Gefran Software

Gefran Software Applications

- Operator Interface
- Injection presses
- Plastics blowing
- Multizone temperature control
- Extrusion
- Dosers
- Heat treatment furnaces
- Plant automation

Characteristics

- Development of multiplatform solutions
- Programming according to IEC61131-3 standard
- IEC61131-3 programming languages (LD, ST, IL, SFC, FBD)
- OnLine Debugging
- Configurability of all Gefran catalogue devices
- Integrated solution for Gefran GCube modula platform

Profile

GF_Project VX is an integrated development environment (IDE) for real time control applications of Gefran devices automation, control, Drive and Sensor families.
GF_Project VX includes all the tools useful for the configuration of different type of Automation project and for other project phase like commissioning, software maintenance, service and integration.

GF_Project VX can:

- Develop automation solutions by protecting the investment allocated to configuration of the application and reducing time to market
- Create applications for complete control of machines and plants and for configuration of graphic interface
- Develop multiplatform solution
- Cut learning time, provide guided development and eliminate configuration errors by exploiting graphic configuration
- Easily reuse parts of existing projects

Thanks to various types of graphic interfaces, the programmer is given the best and most effective tools to develop an automation project. This provides you with a “visual” and “plug-and-play” approach, thanks to which project configuration is completely graphic and guided.

Gefran Automation DNA

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

» Project manager

» Operator Interface

» HW architecture

» Diagnostic

» Control

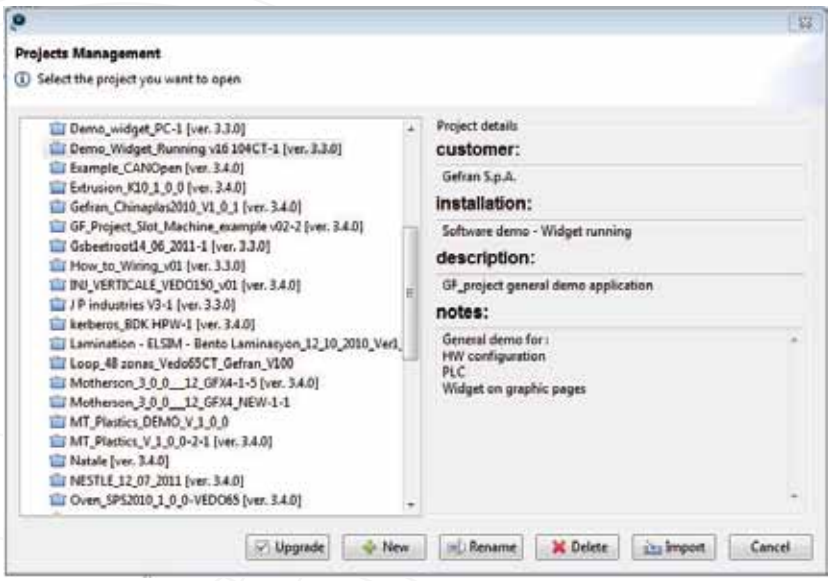
» Connectivity

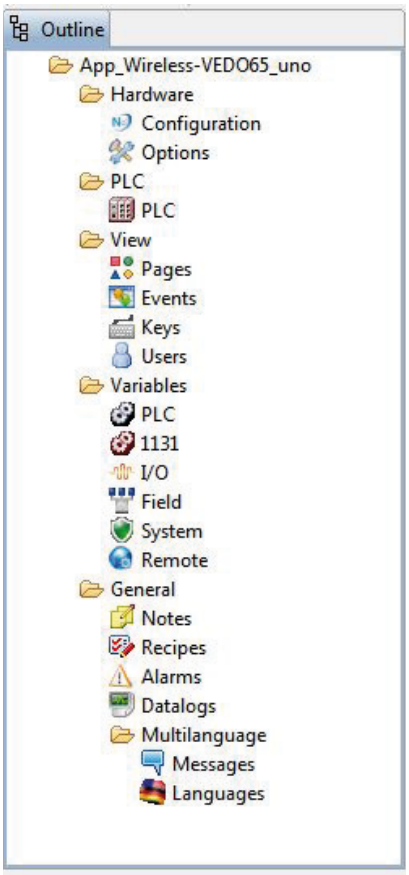
» Code Library

» Project manager

System oriented view of all project structure allow to manage each single and dedicated application module.
This give to the engineer a clear and efficient configuration approach

