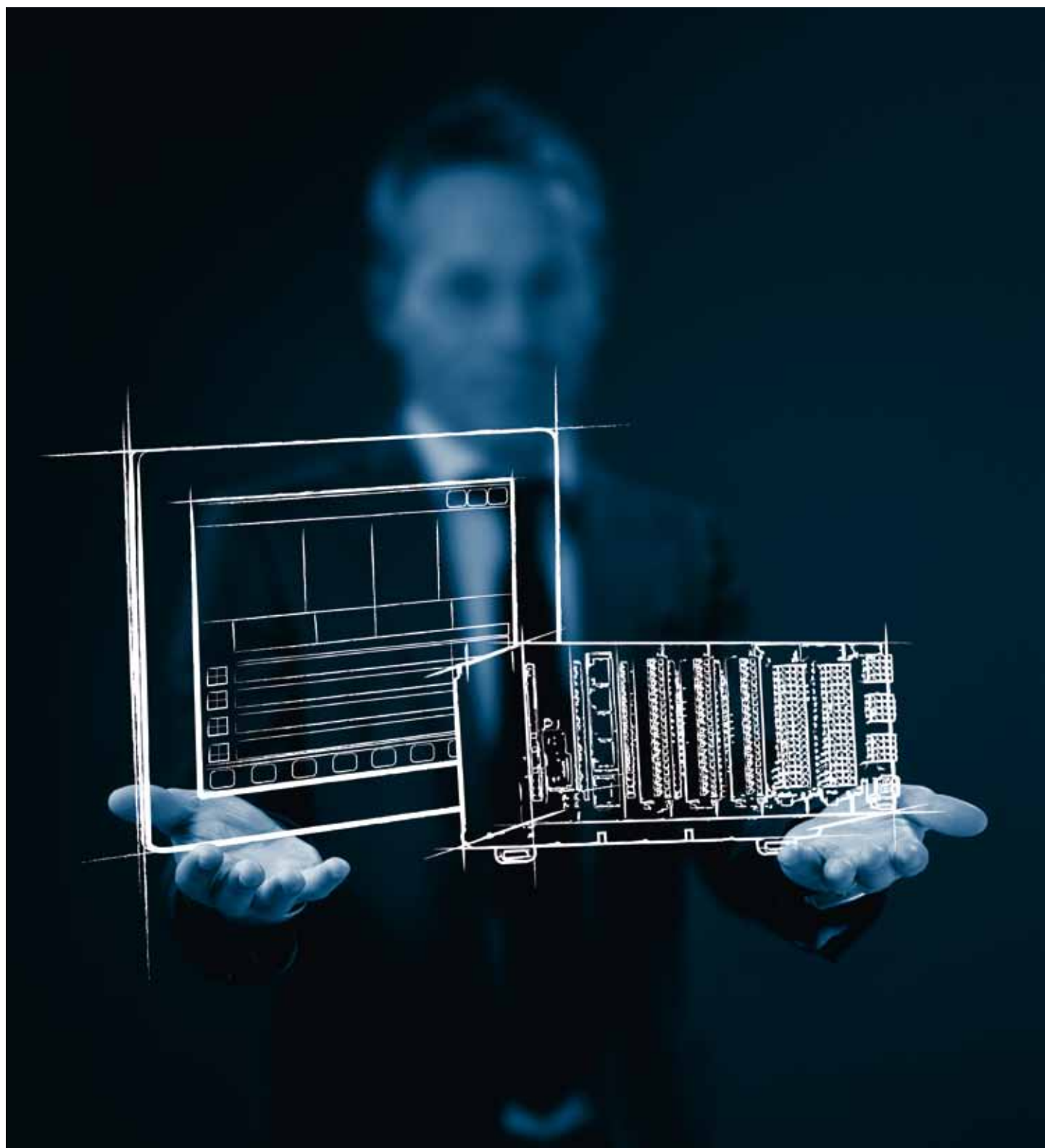# AUTOMATION
CONTROL, DISPLAY AND COMMUNICATION

GEFRAN

PERFORMANCE

GCube MACHINE AUTOMATION CONTROLLERS

Integrated automation solutions capable of offering a global response to specific needs.
Scalable proposals, single programming environment and a high level of integration of the whole Gefran production range for a tailor-made offer.

Compact Compact Controller

Fit Custom Controller

TEXTILES

FOOD

GLASS

PAPER

Advanced Distributed Controller

Performa Embedded Controller

Modula Integrated Controller

> **STANDARD IEC 61131-3** programming language
> **SCALABLE** architectures
> **REUSABLE** applications
> **SINGLE SOFTWARE** for all automation
> **INTEGRATED ETHERNET** connection
> **INTEGRATED** programming environment
> **HMI + PROGRAMMING LOGIC**

