



**PROMAX**

**Motion  
&  
Control**

# Products Guide

[www.promax.it](http://www.promax.it)

- 64 Axes CanOpen/Ethercat Interpolation Mode
- 64 Axes CanOpen/Ethercat Position Mode
- 32 Axes PULSE/DIR Position-Interpolation Mode
- 2 RS232 - 1 RS485
- 1 ETHERNET 10/100 Mb
- Max 128 Digital Inputs PNP 24 Vdc
- Max 112 Digital Outputs 1,2 A 24 Vdc
- 8 Analog Inputs 10 Bit
- 16 Analog Outputs +/-10V on NGIO/NGPP
- 16 Encoder Channels Line Drive 1 Mhz on NGIO
- 32 Fast Inputs Interrupt Mode on NGPP
- PLC Cycle
- MULTIPROCESS Interpolation
- Modbus RTU/Modbus TCP/IP
- Component for Framework .NET
- GEAR and eCAM
- VTB Language



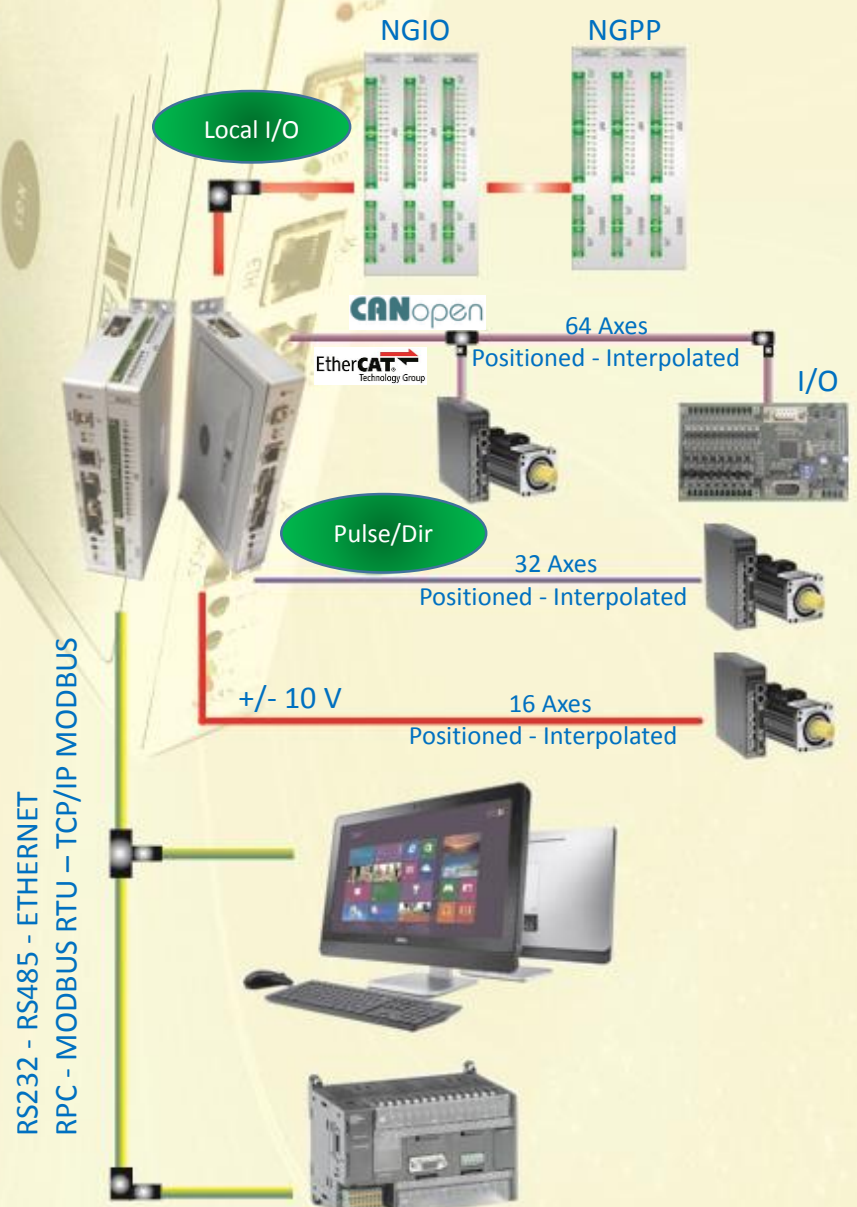
NG 35 is the highest expression of multi-axes controls. With its 150 MHz 32-bit Micro is able to interpolate axes quickly and accurately. Equipped with operating system (RTOS Real Time Operating System) you can manage sessions MULTIPROCESS INTERPOLATION.

- ANALOG +/- 10V up to 16**
- CAN OPEN up to 64**
- ETHERCAT up to 64**
- PULSE/DIR. Up to 32 clock Max 25 Mhz**

Ethernet is integrated on board and provides the following protocols:

- MODBUS TCP/IP**
- RPC (remote procedure call)**
- DEBUG**

There are also two RS232 serial ports, one of these can be configured RS4845. Both ports operate in **MODBUS RTU** protocol



**FRAMEWORK** Component and **COMPACT FRAMEWORK** (window CE) Can be used with Visual Studio VTB generates a DLL component .NET simplifying the PC user interface

