5 COMPLETE SETS OF DRIVE
PARAMETERS
- ADVANCED PROGRAMMING VIA MDPLC TOOL (AS PER IEC
61131-3)



ADV200 LC

LIQUID COOLED FIELD-ORIENTED VECTOR INVERTER FOR INDUSTRIAL APPLICATIONS

The ADV200 LC series is used in applications where the main requirements are: robustness, long life and maximum reliability.

The liquid cooling systems of electrical and mechanical units, already widely used in plastic processing equipment, significantly reduce the size of the electrical drive. Thanks to a very robust dissipation system, the ADV200-LC series supports the already available ADV200 air-cooled line and integrates with great flexibility in existing systems.

Why 4.0?

- MOTOR SPEED
- TORQUE CURRENT
- ACTIVE CURRENT
- TORQUE VARIATION
- OUTPUT POWER
- OUTPUT COS PHI
- COOLING LIQUID TEMPERATURE
- EXTERNAL SOLENOID VALVE CONTROL FOR COOLING DRIVE ACTIVATION
- ANTI-CONDENSATION CONTROL
- TOTAL DRIVE ON/OFF HOURS
- OVERLOAD ACCUMULATION CONDITION
- COMPLETE INVERTER VARIABLE AND PARAMETER READ/WRITE AVAILABILITY
- GLOBAL INFORMATION ON INVERTER TYPE

Applications

- PLASTIC: EXTRUDER AND INJECTION MACHINES
- METAL: STIRRER SYSTEM CONTROL

Technical specifications

- POWER RANGE FROM 30 kW TO 800 kW
- POWER 3PH 400VAC...480VAC
- INTEGRATED EMC FILTERS ON THE WHOLE RANGE
- DC SIDE INDUCTANCE UP TO 160 kW
- DOUBLE OVERLOAD MODE FOR "HEAVY-DUTY" AND/OR "LIGHT" SERVICE
- MAN/MACHINE INTERFACE IN 10 LANGUAGES
- ADVANCED PROGRAMMING VIA MDPLC TOOL (AS PER IEC 61131-3)
- ANTI-CONDENSATION FUNCTION
- INTEGRATED HUMIDITY SENSOR
- EXTERNAL SOLENOID VALVE CONTROL FOR DRIVE AND MOTOR COOLING LIQUID FLOW



ADP200

HYBRID INJECTION PRESS WITH SERVO PUMP INVERTER

The ADP200 inverter series represents an innovative concept in inverter technology and is the result of constant technological research and the know-how in plastics applications acquired by Gefran

The Gefran ADP200 inverter is the right solution for managing servo-pumps thanks to the high degree of regulation in terms of the precision of control over pressure and flow. Significant energy savings compared to traditional hydraulic systems can be achieved with advanced PID control for injection mould machines.

The control of the oil pressure and flow rate is performed accurately and constantly in line with the needs of the injection machine and, as such, reduces the waste of oil that is typical of conventional systems.

Why 4.0?

- MOTOR SPEED
- TORQUE CURRENT
- ACTIVE CURRENT
- TORQUE VARIATION
- OUTPUT POWER
- OUTPUT COS PHI
- FLOW CONTROL
- PRESSURE CONTROL
- TOTAL DRIVE ON/OFF HOURS
- OVERLOAD ACCUMULATION CONDITION
- COMPLETE INVERTER VARIABLE AND PARAMETER READ/
WRITE AVAILABILITY
- GLOBAL INFORMATION ON INVERTER TYPE

Applications

- PLASTIC: INJECTION MACHINES WITH SERVO-PUMP

Technical specifications

- POWER RANGE FROM 7.5 kW TO 75 kW
- POWER 3PH 230VAC...480VAC
- FUNCTION BLOCKS FOR INJECTION MOULDING MACHINE CONTROL
- FLOW AND PRESSURE LIMIT CONTROL
- PRESSURE SENSOR STATUS CONTROL
- ADAPTIVE FEEDFORWARD
- AUTOMATIC SWITCHOVER BETWEEN CLOSED-LOOP SPEED AND PRESSURE CONTROL
- AUTOMATIC CALIBRATION OF SPEED AND PRESSURE LOOPS
- PUMP ROTATION DIRECTION IDENTIFICATION
- MULTIPUMP CONVERGENT AND DIVERGENT CONTROL



AFE200

ACTIVE FRONT END REGENERATIVE POWER SUPPLY MODULE

AFE200 is the regenerative power supply module range with active front end technology.