FUNCTIONALITY
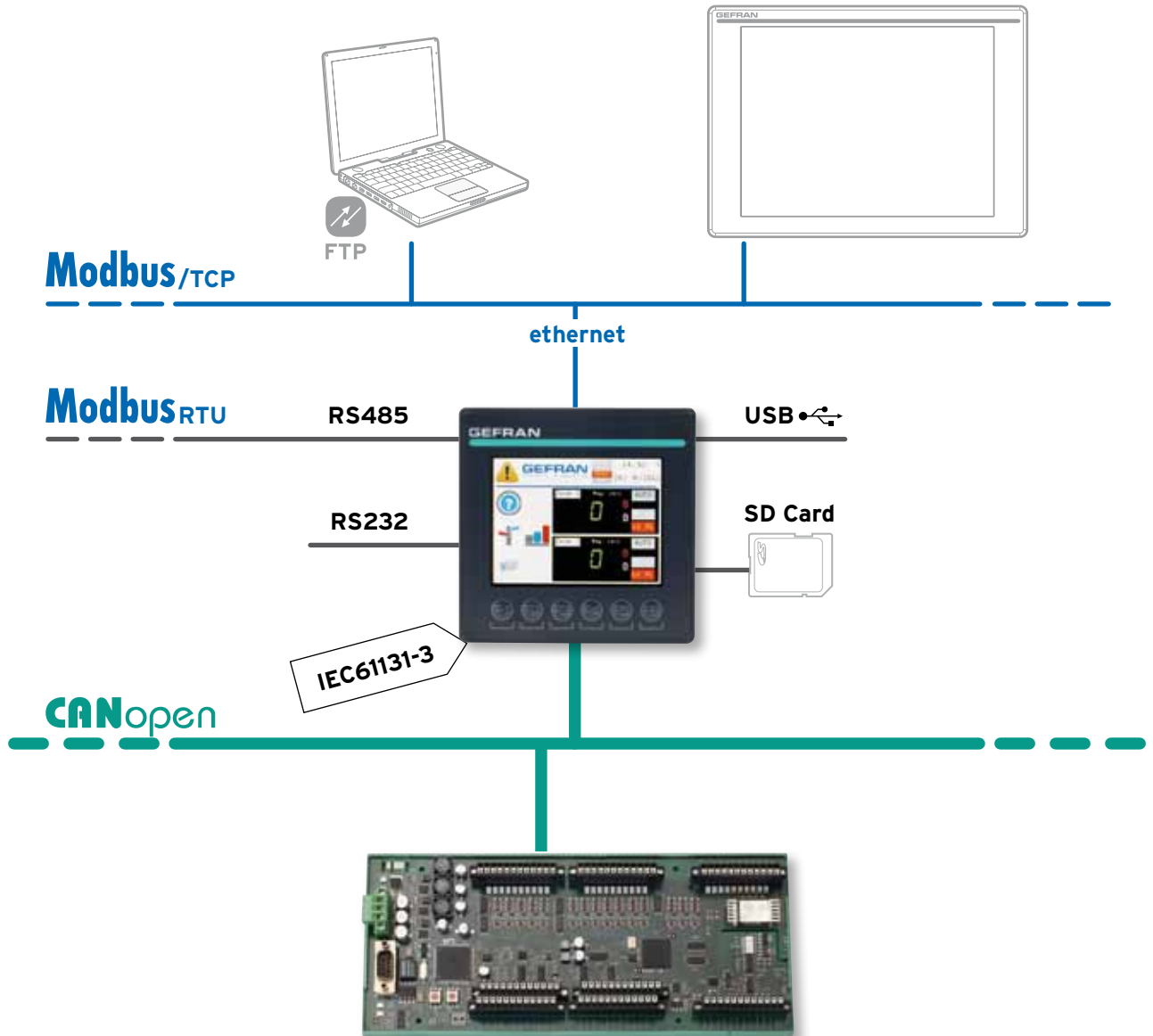
MARKETS

WOOD

WATER TREATMENT

PLASTICS

WINE-MAKING

GEFRAN

Modbus/TCP

FTP

ethernet

Modbus RTU   RS485   USB

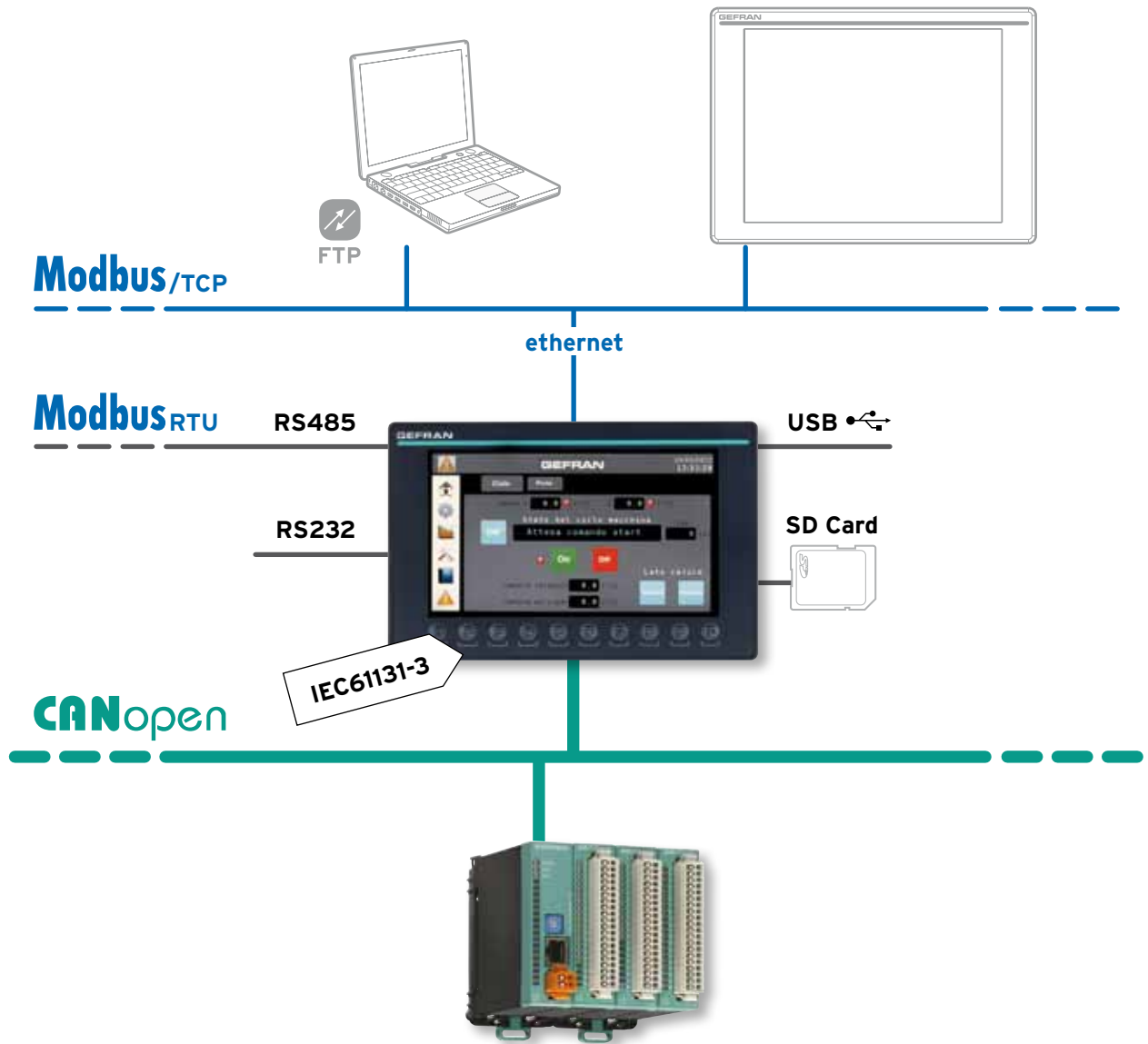RS232   SD Card

IEC61131-3

CANopen

Particularly suitable for price-sensitive applications, thanks to its flexibility this solution is used on different markets, such as: autoclaves, temperature controls, metal washers, plastic dryers, etc.

Solution consisting of two elements, an integrated control (PLC and HMI) and a remote I/O board with a high level of customisation.