- Panel selection with project detail info
- Easy and integrated project Backup/Restore
- Common interface
- Project view structure components
- Partial project module import
- Find in project
- Double click jump to project module
- Project cross reference with export to Excel/pdf
- Double click jump to project module
- Automatic project update procedure
- Target FW update
- Target full application or single module update

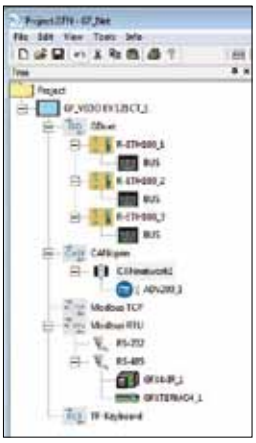


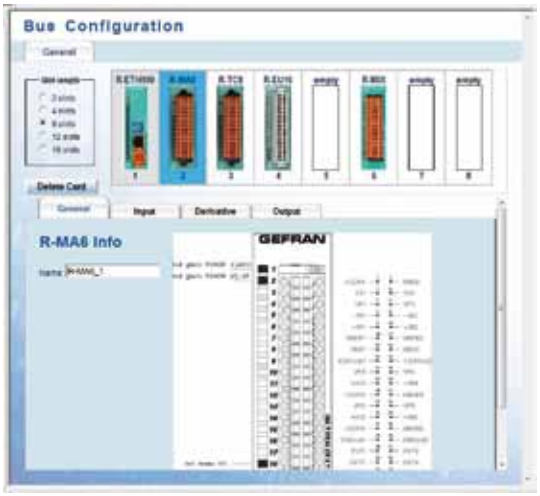


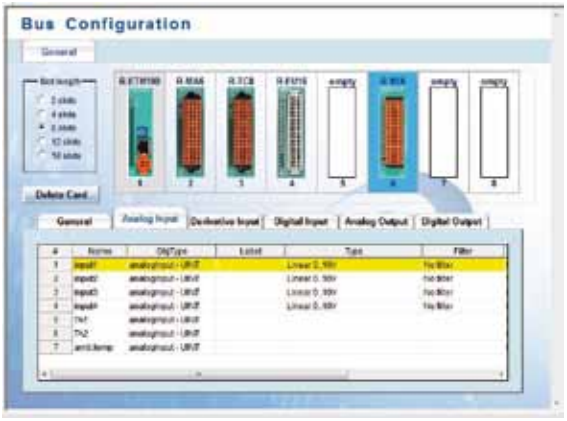
» HW architecture

All the automation device inserted on hardware architecture need a dedicate parametrization and application variable configuration. This module allows to define the general system architecture and all the required configuration.

- Unique catalog for all Gefran automation devices (Panel / I-O / Controller / Power unit / Drive / Sensor)
- Hardware architecture with graphic tree visualization
- Configuration of system resource device
- Configuration I/O signals
- Modbus TCP-RTU and CANopen third party devices integration
- HMI data connectivity configuration (Modbus TCP – RTU)



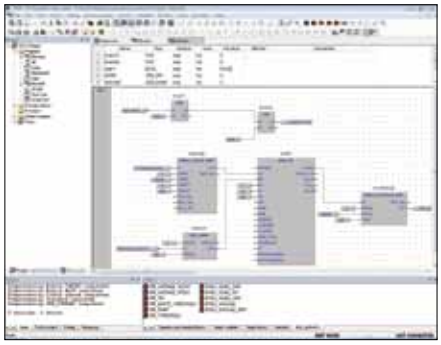


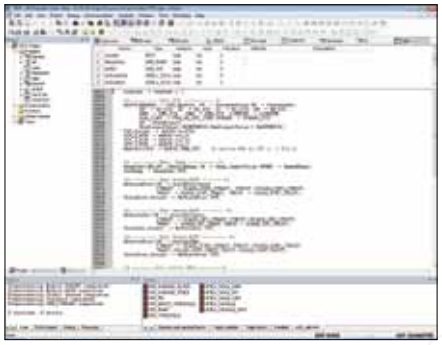


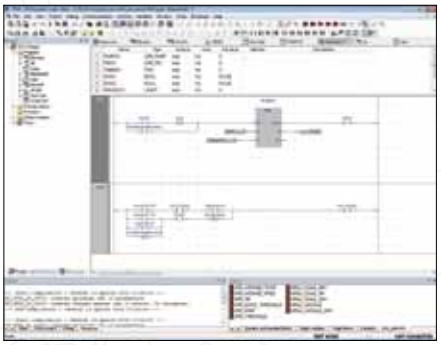
» Control

This module manages all the required configuration in order to perform project control. The right language and interface for every application gives an enhanced instrument for any specific application requirement