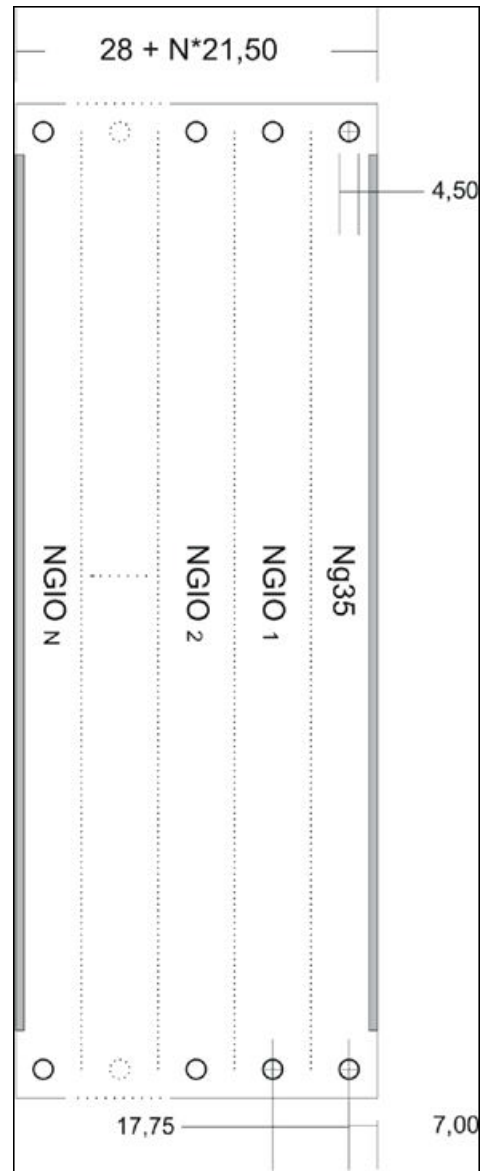
# Specifications NG35

## NG35 CPU

CPU	MFC <b>5235</b> Cold Fire 32 Bit 150 Mhz 150 Mips
RAM	<b>16 Mb</b> System Ram – <b>4Mb</b> flash code – <b>32 Kb</b> ram static clock <b>64 Mb</b> flash Disk FAT16
RS232	<b>2</b> – RS232 (1 - RS485) with <b>ModBus RTU</b> master/slave
ETHERNET	<b>1</b> – ETHERNET 10/100 Mb on RJ45 with <b>TCP/IP Modbus</b>
CANOPEN	<b>2</b> – Master/Slave <b>DS301 DS401 DS402</b>
ETHERCAT	<b>1</b> - Master 100 Mb CoE
ANALOG INPUTS	<b>8</b> – 10 bit 4-20 Ma or 0-10V
INTERPOLATION	<b>Linear – Circular – Helicoidal – Gear – Ecarn Interpolation MULTIPROCESS</b>
AXES INTERPOLATION and POSITIONED	<b>64</b> - CanOpen <b>64</b> - Ethercat <b>32</b> - STEP/DIR clock 25 Mhz on NGPP <b>16</b> - +/- 10v on NGIO <i>(The Axes interpolation, can be mixed, for a Maximum 64) (The Interpolation Axes, include also, GEAR and eCAM)</i>
POWER SUPPLY	<b>18-35 Vdc</b> <b>2,6 W</b> Only CPU (excluded expansions boards)
TEMPERATURE	<b>From -20° C to +70° C</b>
IP LEVEL	<b>IP20</b>
DIMENSIONS (mm)	<b>L30 H190 P110</b>

## NG35 Local Bus Expansions

NGIO	<b>16</b> – Digital Inputs PNP 24 Vdc Opto <b>14</b> – Digital Outputs PNP 24Vdc Opto up to 1,2 A <b>2</b> – Encoder Inputs Line Drive 5 V freq Max <b>1 Mhz</b> <b>2</b> – Analog Outputs +/- <b>10 V 12 bit</b> <b>2</b> – Rele' Outputs Max 35 Vdc – up to 1 A
NGPP	<b>16</b> - Digital Inputs PNP 24 VDC opto <b>14</b> - Out digitali 24 VDC optoisolate da 1,2 A continuativi <b>4</b> - Axes PULSE/DIR line drive freq MAX <b>25 MHZ</b> <b>4</b> – Fast Inputs <b>interrupt mode</b> <b>2</b> - Analog Outputs +/- <b>10V 12 bit</b>



## NG35 Order Code

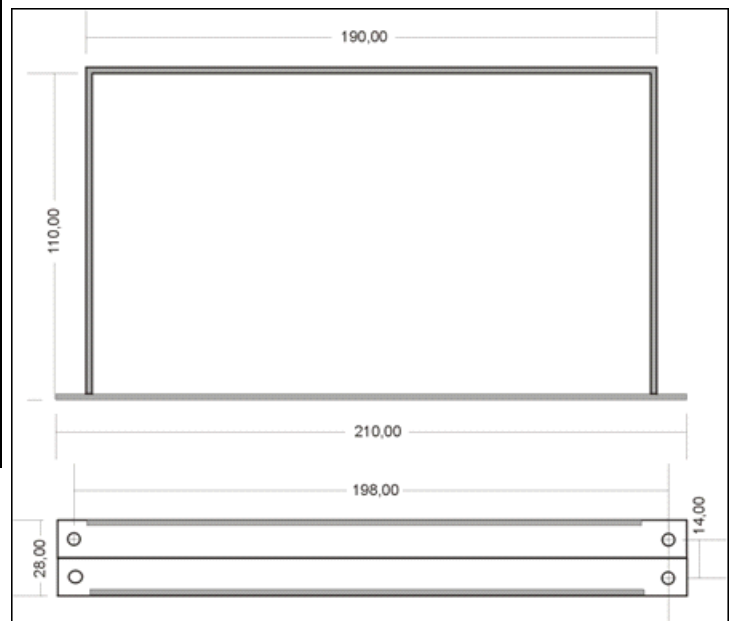
NG35/	<span style="display: inline-block; width: 15px; height: 15px; background-color: #FFD700; border: 1px solid black; margin-right: 5px;"></span> <span style="display: inline-block; width: 15px; height: 15px; background-color: #008000; border: 1px solid black; margin-right: 5px;"></span> <span style="display: inline-block; width: 15px; height: 15px; background-color: #0000FF; border: 1px solid black;"></span>
A	<b>4</b> - Analog Inputs 10V <b>4</b> - Analog Inputs 4-20 Ma
B	<b>8</b> - Analog Inputs 10V
C	<b>8</b> - Analog Inputs 4-20 Ma
0	<b>2</b> - RS232 Ports
1	<b>1</b> – RS232 port on SER1 <b>1</b> – RS485 port on SER2
0	Without Flash DISK
1	64 Mb FLASH DISK

## NGIO Order Code

NGIO	
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## NGPP Order Code

NGPP/	<span style="display: inline-block; width: 15px; height: 15px; background-color: #FFD700; border: 1px solid black;"></span>
0	Without Analog Outputs
1	<b>2</b> – Analog Outputs +/- 10V 12 bit



- 6 Axes Can Open Interpolation Mode
- 32 Axes canOpen Position Mode
- 6 Axes PULSE/DIR Position-Interpolation Mode
- 2 RS232 - 1 RS485 Ports
- 1 ETHERNET 10/100 Mb Port
- Max 128 Digital Inputs PNP 24 Vdc Local Bus
- Max 112 Digital Outputs up to 1 A 24 Vdc Local Bus
- 8 Analog Inputs 12 Bit
- 1 Analog Output 0-10V
- 6 Analog Outputs +/- 10V on NGMsX
- 6 Encoder Inputs Line Drive 500 Khz on NGMsX
- PLC Cycle
- NGMsX Expansion Board on Local Bus
- Modbus RTU/Modbus TCP/IP
- Component for Framework .NET
- Gear and eCAM
- VTB Language