> **CUSTOM SOLUTION**
> **PROCESS FUNCTIONS**
> **DATA FILING**

Powered by

GF PROJECT

Modbus/TCP

FTP

ethernet

Modbus RTU **RS485** **USB**

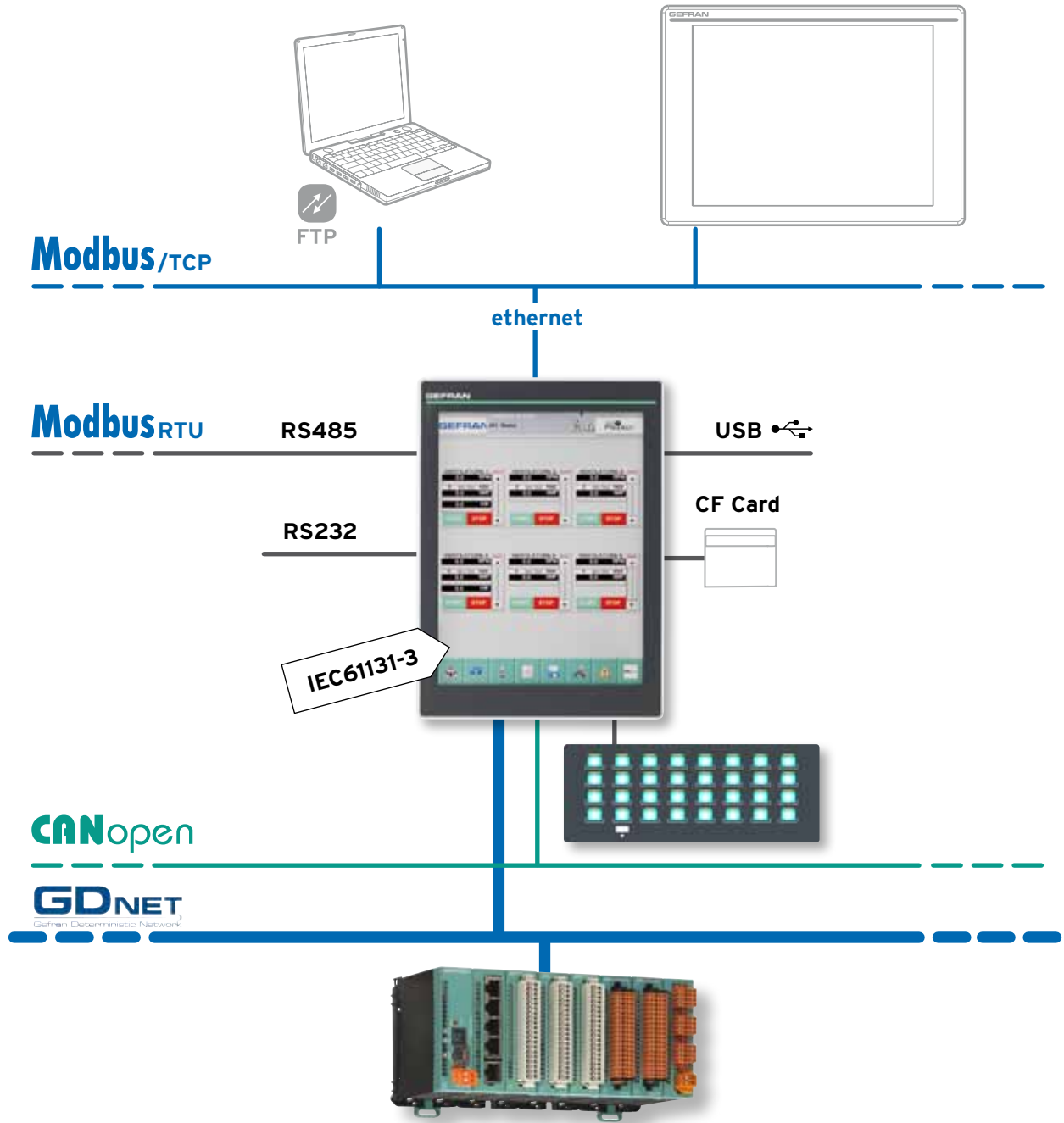**RS232** **SD Card**

IEC61131-3

CANopen

This very compact modular solution enables the satisfaction of different medium-small automation solutions.

Solution consisting of two elements, an integrated control (PLC and HMI) and remote I/O modules.

> **MODULAR SOLUTION**
> **OPEN ARCHITECTURE**
> **DEDICATED FUNCTIONS LIBRARY**

Powered by

GF PROJECT

Modbus/TCP

FTP

ethernet

Modbus RTU   **RS485**   **USB**

RS232   **CF Card**

IEC61131-3

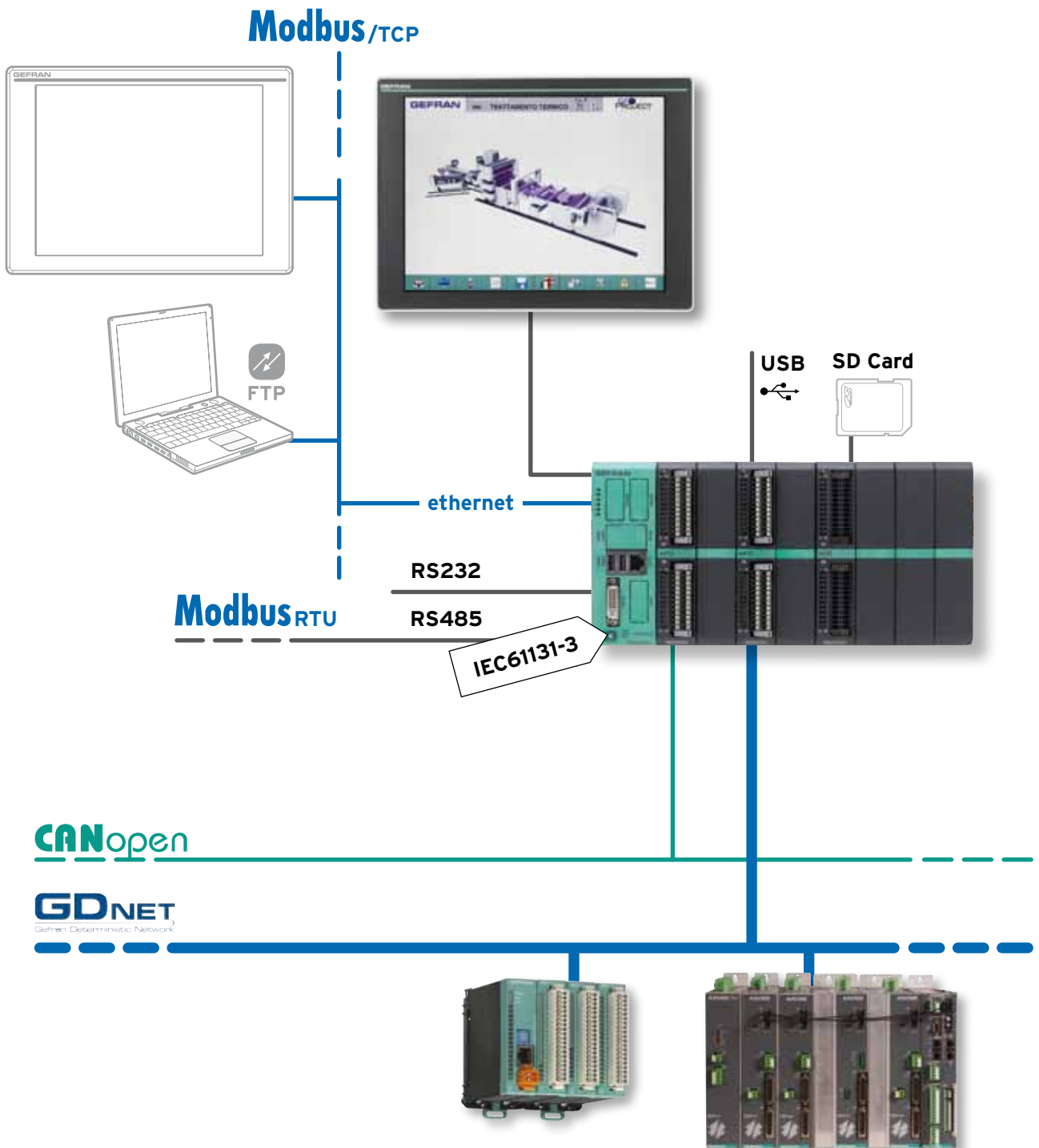**CAN**open

GDNET
Gefran Deterministic Network

Enables the construction of high-performance, multiprotocol applications that are easily integrated into company networks.