- Standard IEC61131-3
- Text languages
  - IL (instruction List)
  - ST (Structured Text)
- Graphic languages
  - LD (Ladder Diagram)
  - FBD (Function Block Diagram)
  - SFC (Sequencial Function Chart)
- Dedicated editor for each different language allow comprehensive functions and interface
- SFC configuration with all languages
- Any combination of langauges in project programs, Function Block and Function
- Library management with version feature
- Custom library management with password cripting option, can be implemented in any IEC61131-3 lanuages
- Import/export for program and FB
- Project variable divided into global and local
- Project variables parametrization
- Multitasking execution with 6 different task level
- System and specific application use FB library
- Powerful find in project
- Cleare compilation messages
- Program PC simulator







» Code Library

Gefran Function block library gives all the Gefran know how on industrial application.
Dedicated FB (Function Block) and F (Function) library for specific functionality allow to the user an easy software integration reducing development and debug time

Gefran standard library GFB_Library include :

- Input / Output variable engineer unit conversion
- Variable scaling
- Threshold alarm
- Ramp generator
- Average filter
- Step generator
- Base heat/cool PID controller
- Advance PID controller (auto tuning, self-tuning, soft start, manual mode, PWM output)

» Operator Interface

This integrated module provides a series of instruments to meet all the different operator interface needs requests for an effective usability

- Easy “drag and drop” configuration
- Clear pages structure view
- Multilanguage runtime selection
- Realtime visualization of process data status
- Page display with preview of real image of selected product
- Gefran standard widget library
- Gefran advance widget library
- Graphic widget alignment and common resize function
- Widget group and ungroup
- Easy on click multi widget property change
- Custom page template library
- Custom page border (horizontal / vertical) library
- Image library and custom image import function
- Design time page zoom (+ / -)
- Auto resize in case of hw resolution change
- Snap to grid option
- Script functionality for global and page local events

Additional Operator Interface configuration
In addition to the main software components, a series of additional configurations can be used to define the specific functions.

» Recipe
Recipes are defined as machine management of a data archive containing the setup of process values for various work procedures
This simplifies production change or startup operations by safely and easily restoring previously saved process parameters.
A Recipe requires a fixed datastructure that is defined during configuration by an intuitive and dedicated parameterization module.
Individual Recipes saved on the operator panel have a shared data structure but can contain different single values.
The availability of standard widgets facilitates HMI development.
The recipe component provides:

- Saving machine data to file
- Loading machine data from file
- Deleting a machine data file
- Copying a machine data file from Panel to USB and viceversa

» Alarms
An integrated machine alarms management allow an easy monitoring of critical application events.
For each alarm the user can configure a dedicated text message and the required acknowledge sequence.
Dedicated widget component on graphic library allow an easy configuration on operator interface for real and historical alarms status interface

» Datalog
The DataLogging function is used to store data on a work process so that it can then be analyzed. Verify DataLogging values lets you identify possible technical problems during work phases or provide useful elements for improving the production process.
Values configured as DataLogging are collected and saved during work phases, saved in memory, and available for subsequent analyses.
The following properties are available for each data item inserted in DataLogging:

- Sampling time in seconds (minimum 1 sec.)
- A trigger to start sampling of an event not bound to sampling time (minimum1 sec.)
- A "circular" property of the historical archive
- The maximum size of the historical data (expressed in samplings) number

A series of resources such as widgets, FBs, and system variables are available to manage single historical archives and to export data in various formats :

- Export files in CSV format
- Display data on trend graph format
- Display data on table format

» WidgetBox (WB)
WidgetBox is a set of graphic components that can be easily reuse on different project. WidgetBox increase the number of basic graphic component and can reduce development time. WidgetBox has a dedicated Editor that lets the user to specify which and how many properties have to be available for its configuration. WidgetBox are grouped in a library and the configuration cab be protected by password

