



**VT3 | la suite di sviluppo  
sistemi per macchina  
*the machine systems  
development suite***



**winscope**



**winloader**



**e.log viewer**

**3B6®**



### | VT3 Visual Tool

VT3 - Visual Tool 3B6 è il software di sviluppo per i dispositivi elettronici COBO.

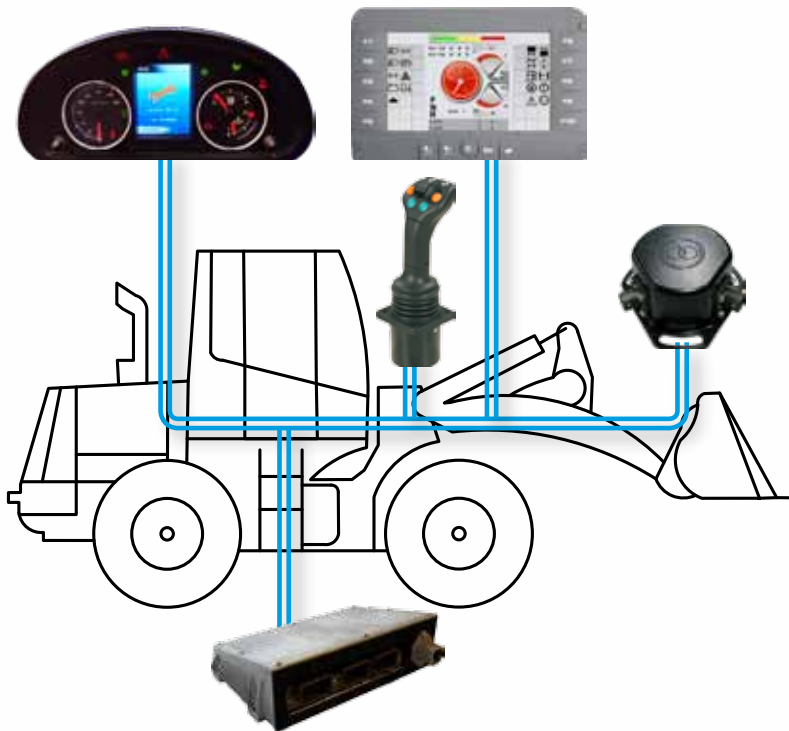
La sua caratteristica esclusiva è quella di poter sviluppare una completa automazione della macchina (usando controllori, display, sensori) partendo dalla rete CAN-bus e gestendo ogni dispositivo in un'unica sessione.

VT3 permette di programmare i dispositivi (grafica degli HMI e la logica delle centraline) usando gli standard più recenti presenti sul mercato, come l'interfaccia grafica WYSIWYG, lo standard IEC61131 come linguaggio di programmazione, così come il linguaggio C/C++ per le applicazioni particolari o di sicurezza.

VT3 è un generatore automatico di codice C che utilizza compilatori standard e permette di risparmiare tempo grazie ad un'interfaccia molto intuitiva.

Inoltre la generazione del codice tramite compilatori permette l'utilizzo del VT3 anche in dispositivi con risorse di memoria molto limitate.

Un'altra caratteristica distintiva di VT3 è di consentire al programmatore di proteggere l'applicativo con una password (tramite chiave USB esterna) per prevenire accessi non autorizzati al proprio lavoro.



### | VT3 Visual Tool

*VT3 - Visual Tool 3B6 is a software development tool for COBO electronic devices.*

*The unique feature of VT3 is the capability to develop a complete machine automation (sensors, controllers, displays) starting from the Controller Area Network and managing multiple devices in just one programming session.*

*VT3 makes it easier to program devices (HMI graphics and controller logic) using the most recent standards available in the automotive market, like WYSIWYG graphical user interface, IEC 61131 programming languages for industrial controllers as well as C/C++ language for special or safety programming.*

*VT3 is an automatic "C code" generator using standard compilers that saves time thanks to a user friendly interface.*

*Besides, code generation through standard compilers allows to use VT3 also for devices with very limited memory capabilities.*

*Another distinctive feature of VT3 is to allow the programmer to protect the applicative with a password in order to prevent unauthorized accesses (through an external USB) to his own work.*

VT3 integra molte caratteristiche che rendono facile la vita del programmatore:

- Real time debugger
- Data logger automatico
- Libreria grafica per molte interfacce utente, come menù, tabelle, tastiere virtuali, grafiche moderne e di design
- Gestione completa dei touch screen
- Creazione automatica della mappatura del CAN e del database delle variabili
- Plug-in per lo standard SAE J1939 (codifica e parsing automatico)
- Definizione degli I/O semplificata
- Possibilità di azionare direttamente gli strumenti dei cluster
- Possibilità di generare un software compatibile anche per PC, facilitando la scrittura di software di diagnostica e fine linea
- Firma digitale sugli applicativi per prevenire accessi non autorizzati