Solution based on integrated control (PLC and HMI) and remote I/O modules connected via a real-time Ethernet fieldbus.

> **ETHERNET REAL-TIME**
> **SCALABLE**
> **MULTI PROTOCOL**

Powered by

GF
PROJECT

Modbus/TCP

FTP

USB   **SD Card**

ethernet

RS232

ModbusRTU   RS485

IEC61131-3

CANopen

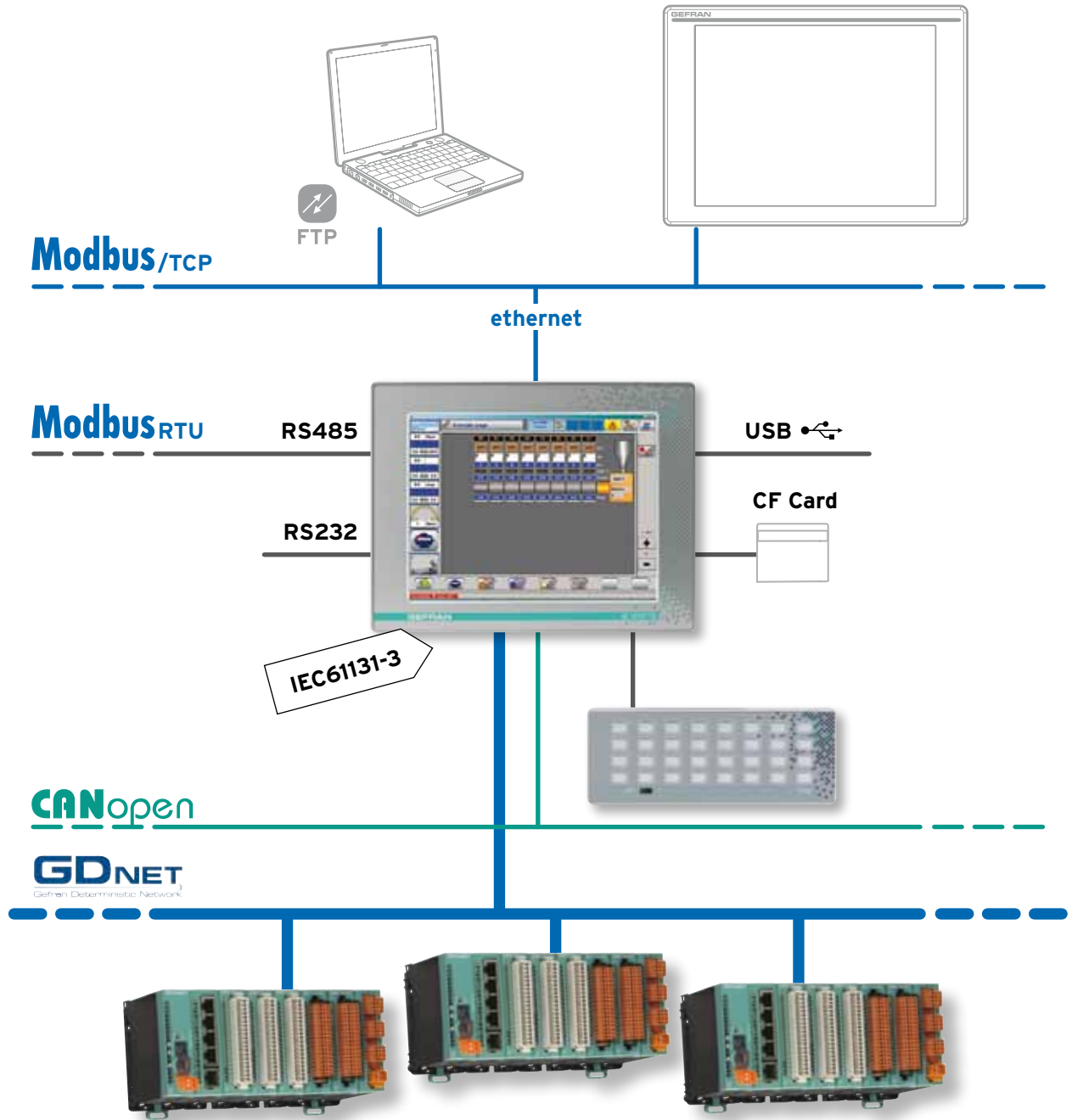**GD**NET
Gefran Deterministic Network

Is a cost-effective industrial solution for medium-high level automation applications

The complete and integrated solution for control, monitoring, communication and management of machine automation.

> **CONFIGURED AND TESTED FOR THE REQUIRED NUMBER OF I/Os**
> **LOCALLY EXPANDABLE, REMOTELY EXTENDABLE**
> **SCALABLE SOLUTION**

Powered by

gf vX
PROJECT

GCube Advanced *DISTRIBUTED CONTROLLER*

Modbus/TCP

FTP

ethernet

Modbus RTU   **RS485**   **USB**

RS232   **CF Card**

IEC61131-3

CANopen

GDNET
Gefran Deterministic Network

High-performance distributed solution based on integrated control [PLC and HMI] and remote I/O modules via a real-time Ethernet fieldbus.

Through extremely advanced diagnostics it is possible to monitor every single aspect of automation.

- › **DISTRIBUTED SOLUTIONS**
- › **HIGH PERFORMANCE**
- › **ADVANCED DIAGNOSTICS**

Powered by

GF vX
PROJECT

SOFTWARE

GF Project LX & GF Project VX

Gefran Automation DNA

GF_Project VX & GF_Project LX are composed of integrated software modules with specific functions that provide easy and intuitive configuration of different type of automation projects.

» Operator interface

» Machine control sequence (PLC)

» HW + communication architecture

» Project manager

» Code Library

» Connectivity

» Diagnostic

» Operator interface

» Machine control sequence (PLC)

» HW + communication architecture

Configuration of the man/machine graphic pages interface with advanced graphics

Configuration of the part of machine control for Real Time solutions
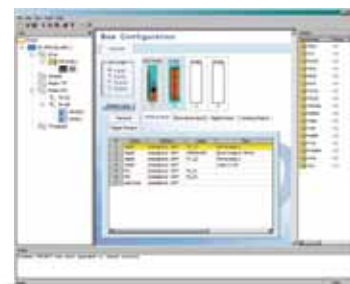
Configuration of the single devices used and the type of communication adopted

GF_Project is the integrated development environment (IDE) for developing control applications in real time.

> **SHARED STRUCTURE FOR HMI AND PLC CONFIGURATION**
> **STANDARD LANGUAGE: (IEC 61131-3)**
> **POWER AND SIMPLICITY IN DESIGN AND CONFIGURATION**

» Project manager

A common configuration style with a clear graphic visualisation for all the project modules help and make easy their configurations.
The following main modules are available :
- Alarm management
- Multilanguage management (UNICODE)
- Recipe management
- User management

» Code Library

In the module library are a structured set of libraries FB that facilitate and reduce the development time of an automation project .

» Connectivity

The connectivity module includes a set of tools to meet the growing demand for remote access to machines and plants.