» Users
Insertion of users, each one with password, with specific privileges are provided at the machine interface level.
10 levels for which there are no limits on the number of users matched with each level.
The level code can be used in the system to:

- Limit the change of a value
- Limit access to a specific page
- Limit access to specific configurations
- Make some Widgets on a page invisible or read/only

» Messages (multilanguages)

Configuration of multilanguage management (dynamic translation of texts displayed on a page).In this way, you can configure a single user interface and guarantee its use by operators of different nationalities

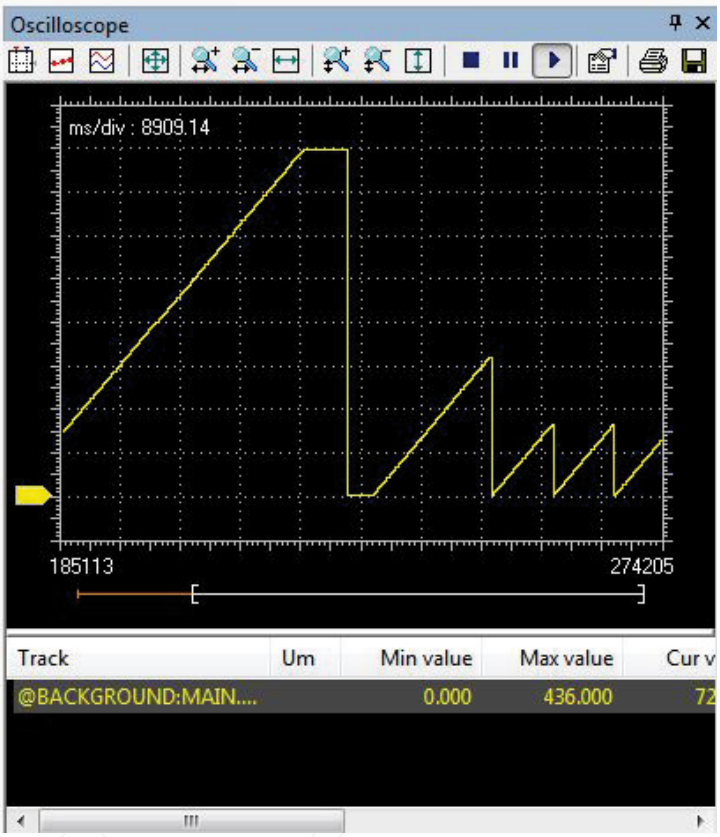
Selection of languages for a project and insertion of texts translated in all selected languages. Configuration of languages using special characters (example Chinese, Russian, Korean) thanks to Unicode Standard

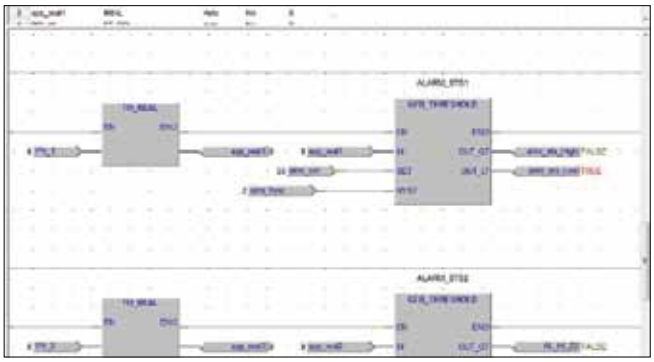
Exporting of complete list of texts in a CSV format file to facilitate translation of texts in active languages of project. The new file generated can be imported to the project to ensure easy and rapid updating.

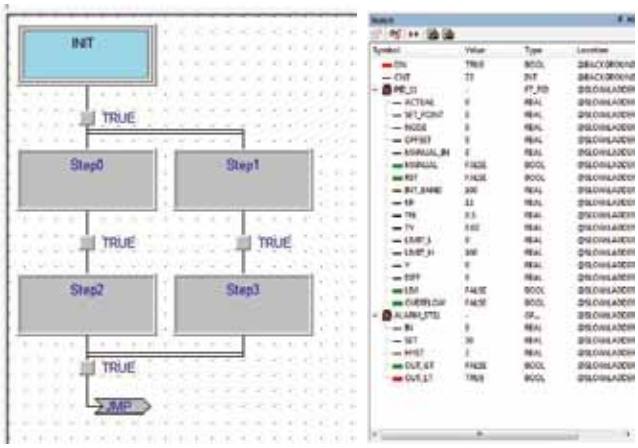
» Diagnostic

GF_Project VX diagnostic module provides a complete and effective list of useful and efficient tools for all the testing and diagnostics phases.