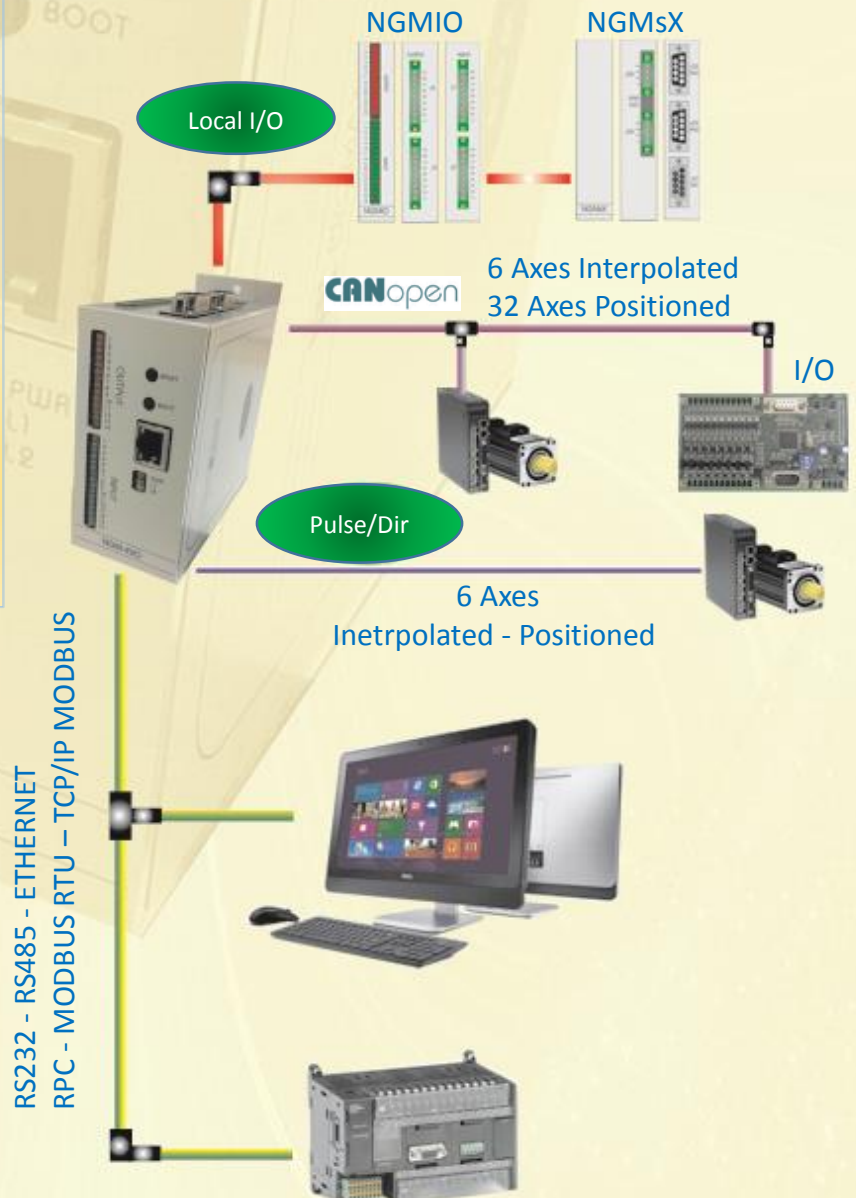


NGMEVO is the natural evolution the CNC NGM13.

The new features are the following:

- 1 - ETHERNET 10/100 Mb
- 1 - RS 485
- 3 – Expansions NGMsX on local bus
- 2 - Outputs PULSE/DIR 500 Khz
- 2 – Analog Outputs +/- 10V
- 2 – Encoder Inputs 500 Khz

The CPU integrate 16 Input PNP 24Vdc, 14 Out PNP up to 1,2 A, 2 serial ports RS232 (1 configurable RS 485), 1 CanOpen, 1 ETHERNET, 8 Analog Inputs 12 Bit and 4 Axes PULSE/DIR. Able to control up to 32 CANopen-axes (6 in interpolation), CAM profiles, and electronic gearing. With the local bus, is possible insert up to 7 Expansions NGMIO or NGMsX (max 3 NGMsX).The PULSE/DIR axes, can be interpolated up to 125 Khz (400 Khz in position mode) clock or 500 Khz clock if used the axes on NGMsX (in interpolation/position mode)



**FRAMEWORK** Component and **COMPACT FRAMEWORK** (windows CE)  
 Can be used with Visual Studio  
 VTB generate a DLL component .NET  
 simplifying the PC user interface

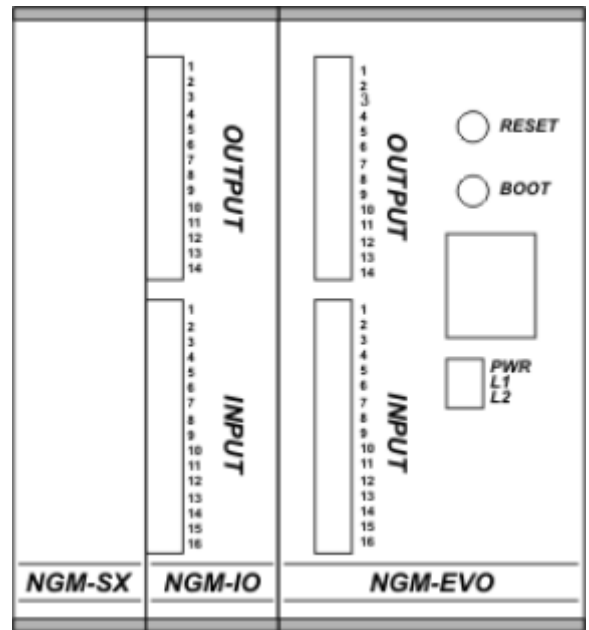
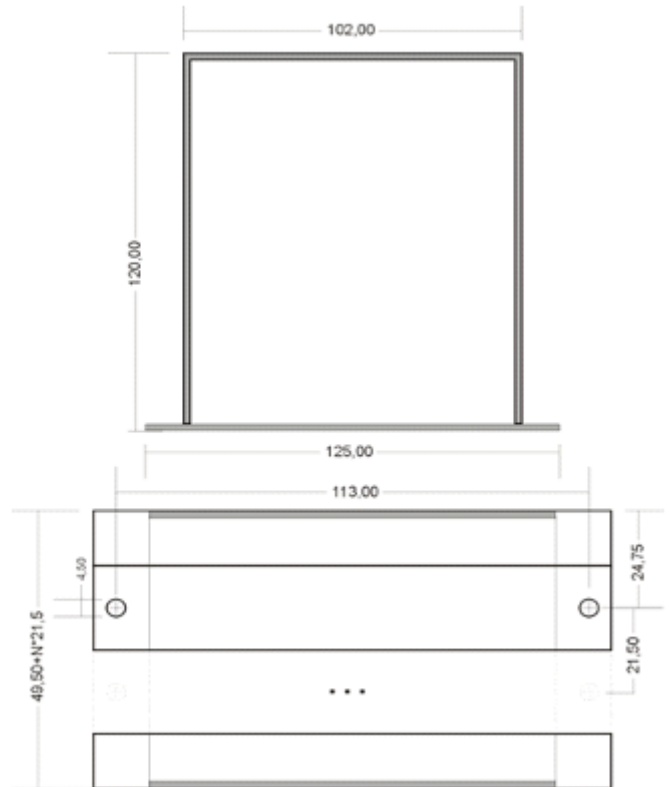
# Specifications NGM EVO