» Diagnostic

The diagnostic module provides a complete set of easy to use and efficient tool for all phases of testing and verification of the system

GF_VEDO

Outstanding Control and Graphic capabilities in a single product.
Display size from 3.5" to 15".
Extensive data logging and recipe handling.

> **TOUCH-SCREEN**
> **INTEGRATED ETHERNET INTERFACE**
> **INTEGRATED RUN-TIME PLC**
> **VERTICAL / HORIZONTAL INSTALLATION**

GF_VEDO SL	35 CT	70 CT	V70 CT
Function	control panel [PLC+HMI]		
Display	3,5" TFT color	7" TFT wide color	
Touch screen	resistive		
Keypad	Programmable 6-key membrane	Programmable 10-key membrane	
Resolution	QVGA 320x240	WVGA 800x480	WVGA 480x800
Backlight	White LEDs, duration 50.000 hours @ 25 °C		
Processor	ARM9, 400 MHz		
Memory			
System	64 MB DRAM		
Mass	128 MB NAND Flash		
Retentive	32kB FRAM		
Memory card extension	1 x SD memory card slot		
Connections			
Ethernet	1 x 10/100Mbps		
CAN	1 x CANopen		
Serial	1xRS232, 1xRS485		
USB	1xUSB2.0 Host		
Installation			
Horizontal	√	√	-
Vertical	-	-	√
Protection	IP65 front, IP20 rear		
Power Supply	24 VDC ±15%		

GF_VEDO EV	104CT	V104CT	150CT	V150CT
Function	Control Panel [PLC+HMI]			
Display	10.4'' TFT colors		15.0'' TFT colors	
Tuch screen	resistive			
Resolution	SVGA 800x600	SVGA 600x800	XVGA 1024x768	XVGA 768x1024
Backlight	LED/30.000		LED/50.000	
Processor	Geode LX900			
Memory				
System	256MB / 512MB / 1GB			
Mass	1GB			
Retentive	By file			
Extension	By CF card (system memory)			
Connections				
Ethernet	2 x Ethernet 10/100 Mbps			
Can	1 x CANopen			
Serials	1 x RS232 1 x RS485			
Usb	4 x USB 2.0 Host			
Ps2	2 x PS2 (mouse, keyboard)			
Tf serial	1x machine keyboard			
Installation				
Horizontal	√	-	√	-
Vertical	-	√	-	√
Protection	IP65 front, IP20 rear			
Power supply	24 VDC ±25%			

GF_VEDO HL	121 CT	150 CT
Function	control panel [PLC+HMI]	
Display	12.1'' TFT colors	15.0'' TFT colors
Tuch screen	resistive	
Resolution	SVGA 800x600	XVGA 1024x768
Backlight	CCFL	
Processor	Celeron, 600/1500MHz	
Memory		
System	256MB - 1024MB DRAM	
Mass	128 4 GB NAND Flash	
Retentive	256 kB	
Connections		
Ethernet	2 x 10/100Mbps	
Can	1 x CANopen	
Serial	2 x RS232/RS485	
Usb	2 x USB2.0 Host	
Ps2	2 x PS2 (mouse, keyboard)	
Serial tf	1x Machine keyboard	
Installation		
Horizontal	√	√
Vertical	-	-
Protection	IP65 front, IP20 rear	
Power supply	24 VDC ±25%	

REMOTE I/Os

GILOGIK II

High performance remote modular I/O.
Compact design with high IO density per module for installation in small spaces.
High performance Fast-ethernet GDnet or CANopen protocol with easy integration of third-party products
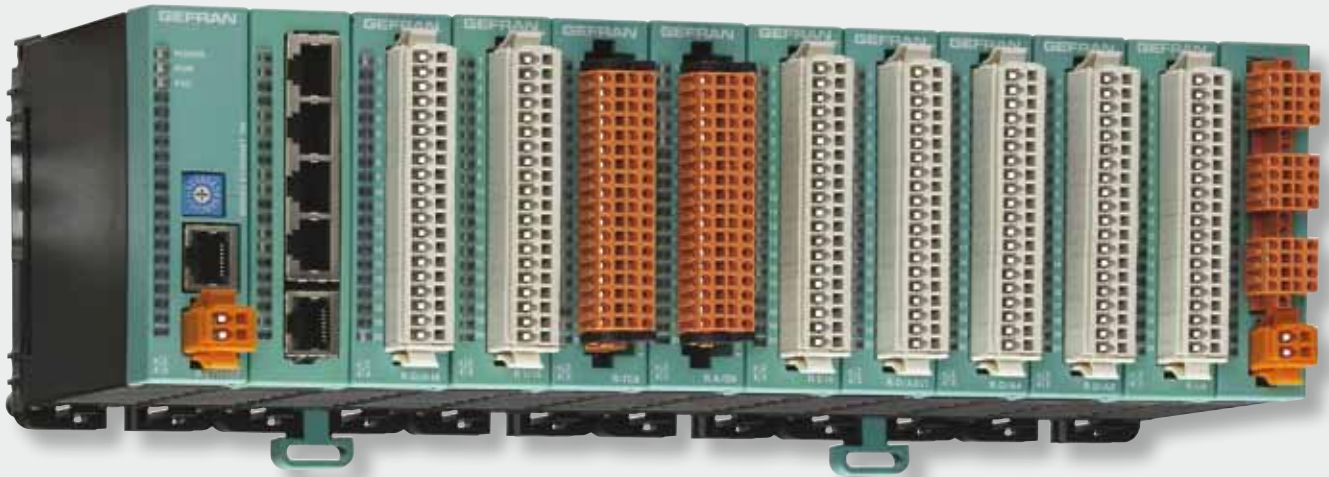
> **SPACE SAVING DESIGN**
> **PARALLEL BACKPLANE**
> **FAST-ETHERNET GDNET / CANOPEN PROTOCOL**
> **MODULAR SOLUTION**

Different backplanes are available [2, 4, 8, 12 and 18 slot] for the installation of digital, analogue and functional modules.
The type of fast-ethernet GDNet or CANopen communication protocol is achieved via fieldbus modules installed in the first position on the backplane.