Perform for drive battery power connected under the same DC Bus or even to only control monodrive configurations.

There are multiple benefits due to the use of AFE200 systems:

- “Clean Power” thanks to optimised power factor and reduced network harmonics
- High system dynamics in both drive and regeneration phases
- Significant energy savings during regeneration transitions
- Higher DC bus circuit stability against load variations
- Significant single power system economies of scale
- Elimination of inconvenient traditional braking systems and braking resistances

Why 4.0?

- OUTPUT CURRENT
- OUTPUT VOLTAGE
- ACTIVE CURRENT
- REACTIVE CURRENT
- DC LINK VOLTAGE
- SINGLE INPUT PHASE VOLTAGE
- OUTPUT POWER
- OUTPUT COS PHI
- ENERGY VALUES
- TOTAL DRIVE ON/OFF HOURS
- OVERLOAD ACCUMULATION CONDITION
- COMPLETE FEEDER VARIABLE AND PARAMETER READ/WRITE AVAILABILITY
- GLOBAL INFORMATION ON INVERTER TYPE

Applications

- METAL: ROLLING PRESSES, SHEET METAL PROCESSING AND CUTTING PLANTS, ELECTRICAL PRESSES
- LIFTING: INDUSTRIAL PLANTS
- TEST BENCHES: TEST SYSTEMS

Technical specifications

- POWER RANGE FROM 22 kW TO 1.8 MW
- POWER 3PH 400VAC...690VAC
- "CLEAN ENERGY" THANKS TO UNIT COS PHI AND THD <3%
- EXTERNAL PRELOAD KIT
- LCL LINE FILTERS AVAILABLE FOR THE ENTIRE POWER RANGE
- DOUBLE OVERLOAD MODE FOR "HEAVY-DUTY" AND/OR "LIGHT" SERVICE
- FIELDBUS AND I/O EXPANSIONS THAT CAN BE INTEGRATED ON-BOARD DRIVE
- PROGRAMMING IN 5 LANGUAGES



TPD32 EV

DC STEP-UP CONVERTERS

The "TPD32 EV" DC step-up converter was designed to fully rationalise utility system demand, offering a series of functions and application packets able to meet the complex needs of modern industrial automation systems.

With the new configurations, the TPD32 EV range offers additional benefits to optimise space in switchboards and for its manageability and service, thanks to the new and innovative "compact power frame" up to 2400A tetra-quadrants.

TPD32 EV includes the most advanced technological functions to guarantee the utmost performance not only in revamping systems, but also in the latest control architectures with DC current converters

Why 4.0?

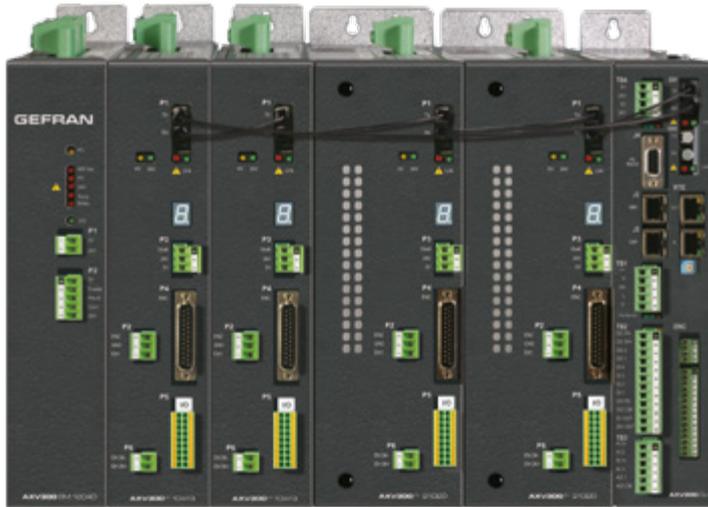
- MOTOR SPEED
- TORQUE CURRENT
- OUTPUT VOLTAGE
- SPEED REFERENCE
- OUTPUT POWER
- FLOW CURRENT
- INPUT VOLTAGE
- TOTAL DRIVE ON/OFF HOURS
- OVERLOAD CONTROL
- COMPLETE CONVERTER VARIABLE AND PARAMETER READ/WRITE AVAILABILITY

Applications

- METAL: ROLLING PRESSES, SHEET METAL PROCESSING PLANTS, ELECTRICAL PRESSES
- LIFTING: INDUSTRIAL SYSTEMS AND LIFT SYSTEMS
- TEST BENCHES: TEST SYSTEMS
- THEME PARKS