## NGM EVO CPU

CPU	<b>MCF 52259</b> Cold Fire 32 bit 80 Mips
RAM	<b>32 Kb</b> System Ram– <b>192 Kb</b> Flash code – <b>16/32 Kb</b> Fram
RS232	<b>2</b> – RS232 (1 RS485) with <b>ModBus RTU</b> master/slave
ETHERNET	<b>1</b> – ETHERNET 10/100 Mb on RJ45 with <b>TCP/IP Modbus</b>
CANOPEN	<b>1</b> – Master/Slave <b>DS301 DS401 DS402</b>
DIGITAL INPUTS	<b>16</b> – PNP 24 Vdc Opto
ANALOG INPUTS	<b>8</b> –12 bit 4-20 Ma or 0-10V (Each analog input configurated, eliminates a digital input)
DIGITAL OUTPUTS	<b>14</b> – PNP 24 Vdc Opto up to 1,2 A
ANALOG OUTPUTS	<b>1</b> – 0-10 V (The Analog Output configuration, eliminates the digital output 1)
INTERPOLATION	<b>Linear – Circular –Elicoidal-GEAR - ECAM</b>
AXES INTERPOLATION	<b>6</b> – CanOpen <b>6</b> - PULSE/DIR (125 Khz/500 Khz on NGMsX) (The Axes interpolation, can be mixed, for a Maximum 6) (The Interpolation Axes, include also, GEAR and eCAM)
AXES POSITIONED	<b>32</b> CanOpen <b>6</b> – PULSE/DIR (400 Khz/500Khz on NGMsX)
POWER SUPPLY	<b>18-35 Vdc</b> <b>3 W</b> only CPU (excluded expansions boards)
TEMPERATURE	<b>From -20° C to +70° C</b>
IP LEVEL	<b>IP20</b>
DIMENSIONS (mm)	<b>L50 H102 P120</b>

## Local Bus Expansions NGM Evo

NGMIO	<b>16</b> – Digital Inputs PNP 24 Vdc Opto <b>14</b> – Digital Outputs PNP 24Vdc Opto up to 1,2 A
NGMsX	<b>2</b> – Channels PULSE/DIR 500 Khz LineDrive (position ,interpolation) <b>2</b> – Analog Outputs 12 Bit +/-10V <b>2</b> – Channels Encoder Line Drive 500 Khz



## ORDER CODE NGM EVO

<b>NGM EVO/</b>	<span style="display: inline-block; width: 15px; height: 15px; background-color: #FFD700; border: 1px solid black;"></span> - <span style="display: inline-block; width: 15px; height: 15px; background-color: #008000; border: 1px solid black;"></span> - <span style="display: inline-block; width: 15px; height: 15px; background-color: #0000FF; border: 1px solid black;"></span> - <span style="display: inline-block; width: 15px; height: 15px; background-color: #FF0000; border: 1px solid black;"></span> - <span style="display: inline-block; width: 15px; height: 15px; background-color: #0000FF; border: 1px solid black;"></span> - <span style="display: inline-block; width: 15px; height: 15px; background-color: #800080; border: 1px solid black;"></span> <b>XXXXXXXX</b>
0	Without PULSE/DIR Channels
1	<b>4</b> – Channels PULSE /DIR Open Collector
2	<b>4</b> – Channels PULSE /DIR Line Drive
0	Without ETHERNET Port
1	<b>1</b> –ETHERNET port 10/100 Mb on RJ45
0	<b>2</b> – RS232 ports
1	<b>1</b> –RS232 on SER1 <b>1</b> –RS485 on SER2
B	Analog Inputs 0-10 V
C	Analog Inputs 4-20 Ma
0	Without Analog Output
1	<b>1</b> – Analog Output 0-10 V on Digital Output 1
0	<b>16 Kb</b> FRAM Permanent Memory
1	<b>32 Kb</b> FRAM Permanent Memory
<b>XXXXXXXX</b> – Number configured channels analog inputdi Ex: B123 – Analog Inputs 1,2,3 0-10V	

## ORDER CODE NGMIO

<b>NGMIO</b>
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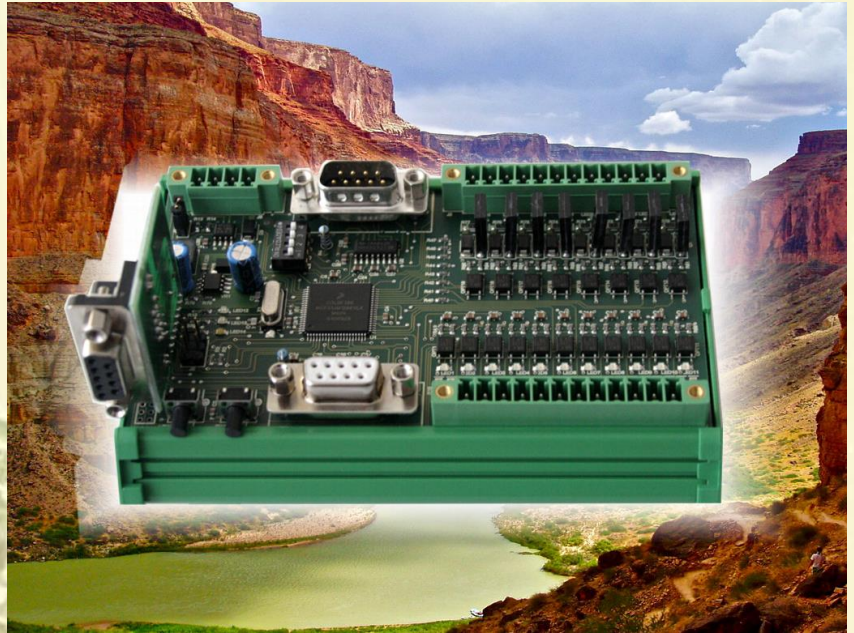
## ORDER CODE NGMsX

<b>NGMsX/</b>	<span style="display: inline-block; width: 15px; height: 15px; background-color: #FFD700; border: 1px solid black;"></span> - <span style="display: inline-block; width: 15px; height: 15px; background-color: #008000; border: 1px solid black;"></span> - <span style="display: inline-block; width: 15px; height: 15px; background-color: #0000FF; border: 1px solid black;"></span>
1	<b>1</b> – Channel PULSE /DIR Line Drive 500 Khz
2	<b>2</b> – Channels PULSE /DIR Line Drive 500 Khz
0	Without channels encoder
2	<b>2</b> - Channels encoder Line Drive 500 Khz
0	Without Analog Outputs
1	<b>2</b> - Analog Outputs +/-10V 12 bit