109.5mm

52mm

Back-plane 2 slot

109.5mm

104mm

Back-plane 4 slot

109.5mm

208mm

Back-plane 8 slot

109.5mm

312mm

Back-plane 12 slot

109.5mm

468mm
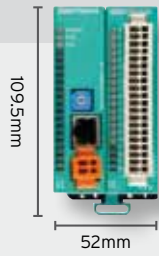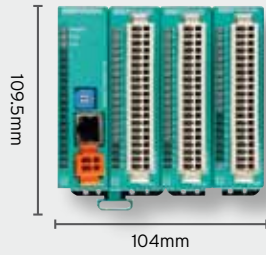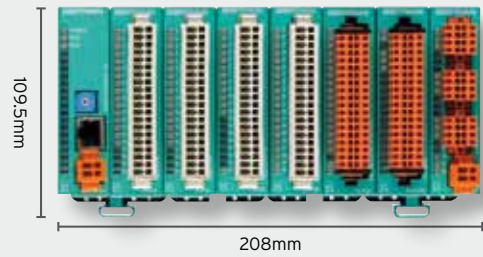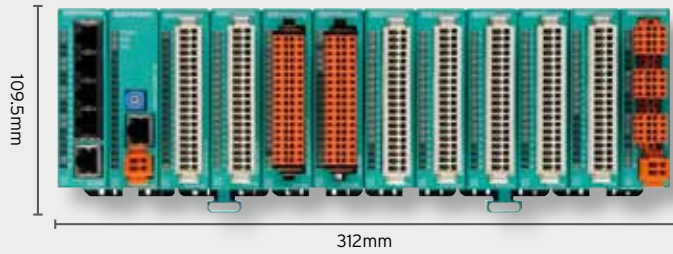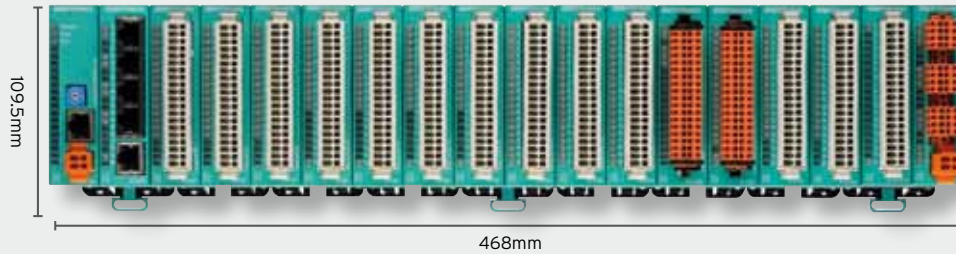
Back-plane 16 slot

GILOGIK II	FIELDBUSES Modules		
models	R-GCANs	R-ETH100	R-SW5
Protocol	CANopen -slave -	GDNet -Fast Ethernet-	-
Function	Fieldbus coupler	Fieldbus coupler	Ethernet switch
Connector	D-sub 9 male	RJ45	5x RJ45
Baudrate	20 Kbit/s...1Mbit/s	10/100 Mbit/s	10/100 Mbit/s

CANopen

GDNET
Gefran Deterministic Network

MODULES
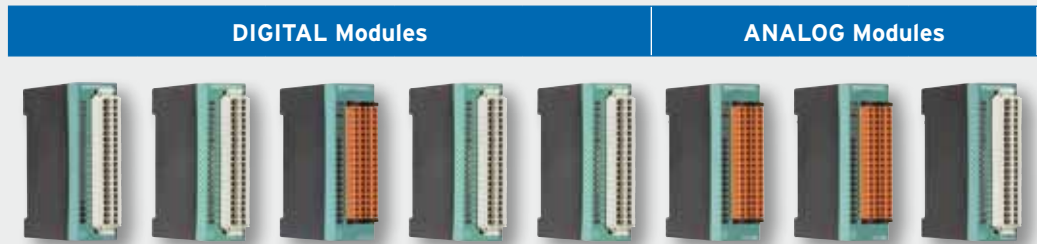
	DIGITAL Modules					ANALOG Modules		
GILOGIK II	**R-E16**	**R-EU16**	**R-EU32**	**R-U8**	**R-U16**	**R-AD8**	**R-MA6**	**R-DA4**
Total Channels	16	16	32	8	16	8	12	4
Analog Input						**8**	**6**	
Voltage 0...10V DC						8	6	
Voltage -10...+10V DC						2		
Voltage 0...+2V DC						4	4	
Voltage 0...+2.5V DC								
Current 0/4...20mA						4	4	
Strain gauge 0...25mV DC								
Strain gauge 0...30mV DC						2	2	
Strain gauge 0...60mV DC								
Strain gauge 0...100mV DC						2	2	
Temperature RTD								
Temperature TC								
Current Transformer 0...50mA AC								
Potentiometer						8	6	
Transducer power supply +10V DC						•	•	
Transducer power supply +24V DC						•	•	
Analog Output							**6**	**4**
Voltage -10...+10V DC							6	4
Current 0/4...20mA								
Digital Input	**16**	**8**	**16**					
24 V DC	16	8	16					
Digital Output		**8**	**16**	**8**	**16**			
24 V DC		8	16	8	16			
Relays								
PWM								
Encoder-Counter								
Incremental Encoder								
Encoder Power Supply +5V								
Encoder Power Supply +24V								
Counter								

GEFRAN

MODULES
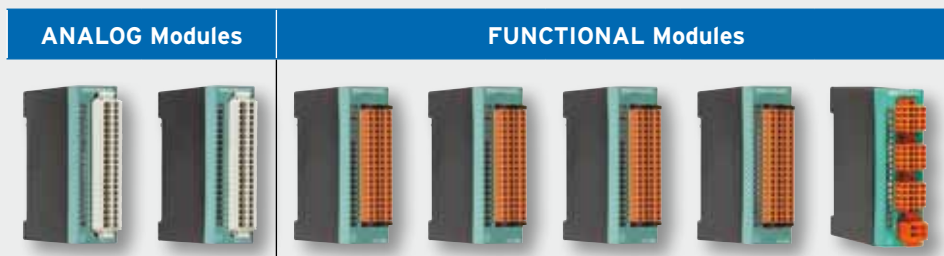
GILOGIK II	ANALOG Modules		FUNCTIONAL Modules				
	R-DA8	R-DA16	R-MIX	R-MIXR	R-TEMP4	R-TC8	R-C3
Total Channels	8	16	24	28	14	25	3
Analog Input			**6**	**6**	**6**	**8**	
Voltage 0...10V DC			4	4	4		
Voltage -10...+10V DC							
Voltage 0...+2V DC						8	
Voltage 0...+2,5V DC			4	4	4		
Current 0/4...20mA			4	4	4		
Strain gauge 0...25mV DC			4	4	4		
Strain gauge 0...30mV DC							
Strain gauge 0...60mV DC			4	4	4		
Strain gauge 0...100mV DC			4	4	4		
Temperature RTD			4	4	4	2	
Temperature TC			4	4	4	8	
Current Transformer 0...50mA AC			2	2	2		
Potentiometer			4	4	4		
Transducer power supply +10V DC			●	●	●		
Transducer power supply +24V DC							
Analog Output	**8**	**16**	**2**	**2**			
Voltage -10...+10V DC	8	16	2	2			
Current 0/4...20mA			2	2			
Digital Input			**8**	**8**		**1**	
24 V DC			8	8		1	
Digital Output			**8**	**8**	**8**	**16**	
24 V DC			8	8	8	16	
relays				4			
PWM			2	2	2		
Encoder-Counter			**2/3**	**2/3**			**3/3**
Incremental Encoder			2	2			3
Encoder Power Supply +5V							●
Encoder Power Supply +24V							●
Counter			3	3			3

INTERFACE PANELS

eGT-I, ePanel

The interface panels, equipped with a high-contrast color display with very wide viewing angle, let you display and change automation data on a touch screen (always present). Installable on the panel, on the rack, or on the control console, in combination with the ePCLogic400 series PLC, they are an efficient and reliable solution for a wide range of machines. Integrated keyboard solutions are available, designed specifically for plastic processing machinery.