Technical specifications

- POWER RANGE FROM 20A TO 4800A
- POWER 3PH 230VAC...690VAC
- SPEED RING AND CURRENT AUTO-CALIBRATION
- PROGRAMMABLE OVERLOAD CONTROL
- CONTROLLED MOTOR STOP AND AUTOMATIC RESTART
- PID APPLICATION FUNCTION
- SERVO-DIAMETER APPLICATION
- "SPEED DRAW" FUNCTION
- "AUTOCAPTURE" FUNCTION
- "DROOP" FUNCTION
- INTERFACE WITH THE MOST POPULAR FIELDBUSES



AXV300 MODULAR SERVO-DRIVES

Gefran AXV300 modular servo-drives offer superb technical content in the field of drives for Motion Control applications and, thanks to a powerful high pass band DSP and power staging that offers a wide range of power and configurations.

The **AXV300** modular range provides top level performance for the control of brushless and asynchronous motors used in multi-motor production lines which need excellent dynamic characteristics, accuracy and fast operating sequences.

Powering each “multi-axis” system by means of a “common DC bus” ensures the Gefran clean power formula thanks to the standard use of regenerative FFE technology, which further increases dynamic performance and at the same time offers energy savings by regenerating to the grid and avoiding unnecessary waste on brake resistance.

AXV300 implements advanced application solutions based in positioning systems and structural interpolation, in this case as well in IEC61131-3 standard programming environments.

Why 4.0?

- MOTOR SPEED
- TORQUE CURRENT
- ACTIVE CURRENT
- TORQUE VARIATION
- OUTPUT POWER
- DISSIPATER TEMPERATURE
- MOTOR TEMPERATURE
- COMPLETE VARIABLE AND PARAMETER READ/WRITE AVAILABLE FOR THE SINGLE AXES
- COMPLETE APPLICATION VARIABLE AND PARAMETER READ/WRITE AVAILABILITY

Applications

- PLASTIC: FULL ELECTRIC INJECTION MOULDING MACHINES
- TEXTILES: SPINNING SYSTEMS

Technical specifications

- POWER RANGE FROM 4A TO 200A
- POWER 3PH 400VAC
- RETROACTION FROM ADVANCED RESOLVER OR ENCODER
- AC/DC OR REGENERATIVE FEEDERS
- RETROACTION FROM ADVANCED RESOLVER OR ENCODER
- FIELDBUS CONTROL: CANopen, DEVICENET, ETHERCAT
- SAFE TORQ OFF "SIL3" IN CATEGORY "PLE"
- 250 μ S AXIS COMMUNICATION SYNCHRONOUS BUS
- ADVANCED PROGRAMMING VIA MDPLC (AS PER IEC 61131-3)

GEFRAN DEUTSCHLAND GmbH

Philipp-Reis-Straße 9a
D-63500
Seligenstadt
Ph. +49 (0) 61828090
Fax +49 (0) 6182809222
vertrieb@gefran.de

SIEI AREG - GERMANY

Gottlieb-Daimler Strasse 17/3
D-74385
Pleidelsheim
Ph. +49 (0) 7144 897360
Fax +49 (0) 7144 8973697
info@sieiareg.de

SENSORMATE AG

Steigweg 8,
CH-8355 Aadorf, Switzerland
Ph. +41(0)52-2421818
Fax +41(0)52-3661884
<http://www.sensormate.ch>

GEFRAN FRANCE SA

PARC TECHNOLOGIE
Bâtiment K - ZI Champ Dolin
3 Allée des Abruzzes
69800 Saint-Priest
Ph. +33 (0) 478770300
Fax +33 (0) 478770320
commercial@gefran.fr

GEFRAN BENELUX NV

ENA 23 Zone 3, nr. 3910
Lammerdries-Zuid 14A
B-2250 OLEN
Ph. +32 (0) 14248181
Fax +32 (0) 14248180
info@gefran.be

GEFRAN UK Ltd

Clarendon Court
Winwick Quay
Warrington
WA2 8QP
Ph. +44 (0) 8452 604555
Fax +44 (0) 8452 604556
sales@gefran.co.uk

GEFRAN MIDDLE EAST ELEKTRİK VE ELEKTRONİK San. ve Tic. Ltd. Sti

Yesilkoy Mah. Ataturk
Cad. No: 12/1 B1 Blok K:12
D: 389 Bakirkoy /Istanbul TURKIYE
Ph. +90212 465 91 21
Fax +90212 465 91 22