### Possible Combinations:

- NGMsX/2-0-2
- NGMsX/1-2-2
- NGMsX/2-0-0
- NGMsX/1-2-0

- 4 Axes Can Open Position Mode
- 4 Axes PULSE/DIR Position Mode
- 3 Axes PULSE/DIR Interpolation Mode
- 2 RS232 - 1 RS485
- 1 CanOpen Master/Slave
- 11 Digital Inputs PNP 24 Vdc Opto
- 8 Digital Outputs 1,2 A 24 Vdc Opto
- 4 Analog Inputs 12 Bit
- 2 Analog Outputs +/-10V
- PLC Cycle
- Linear Interpolation, Circular, Elicoidal
- Modbus RTU
- Component for Framework .NET
- VTB Language



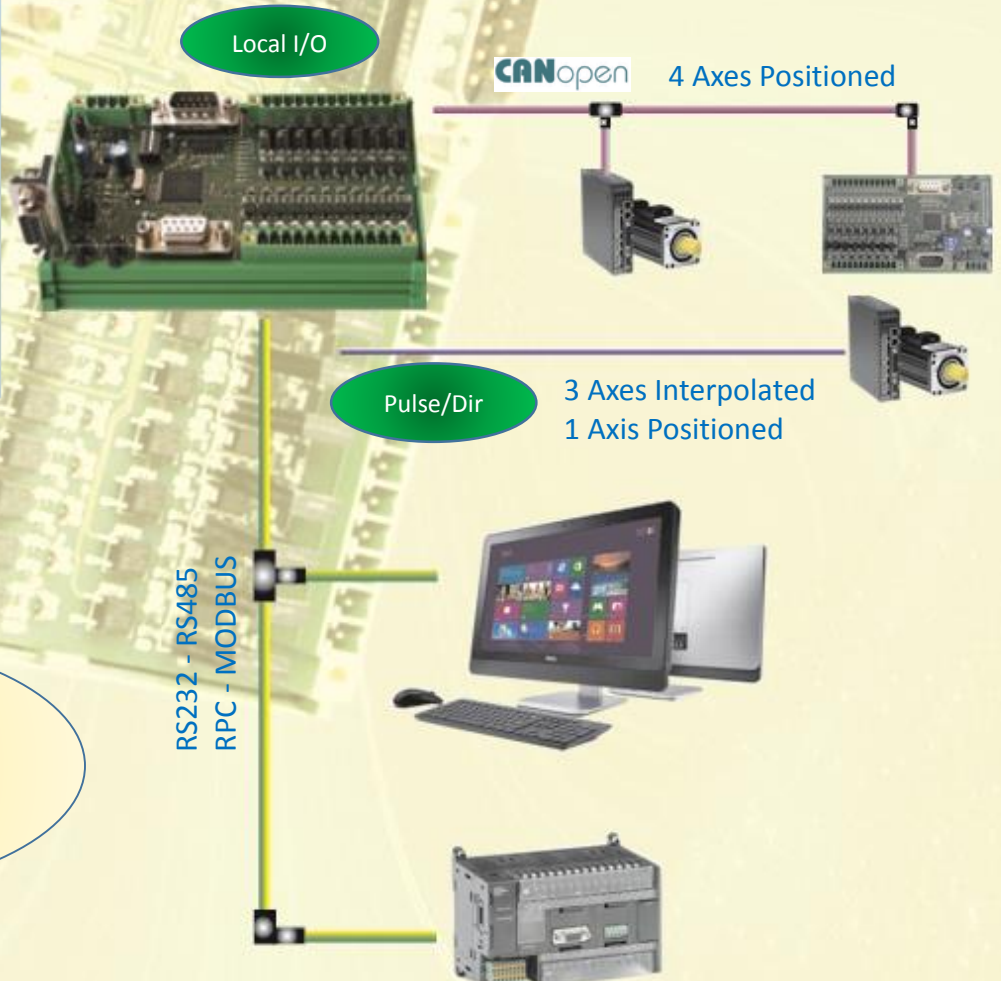
The new series of CNC NGQUARK is used for low level applications. It can be used in stand-alone mode with VTB Custom application for up to 4 axes, or with ISONS where it turns into CNC Linear, circular, ELICODALE for up to 3 axes.

The CPU includes 11 digital input 24Vdc PNP, 8 digital output PNP 1 A, 2 RS232/485, 1 CanOpen, 4 analog inputs configurable 12-bit and 4-AXIS PULSE /DIR (if you configure the axes PULSE /DIR, there is only one INPUT available analog).

On expansion, NGQ can manage 2 analog outputs +/- 10V.

With special firmware, NGQUARK can be used as a CanOpen slave for expansion I/O digital and analog.

The complete programming VTB, the easy of use for custom applications.

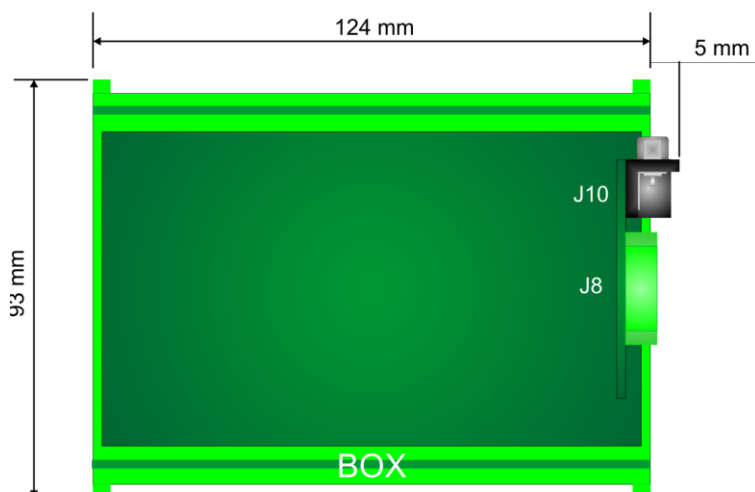


**FRAMEWORK** Component and **COMPACT FRAMEWORK** (windows CE) Can be used with Visual Studio VTB generate a DLL component .NET simplifying the PC user interface