> **COLOR, TOUCH SCREEN.**
> **INDUSTRIAL MONITORS**
> **SLIM AND COMPACT DESIGN**
> **CUSTOM DESIGN**

ePanel	104CT	V104CT	150CT	V150CT	eGT-I
Function	Interface panel				Injection Moulding Machine Interface panel
Display	10.4'' TFT colors		15.0'' TFT colors		10.4'' TFT colors
Touch	resistive				resistive
Keypad	no				yes
Resolution	SVGA 800x600	SVGA 600x800	XVGA 1024x768	XVGA 768x1024	SVGA 800x600
Backlight	withe LEDs, 30.000 hours @ 25°C		withe LEDs, 50.000 hours @ 25°C		withe LEDs, 30.000 hours @ 25°C
Connections					
Video	DVI-D				
USB	2x USB 2.0 host [type A], rear 1x USB 2.0 client [type B], rear				1x USB 2.0 host [type A], rear 1x USB 2.0 host [type A], front 1x USB 2.0 client [type B], rear
Protection Level	IP65 front, IP20 rear				
Power Supply	+24 VDC, ± 25%				

ePCLogic400

ePCLogic400 is the complete solution for process and automation control: a single, modular system (preconfigured and expandable) that controls sequences and manages work processes. The ePanel and eGT-I operator interfaces are available separately, in combination with the in-rack ePCLogic400 PLC, which integrates CPU and I/O modules. The PLC can be completely customized with respect to CPU power and to the number and type of inputs and outputs, adapting perfectly to the machine or system to be controlled.

> **FANLESS AND DISKLESS SOLUTION**

> **DIN RAIL MOUNTING**

> **READY TO USE**

Rack

ePCLogic400	e4R08
Brief Description	Rack complete with communications backplane and power supply [housing for 1 CPU and 8 IO modules]
Number of slots	9 [1x CPU + 8x IO]
Mounting	On DIN-RAIL
Protection Level	IP20
Power Supply	+24 VDC, ± 25%

CPU Modules
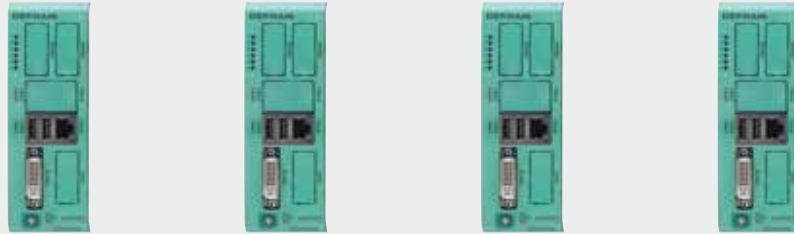
ePCLogic400	e491xx	e492xx	e493xx	e494xx
Processor	Atom E6xx series			
Frequency	600 MHz	1.0 GHz	1.3 GHz	1.6 GHz
Memory				
System	512 MB DRAM			
Mass	4 GB Flash			
Retentive	to file			
Mass memory extension	1 x SD card slot			
Connections				
Video	DVI-D			
Ethernet	2x 10/100 Mbps			
CAN	1x CANopen			
Serial	1x RS232, 1x RS485			
USB	4x USB 2,0 Host [type A]			

I/Os Modules

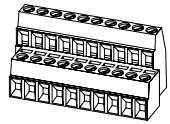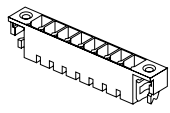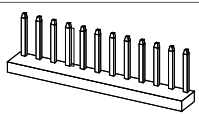| ePCLogic400	e410	e430
Brief Description	16 digital inputs + 20 digital outputs	6 analog inputs + 4 analog outputs + 8 temperatures
Total channels	**36**	**18**
Analog Input		**6**
Voltage 0...10 V		6
Voltage -10...+10V		6
Current 0...20 mA		6
Potentiometer		6
Transducer power supply +10V		√
Temperature Input		**8**
Thermocouple		8 [J, K, S, N, T, E, B, R, L]
Analog Output		**4**
Voltage -10...+10V		4
Digital Input	**16**	
+ 24 V DC	16	
Fast Digital Input	3	
Digital Output	**20**	
+ 24 V DC, 2A	20	
PWM	2	

Remote IO with CANopen Slave protocol [DS301 and DS401 compliant] .
"Tailor made" solution perfectly adaptable in terms of IO [quantity and type] to specific automation needs.
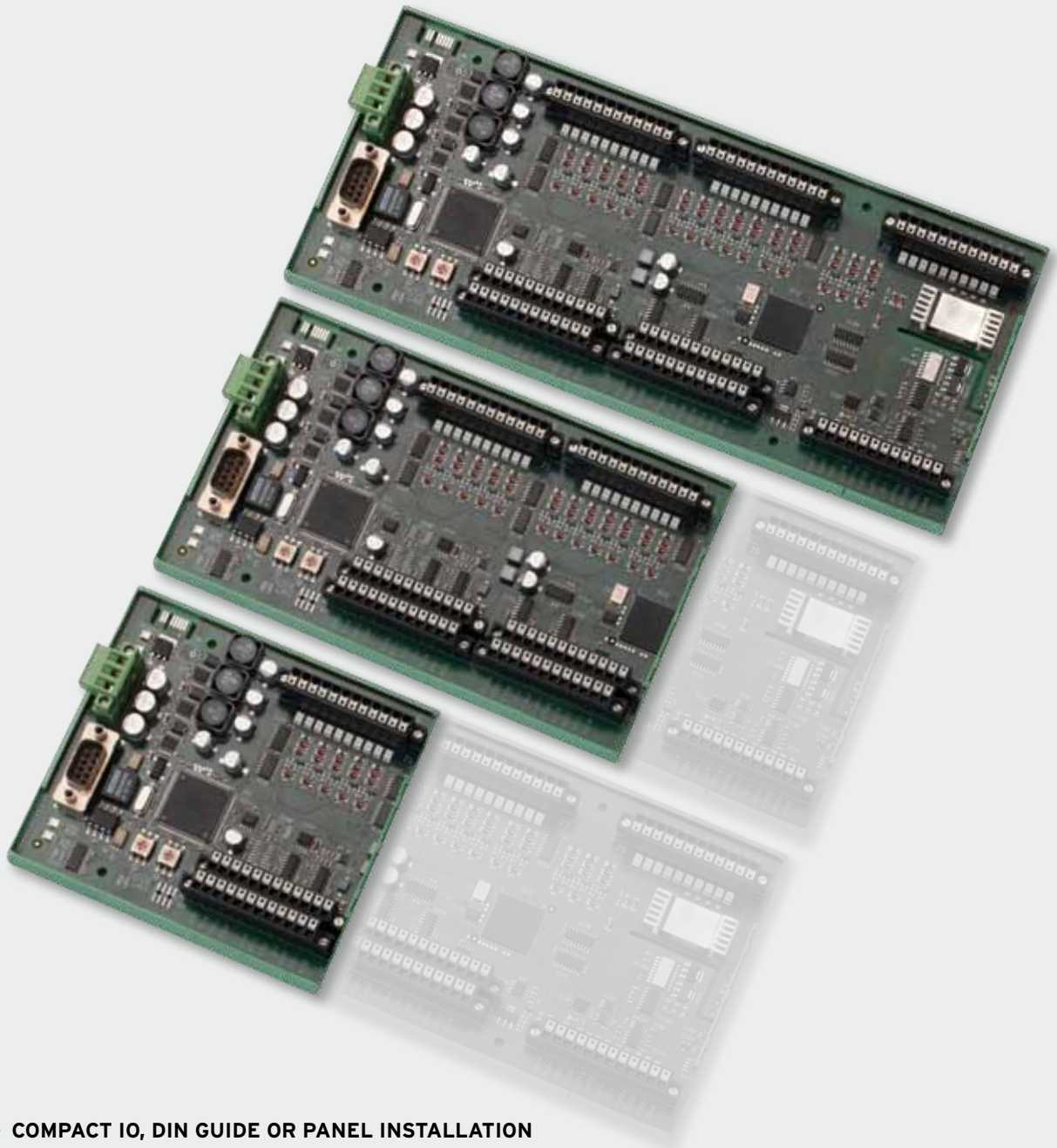
> **COMPACT IO, DIN GUIDE OR PANEL INSTALLATION**
> **TAILOR MADE SOLUTION**
> **CANOPEN SLAVE PROTOCOL COMPLIANT TO DS301, DS401**
> **DIAGNOSTIC LED, COMMUNICATION AND POWERING**