GEFRAN SIEI Drives Technology Co., Ltd

No. 1285, Beihe Road, Jiading
District, Shanghai,
China 201807
Ph. +86 21 69169898
Fax +86 21 69169333
info@gefran.com.cn

GEFRAN SIEI - ASIA

31 Ubi Road 1
#02-07,
Aztech Building,
Singapore 408694
Ph. +65 6 8418300
Fax +65 6 7428300
info@gefran.com.sg

GEFRAN INDIA

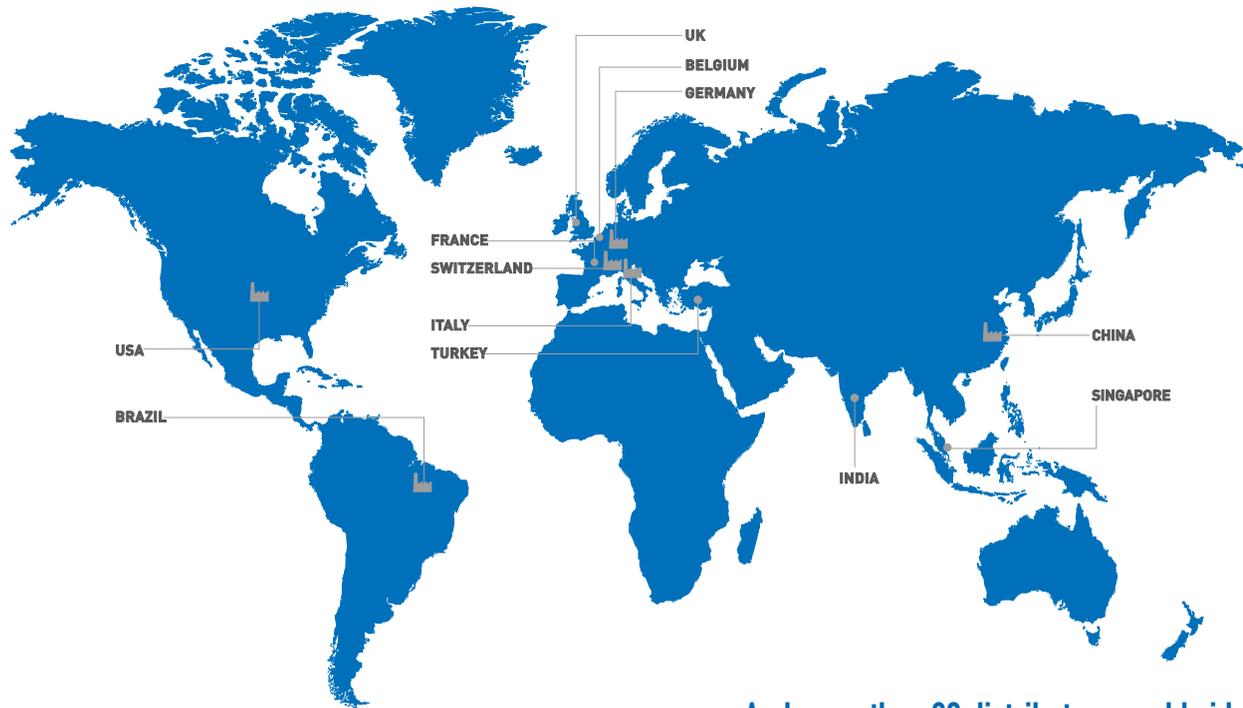
Survey No. 191/A/1,
Chinchwad Station Road, Chinchwad,
Pune-411033, Maharashtra
Ph. +91 20 6614 6500
Fax +91 20 6614 6501
gefran.india@gefran.in

GEFRAN Inc.

8 Lowell Avenue
WINCHESTER - MA 01890
Toll Free 1-888-888-4474
Fax +1 (781) 7291468
info.us@gefran.com

GEFRAN BRASIL ELETROELETRÔNICA

Avenida Dr. Altino Arantes,
377 Vila Clementino
04042-032 SÃO PAULO - SP
Ph. +55 (0) 1155851133
Fax +55 (0) 1132974012
comercial@gefran.com.br



... And more than 80 distributors worldwide



GEFRAN

Via Sebina, 74
25050 PROVAGLIO D'ISEO (BS) ITALIA
Tel. +39 03098881
Fax +39 0309839063
www.gefran.com



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