## Specifications NG Quark

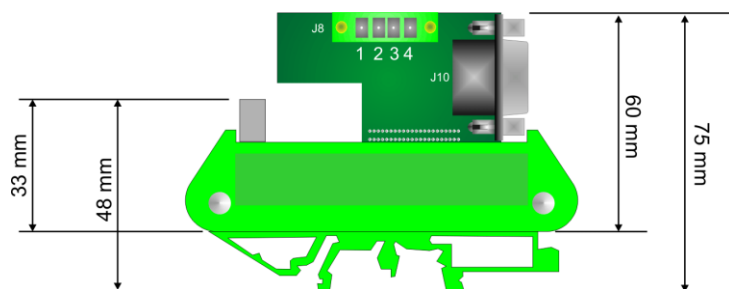
### NGQUARK CPU

CPU	<b>MCF 51JM128</b> a 48MHz
RAM	<b>16 Kb</b> System Ram – <b>128 Kb</b> Flash code – <b>16 Kb</b> Fram
RS232	<b>2</b> – RS232 (1- RS485) with <b>ModBus RTU</b> master/slave
CANOPEN	<b>1</b> – Master/Slave <b>DS301 DS401 DS402</b>
DIGITAL INPUTS	<b>11</b> – PNP 24 Vdc Opto
ANALOG INPUTS	<b>4</b> –12 bit <i>(If are configured the PULSE/DIR channels, only ONE analog input is available)</i>
DIGITAL OUTPUTS	<b>8</b> – PNP 24 Vdc Opto up to 1,2 A
ANALOG OUTPUTS	<b>2</b> – +/- 10 V 12 bit
INTERPOLATION	<b>Linear – Circular - Elicoidal</b>
AXES INTERPOLATION	<b>3</b> - STEP/DIR clock 30 Khz ( Total )
AXES POSITIONED	<b>4</b> CanOpen <b>4</b> – STEP/DIR clock 120 Khz (Total)
POWER SUPPLY	<b>24 Vdc</b> <b>2,6 W</b> Only CPU (No I/O)
TEMPERATURE	<b>From -20° C To +70° C</b>
IP LEVEL	<b>IP00</b>
DIMENSIONS (mm)	<b>L124 H93 P40</b>

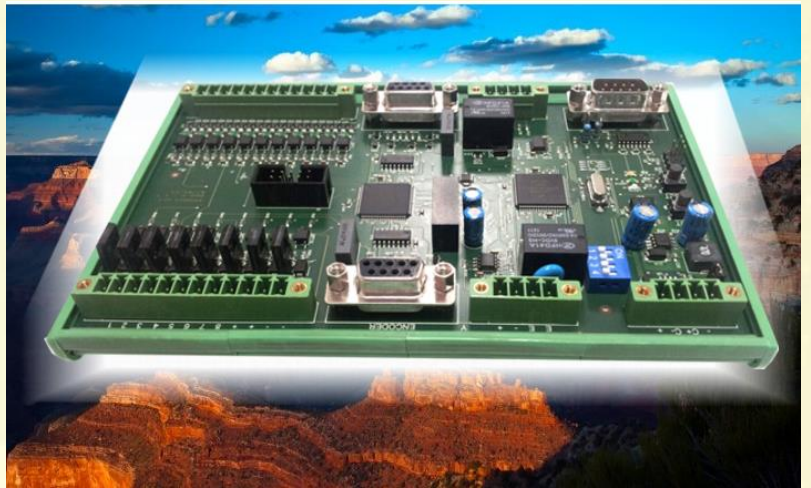


### ORDER CODE NGQUARK

NGQ/					
0	Without Analog Inputs or STEP/DIR Channels				
A	4 – Analog Inputs 5 V				
B	4 – Analog Inputs 12 V				
C	4 – Analog Inputs 10 V				
D	4 – Analog Inputs 4-20 Ma				
E	4 – Analog Inputs 24 V				
P	4 – Channels PULSE/DIR Open Collector				
L2	2 – Channels PULSE/DIR Line Drive				
L4	4 – Channels PULSE/DIR Line Drive				
The <b>4 analog inputs</b> configuration excludes the default analog input					
0	2 – RS232 Ports				
1	1 – RS232 on SER1 Port 1 – RS485 on SER2 Port				
0	Without Analog Outputs				
1	2 – Analog Outputs +/- 10V				
A	Default Analog Input 5 V				
B	Default Analog Input 12 V				
C	Default Analog Input 10 V				
D	Default Analog Input 4-20 Ma				
E	Default Analog Input 24 V				
0	<b>Without</b> Expansion permanent memory				
1	<b>16 Kb</b> Expansion permanent memory				



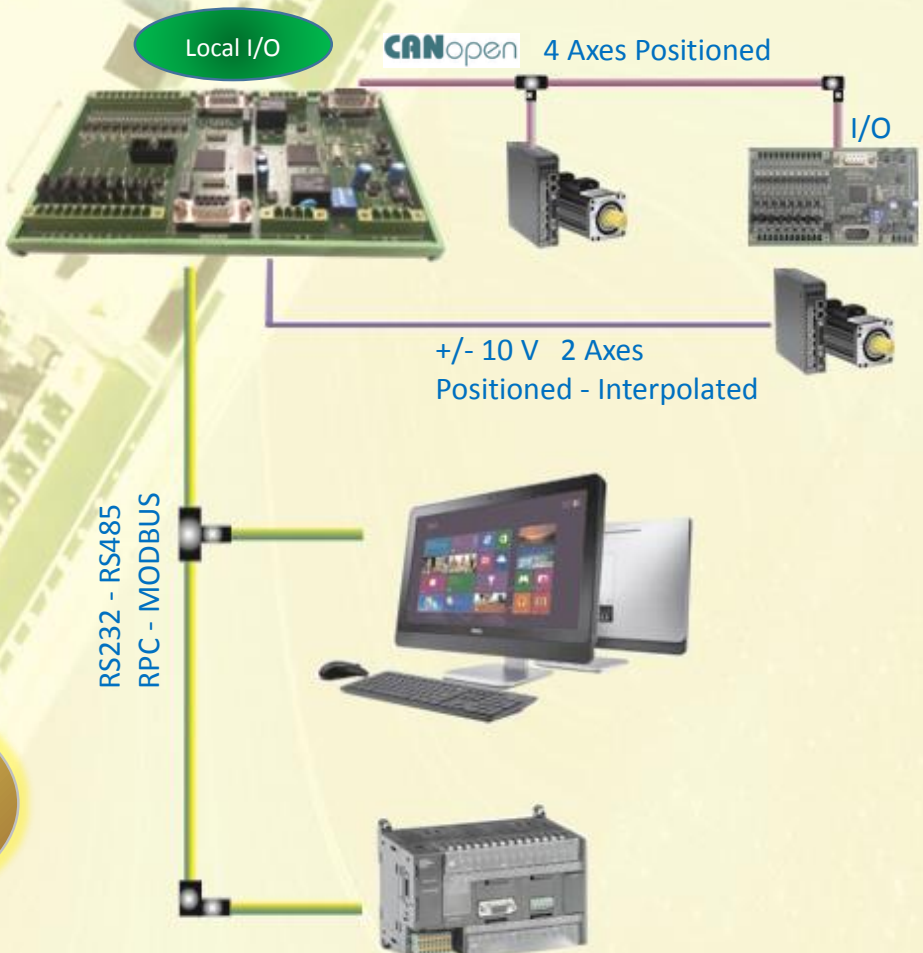
- 4 Axes Can Open Position Mode
- 2 Axes +/-10V Position-Interpolation Mode
- 2 RS232 - 1 RS485
- 1 CanOpen Master/Slave
- 11 Digital Inputs PNP 24 Vdc Opto
- 2 Encoder Inputs Line Drive 400Khz
- 8 Digital Outputs 1,2 A 24 Vdc Opto
- 1 Analog Input 12 Bit
- 2 Analog Outputs +/-10V
- 2 Relè Outputs 1A
- PLC Cycle
- Linear Interpolation,Circular, Elicoidal
- Modbus RTU
- Component for Framework .NET
- VTB Language



The new series of CNC NGQx is used for low level applications. It can be used in stand-alone mode with VTB Custom application for up to 2 axes +/- 10V, or with ISONS where it turns into CNC Linear and circular, for up to 2 axes.