CAN-IO	MAX NUMBER 40 I/O
DIGITAL IO	
Digital inputs (max. 24)	
+24 VDC	**00 / 03 / 06 / 09 / 12 / 15 / 18 / 21 / 24**
Fast counters (max. 6)	
Fast counter	**0 / 3 / 6**
Digital outputs (max. 16)	
+24 VDC 0,5 A	**00 / 02 / 04 / 06 / 08 / 10 / 12 / 14 / 16**
+24 VDC 1 A, 5 kHz max	**00 / 02 / 04 / 06 / 08 / 10 / 12 / 14 / 16**
PWM outputs (max. 8)	
24 VDC 0.5 A	**0 / 2 / 4 / 6 / 8**
ANALOG IO	
Analog inputs (max. 8)	
±10 V	**0 / 2 / 4 / 6 / 8**
0-20 mA	**0 / 2 / 4 / 6 / 8**
Strain gauge 3.3mV/V	**0 / 2 / 4 / 6 / 8**
Potentiometer	**0 / 2 / 4 / 6 / 8**
Temperature inputs (max. 10)	
Thermocouples J, K, S, N, T, E, B, R	**00 / 02 / 04 / 06 / 08 / 10**
Pt100	**00 / 02 / 04 / 06 / 08 / 10**
Pt1000	**00 / 02 / 04 / 06 / 08 / 10**
Analog outputs (max. 8)	
±10 V	**0 / 2 / 4 / 6 / 8**
0-20 mA	**0 / 2 / 4 / 6 / 8**
PHYSICAL CHARACTERISTICS	
DIN runner	
Absent	**0**
Present	**1**
IP protection rating	
Absent	**0**
IP20	**1**
Connector	
Screw terminals	**1**
Click, female, 12-pole	**2**
Comb	**3**

CAN-IO three-step custom solution for a tailor made board

1 > Select the type of input/output

2 > Set the number

3 > Check the maximum number of channels

GF_Project - OVERVIEW OF GENERAL CHARACTERISTICS

MAIN FUNCTIONS	GF PROJECT	GF PROJECT
Configurable number of variables	Up to 64000	Up to 10000
Integrated Alarm Management	√	√
Number of alarms	Typical 300	Typical 150
Integrated Recipe Management	√	√
Number of recipe types	Typical 8	Typical 8
Number of variables per recipe type	Typical 100	Typical 100
USB support for recipe Export / Import	√	√
PC utility to change Recipe values offline	√	
Integrated Multi-lingual Management	√	√
Selection of runtime language	√	√
Number of languages	Typical 8	Typical 8
Number of texts for each language	Typical 200	Typical 200
Import / Export texts in CSV format	√	√
UNICODE support	√	√
Integrated User Management	√	
Max levels of user access	15	
Number of users for each access level	Typical 4	
User Management - Restrict page access	√	
User Management - Restrict data change	√	
User Management - Restrict components display	√	
Integrated DataLogging	√	
Number of configurable Datalog variables	Typical 50	
DataLog sampling type	Trigger - Time	
DataLog sample time	Minimum 1 sec.	
Saving of encrypted DataLog files	√	
Export DataLog values in CSV format	√	
Offline PC utility per DataLog file decrypting on CSV	√	
Teleassistance	√	
Teleremoting	√	
Target FW update	√	√
USB target update (Application SW & FW)	√	
Ethernet target update (Application SW & FW)	√	√
Remote connection	√	√

MACHINE CONTROL (PLC)	GFX PROJECT	GF PROJECT
PLC Programming standard IEC61131-3	√	√
Languages IEC61131 – text base	IL, ST	IL, ST
Languages IEC61131 – graphic base	LD, FBD, SFC	LD, FBD, SFC
Bit DataType	BOOL, BYTE, WORD, DWORD	BOOL, BYTE, WORD, DWORD
Signed Integer DataType	INT, DINT	INT, DINT
Unsigned Integer DataType	UINT, UDINT	UINT, UDINT
Floating DataType	REAL	REAL
Other DataType	STRING, ARRAY, STRUCTURE	STRING, ARRAY, STRUCTURE
Preset Variables	√	√
Retentive Variables	√	√
On-Line PLC	√	√
On-Line change	√	√
On-Line watch list	√	√
Hot download	√	√
Breack point	√	√
Trigger	√	√
Configurable PLC task	√	√
Init - boot	√	√
Fast	√	√
Normal	√	
Slow	√	√
Background	√	√
Configurable Function Block / Custom Function library	√	√
Gefran FB Library	√	√
GRAPHIC INTERFACE CONFIGURATION		
Widgets Library	√	√
"Basic" Widgets (dataset, datavalue, panel..)	√	√
"Advanced" WIDGET BOX	√	
Events management	√	√
Events management on Widgets	√	√
Events management on page actions	√	√
Events configuration with script run	√	√
Supported image types	GIF (89a) / JPG (jpeg)	BMP / ICO / JPG / EMF / GIF
Selectable Snap to grid	√	√
Object alignment	√	√
Undo and redo single change	√	
PC Executor pages	√	√
HW CONFIGURATION		
Graphic configuration of system architecture	√	√
Target selection from Gefran catalogue	√	√
Instrumentation	√	
Power Control	√	√
Motion	√	√
Automation	√	√
Sensors	√	
Multi Fieldbus support	√	√
GDNet Fieldbus support with Gefran devices	√	
Modbus RTU Fieldbus support with Gefran devices	√	√
Integration of third-party devices in Modbus RTU	√ (via dedicated tool)	√ (via dedicated tool)
Modbus TCP Fieldbus support with Gefran devices	√	√
Integration of third-party devices in Modbus TCP	√ (via dedicated tool)	√ (via dedicated tool)
CANOpen Fieldbus support with Gefran devices	√	√
Integration of third-party devices in CANOpen	√ (via EDS import file)	√ (via dedicated tool)
Parameterisation of individual Fieldbuses	√	√

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