- System variables library
- System log on disk
- Configurable watch dog functionality
- Single task execution time monitoring
- Variable watch list panel with save on file option
- Variable graphic trace with variable data save on file
- Breackpoint
- Programmable trigger with variable trace and watch list
- Pc pages executor
- Control program simulator on PC







» Connectivity

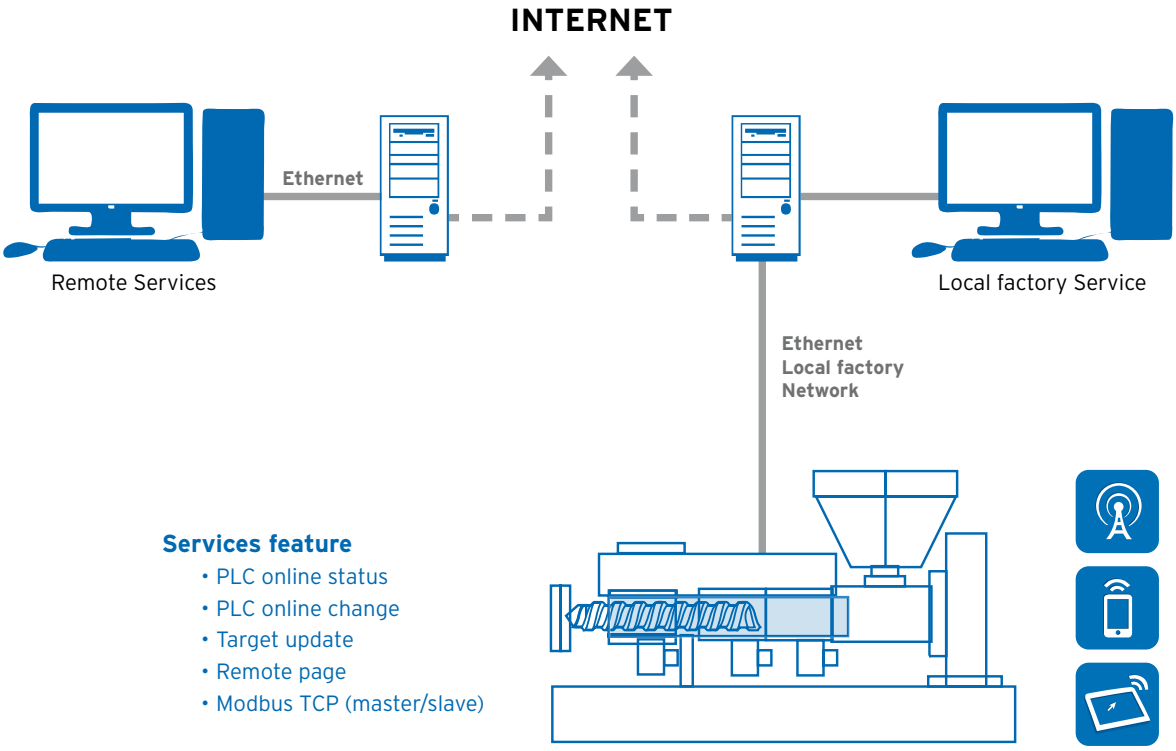
The worldwide market creates new demands related to remote connectivity between factory plant and service office. Machine can be installed on different locations and the service point must be able to have a real online situation.
Remote maintenance and remote data collection can be an important option for customer and machine maker.
Different type and level of remote connection can be performed with Gefran automation system :

REMOTE PAGE

MODBUS TCP

PLC ONLINE

FTP SERVER



Services feature

- PLC online status
- PLC online change
- Target update
- Remote page
- Modbus TCP (master/slave)

Overview of general characteristics

Main functions	
Configurable number of variables	Up to 64000 *
Integrated Alarm Management	✓
Number of alarms	Typical 300 *
Integrated Recipe Management	✓
Number of recipe types	Typical 8 *
Number of variables per recipe type	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 *
Number of texts for each language	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 *
DataType available for DataLog	INT, DINT, REAL, BOOL
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	✓
Target FW update	✓
USB target update (Application SW & FW)	✓
Ethernet target update (Application SW & FW)	✓
Remote connection	✓
Teleassistance	✓
Teleremoting	✓
Project Backup and Restore	✓