The CPU includes 11 digital input 24Vdc PNP, 8 digital output PNP 1 A, 2 RS232/485, 1 CanOpen, 1 analog input 12-bit, 2 analog outputs +/- 10V 12 bit and 2 encoders input line drive 400 Khz.

With special firmware, NGQx can be used as a CANopen slave for expansion I/O digital and analog. The complete programming VTB, the easy of use for custom applications.



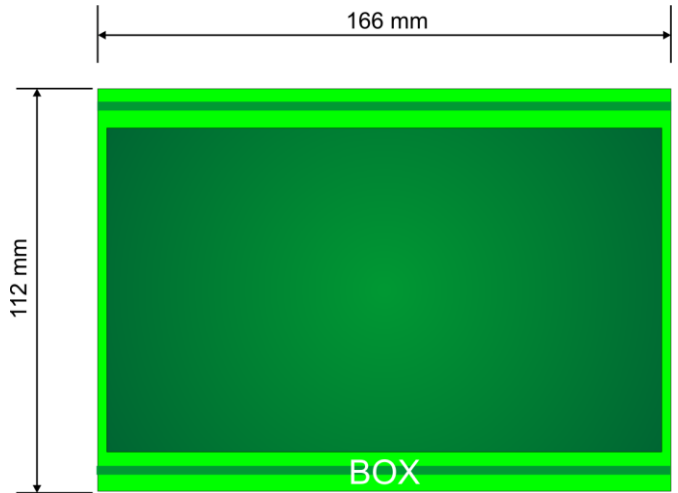
**FRAMEWORK** Component and **COMPACT FRAMEWORK** (windows CE) Can be used with Visual Studio VTB generate a DLL component .NET simplifying the user interface from PC



## Specifications NGQx

### NGQx CPU

CPU	<b>MCF 51JM128</b> a 48MHz
RAM	<b>16 Kb</b> System Ram – <b>128 Kb</b> Flash code – <b>16 Kb</b> Fram
RS232	<b>2</b> – RS232 (1- RS485) with <b>ModBus RTU</b> master/slave
CANOPEN	<b>1</b> – Master/Slave <b>DS301 DS401 DS402</b>
DIGITAL INPUTS	<b>11</b> – PNP 24 Vdc Opto
ANALOG INPUTS	<b>1</b> – 12 bit
ENCODER INPUTS	<b>2</b> – Line Drive 400 Khz
DIGITAL OUTPUTS	<b>8</b> – PNP 24 Vdc Opto up to 1,2 A
ANALOG OUTPUTS	<b>2</b> – +/- 10 V 12 bit
RELE' OUTPUTS	<b>2</b> – <b>1A 35 V max</b>
INTERPOLATION	<b>Linear – Circular - Elicoidal</b>
AXES INTERPOLATION	<b>2</b> - +/- 10V with Encoder Loop
AXES POSITIONED	<b>4</b> CanOpen <b>2</b> - +/- 10V with Encoder Loop
POWER SUPPLY	<b>24 Vdc</b> <b>2,6 W</b> Only CPU (No I/O)
TEMPERATURE	<b>From -20° C To +70° C</b>
IP LEVEL	<b>IP00</b>
DIMENSIONS (mm)	<b>L166 H112 P40</b>



### ORDER CODE NGQx

NGQ/	-	
A	<b>1</b> – Analog Inputs 5 V	
B	<b>1</b> – Analog Inputs 12 V	
C	<b>1</b> – Analog Inputs 10 V	
D	<b>1</b> – Analog Inputs 4-20 Ma	
E	<b>1</b> – Analog Inputs 24 V	
0	<b>2</b> – RS232 Ports	
1	<b>1</b> – RS232 on SER1 Port <b>1</b> – RS485 on SER2 Port	



- 9 Axes with Multiprocess
- Linear-Circular-Helical Interpolation
- Tangential Axis for Cut Machines
- Gcode Parametric
- Preview 3D
- AFC - Adaptive Feed Control
- Filter N.U.R.B.S. - NOISE – RLS - SMOOTHING
- LOOP - IF, Mathematical
- RETRACE and RESTART from block
- PLUG IN
- OPEN SOURCE



**ISO NS**, allows a complete management of NG Series systems, transforming them in immediate way in powerful numerical controls. Simple and intuitive, it introduces a familiar graphical interface. All the functions are very detailed and comprehensible and can be used both mouse and keyboard, as TOUCH SCREEN systems . Thanks to 3D preview, it's possible to see the working before it's running, anticipating in this way eventual programming errors and outside Axis. High speed in micro-straight working renders **ISO-NS** particularly apt to work irregular complex profiles generated by CAD/ CAM systems. There is no limitation to the program memory (using the PC RAM) and to the available number of programs (using the PC hard disk). Extended programming with cycles LOOP, IF, mathematical functions, limitless management of variable, jumps to label, working of subprograms stored in hard disk, complex M functions

**ISO NS** calculates the profile optimal speed, always guaranteeing the better timing to optimize the working cycle, reducing the speed in the critical points.



**NG35**

**NGM EVO**

**NGQUARK**

**FRAMEWORK Component and COMPACT FRAMEWORK (windows CE)**  
**Use with Visual Studio**  
**OPEN SOURCE CODE**

## Specifications ISONS – ISONS Ce

ISONS-ISONSCe	
NUMBER INTERPOLATION AXES	<b>9 Axes for 8 simultaneous Process – 4 Axes for 1 process IsoNsCe</b>
INTERPOLATION	<b>Linear, circular,elicoidal, 3D</b>
ROTATIVE AXES	<b>Up to 9 – up to 4 IsoNsCe</b>
POSITIONS RESOLUTION	Min <b>0.000001</b> mm
FEED RESOLUTION	Min <b>0.001</b> mm/min
M FUNCTIONS	<b>On CN or ON PC</b>
SUBROUTINES	YES
VARIABLES	Type of data DOUBLE - double precision without no limit of variables
MATEMATICAL	Extended with complex functions sqrt, log, sin, cos, asin, acos, tan...
CYCLE IF – ELSE – END IF	Without not limit
LOOP	Without not limit
MAX LEN GCODE	Without not limit
PLC CYCLE	Management I/O base from PC program Extended management from VTB with cycle 1 Ms min
AFC	<b>Adaptive Feed Control</b> – Automatic redution FEED on curves
TOOL OFFSET	Diameter and heigth
WORK ORIGIN	<b>Up To 256</b>
OFFSET ORIGIN	<b>Up To 256</b>
TOOLS FOR HEAD	<b>Up to 256 for single head</b>
TOOLS HEAD	<b>Up to 256</b>
BACK SLASH	On all axes
HANDWHEEL	<b>On all Axes</b>
TANGENTIAL AXIS	<b>YES – SPECIAL INTERPOLATION</b>
GANTRY	<b>On all Axes</b>
3D INTERPOLATION	Yes - With calculation automatic threshold edge
FILTER	<b>N.U.R.B.S.</b> (Non Uniform Rational Bspline) -not available on IsoNsCe <b>NOISE</b> - not available on IsoNsCe <b>RLS</b> (Remove Len Segment) <b>SMOOTHING</b>
GO FROM LINE	YES with graphical support without graphical support on IsoNsCe
RETRACE	YES From <b>JOG</b> not available on IsoNsCe
PREVIEW	3D with outside axis 2D with outside axis IsoNsCe
EDITOR PART PROGRAM	Editor <b>intellisense</b> with <b>help on line</b> Editor standard on IsoNsCe
WORK PLAINE ROTATION	YES
WORK PLAINE	Settable on any pair of axes
CN CONNECTION	<b>RS232/ETHERNET</b> for <b>NG35,NGMEVO</b> – <b>RS232</b> for <b>NGQ</b>
OPERATING SYSTEM	Windows Xp® – Windows 7® - Windows 8® - Windows CE® with FRAMEWORK or Compact Framework

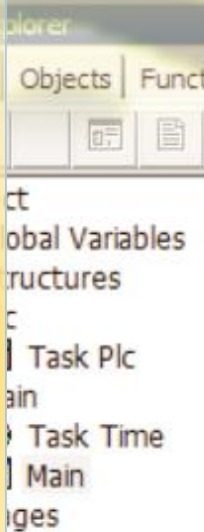
- IDE R.A.D.
- OBJECT Oriented
- Large Object Library
- Axes Functions Control
- eCAM Functions
- eGear Functions
- Motion Functions Technology
- Debug Step by Step
- Multitask
- Code native CPU



VTB is an integrated development environment for object-oriented programming on all platforms PROMAX. The environment contains within it all the tools required for developing applications in a simple and intuitive. VTB's philosophy is based on the latest technologies RAD (Rapid Application Development) that allows rapid application development by writing a small amount of code thanks to a huge library of objects and functions available technologies.

However, implementing the additional code can handle any type of industrial application. VTB integrates a high-level language like BASIC MOTION LADDER language evolved and a graphical management of PLC cycles faster (I / O). In addition to the CAN protocol ETHERCAT OPEN and can be managed RS232/RS485 serial protocols such as MODBUS. The configuration of an OPEN LINE CAN or EtherCAT is done in a simple and driven by defining any node as an object to make it available to 'VTB environment. Powerful axis movement allows the management of any type of machine using linear interpolation functions, CIRCULAR, LINEAR SPEED, POWER LINES, etc. CAM PROFILE. VTB set up for multi language simply by selecting the USE OF LANGUAGE by an internal variable.

A powerful DEBUG allows you to control the operation of applying a remote location.



```

Page Init | Master Event | Master Cycle | Page Functions
' Return 1 if axes move
'   0 Axes stop
' .....
function Wait_Move() as char
    Wait_Move=interp.move()
endfunction
' .....
' Move Axes
' Vel= interp vel Axes in mm/min
' Flg if 1 move without buffer
'   0 move in buffer mode
' Px,Py,Pz Axes value in 0.001 mm
'Return 1 if movement is inserted in the buffer
'   0 The movement is not inserted in the bu
'   in this case, is necessary reload the r
' .....
function Move_Axes(Vel as long, Flg as char, Px as long, Py as long, Pz as long) as void
    Vel=Vel*TAU/60 ' Transform in mm/min
    Vect(0)=Px
    Vect(1)=Py
    Vect(2)=Pz
    Move_Axes=interp.moveto(Vel, Flg, Vect())
endfunction
' .....
' Set ACC
' Value Acc value in count
' .....
function Acc_Axes(Value as long) as void
    interp.acc=Value
endfunction
' .....
' Stop Axes
    
```

**DEBUG HIGH LEVEL WITH BREAK POINTS AND STEP BY STEP CODE**  
**VTB creates a dll for Framework and Compact Framework (Windows CE devices), to simplify the user interface from a PC.**

## Specifications VTB

VTB	
VARIABLE TYPE	<b>BIT</b> - 0 a 1 <b>CHAR</b> - from -128 to +127 <b>UNSIGNED CHAR</b> - 0 to 255 <b>INT</b> - from -32768 to +32767 <b>UNSIGNED INT</b> - 0 to 65535 <b>LONG</b> - from -2.147.483.648 to 2.147.483.647 <b>FLOAT(Double)</b> - 5.0x10-324
MEMORY	<b>Globale</b> - Visible all TASK <b>Private</b> -Visible only TASK <b>Static</b> – RAM with battery <b>Fixed</b> – Fixed address
DATA ARRAY	For all variables excluded BIT
DATA STRUCTURE	For all variables excluded BIT
POINTER	<b>Char,Uchar,Int,Uint,Long,(double),Data Structure</b>
CALL e SOUBROUTINE	<b>GOSUB - GOTO - RETURN</b> (obsolete use functions)
FUNCTIONS	Same to "C" language
DELEGATE	Functions call with address
ITERATIVE CYCLES	<b>FOR-NEXT-EXITFOR-STEP-WHILE-LOOP-EXITWHILE</b>
CONDITIONAL CYCLES	<b>IF-ELSE-ENDIF-SELECT-CASE-ENDSELECT</b>
LOGICAL AND MATHEMATICAL	<b>()</b> parenthesis <b>[]</b> Pointers <b>+*/</b> MATHEMATICAL <b>&gt; &lt; &gt;= &lt;= &lt;&gt; =</b> Conditional <b>   &amp;&amp;   &amp; ! ~ ^</b> Bit logical <b>&gt;&gt; &lt;&lt;</b> Shift bit
MATHEMATICAL FUNCTIONS	<b>SIN,COS,SQR,TAN,ATAN,ASIN,ACOS,ATAN2,ABS,FABS</b>
SYSTEM FUNCTIONS	<b>TIMERS</b> String manipulate FREE/ALLOC Memory <b>FAT 16</b> <b>RS232 control</b> <b>ETHERNET control</b> <b>I/O control</b> Interpolation and positioning axes control <b>CAN OPEN</b> <b>ETHERCAT</b> <b>Ecam</b> <b>Gear</b>
DEBUG	<b>BraekPoint</b> , code <b>Step By Step</b> , <b>Watch</b> read and write <b>SCOPE</b> 3 Ch

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