***** HW Platform depending

Machine control (PLC)	
PLC Programming standard IEC61131-3	✓
Languages IEC61131 – text base	IL, ST
Languages IEC61131 – graphic base	LD, FBD, SFC
Bit DataType	BOOL, BYTE, WORD, DWORD
Signed Integer DataType	INT, DINT
Unsigned Integer DataType	UINT, UDINT
Floating DataType	REAL
Other DataType	STRING, ARRAY, STRUCTURE
Preset Variables	✓
Retentive Variables	✓
On-Line PLC	✓
On-Line change	✓
On-Line watch list	✓
HotDownload	✓
Breakpoints,	✓
Programmable trigger	✓
Configurable PLC Tasks	✓
INIT - Boot	✓
Fast, normal, slow, background	✓
Configurable Function Block / Custom Function library	✓
Gefran FB Library	✓*
PC simulator	✓

***** HW Platform depending

Graphic interface configuration	
Number of available Widgets	50
"Basic" Widgets (dataset, datavalue, panel..)	✓
"Advanced" Widgets (trend, recipe, datalog..)	✓
Events management	✓
Events management on Widgets	✓
Events management on page actions	✓
Events configuration with script run	✓
Supported image types	GIF (89a) / JPG (jpeg)
"Advanced" custom components (WidgetBox)	✓
Image library	✓
Template page library	✓
Border library (up / down / left / right)	✓
Selectable Snap to grid	✓
Object alignment	✓
Undo and redo single change + History list	✓
Auto resize page with resolution change	✓
PC Executor pages	✓

HW configuration	
Graphic configuration of system architecture	✓
Target selection from Gefran catalogue	✓
Instrumentation	✓
Power Control	✓
Motion	✓
Automation, GCube modula platform	✓
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)
Modbus TCP Fieldbus support with Gefran devices	✓
Integration of third-party devices in Modbus TCP	✓ (via dedicated tool)
CANOpen Fieldbus support with Gefran devices	✓
Integration of third-party devices in CANOpen	✓ (via EDS import file)
Parameterisation of individual Fieldbuses	✓

Technical Data

	Minimum	**Recommended**
Operating system	Windows: XP (SP2) / VISTA / 7 32bits	Windows 7 32/64bits
Processor	Pentium › 1Ghz	Intel Core i5 2.5Ghz
RAM	2 GB	4 GB
Hard disk space	At least 2 GB free	
Graphics	XGA (1024x768)	SXGA (1280x1024)
Internet Explorer	› 7.0	›= 9.0
Ethernet	1 port	
DVD	DVD reader	
USB		1 port
Doc. Reader	Adobe Reader ›= 9	

Order code

GF_PROJECT base

F056441	**GFPRJ-VX-SW-00**	Integrated development environments for Gefran Automation solutions. Includes HW configuration, IEC1131 language PLC programming and graphic page editing for HMI interface. The product licence allow the full environment functionality limited to max 30 days.

F056442	**GFPRJ-VX-SW-6M**	The licence grants the use of all programming environment functions without restriction of the number and type of targets used for a time limit of 6 months (renewable). GF_Project is the integrated programming environment for developing Gefran Automation solutions based on GCube Modula platform. It includes HW configuration, PLC programming based on IEC1131 language, and programming of HMI graphic interface pages. The licence grants the use of the programming environment on 1 development PC. The licence activates a 6-month software maintenance contract providing free update downloads and telephone service. The software is supplied on a self-installing CD.

F056443	**GFPRJ-VX-SW-BASE**	The licence grants the use of all programming environment functions without restriction of the number and type of targets used. GF_Project is the integrated programming environment for developing Gefran Automation solutions basec on GCube Modula platform. It includes HW configuration, PLC programming based on IEC1131 language, and programming of HMI graphic interface pages. The licence grants the use of the programming environment on 1 development PC. The licence activates a 1-year software maintenance contract providing free update downloads and telephone service. The software is supplied on a self-installing CD.

GF_PROJECT option

999999206	**GFPRJ-VX-SS-00**	1-year software maintenance contract providing free update downloads and telephone service, linked to GFPRJ-VX-SW licence.

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