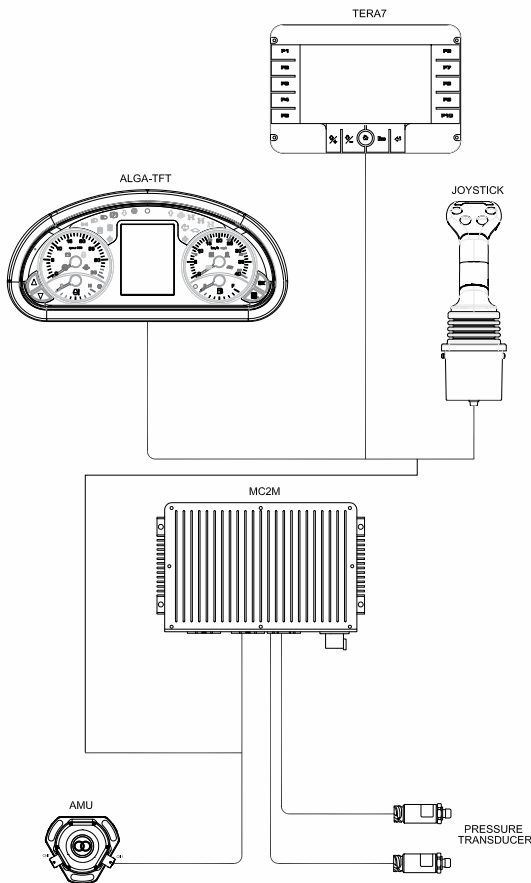
VT3 combines many features that make programmers' life easier, like:

- Real time debugger
- Automatic data logger
- Graphical library for many user interfaces, like menus, tables, virtual keyboards, amazing and design images
- Intuitive touch-screen management
- Automatic generation of CAN mapping and variable database
- Plug-in for SAE J1939 standard (automatic decoding and parsing)
- Simple I/O definition
- Capability to run analog gauges on clusters
- Capability to generate software running also for PCs, making troubleshooting or end-of-line software much easier
- Digital signature on applications to prevent unauthorized access

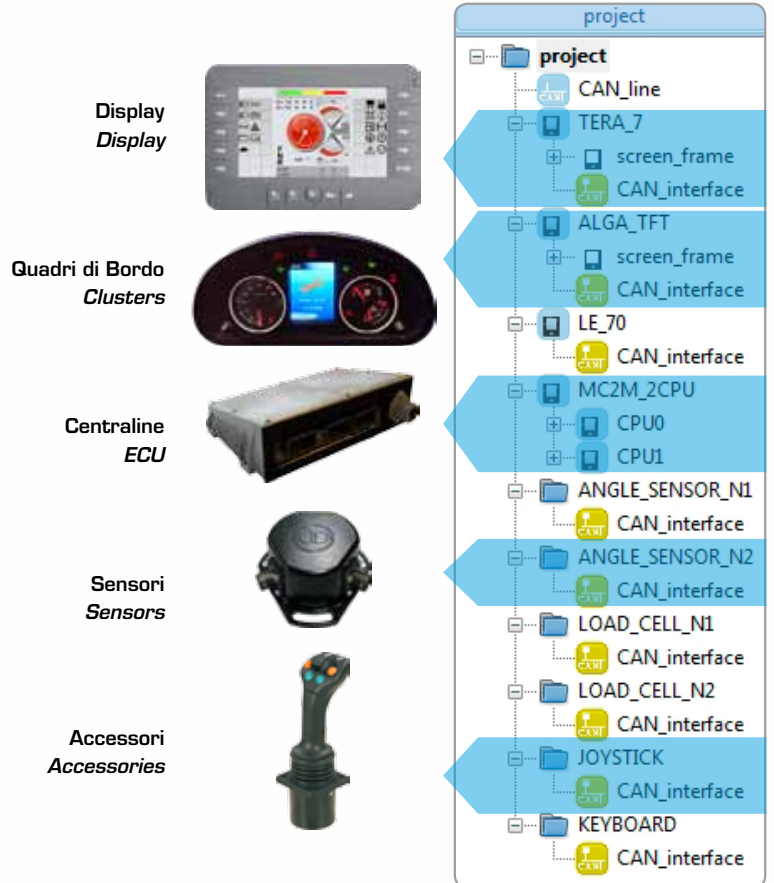


# Schema e Progettazione del Sistema Macchina Machine System Layout and Design

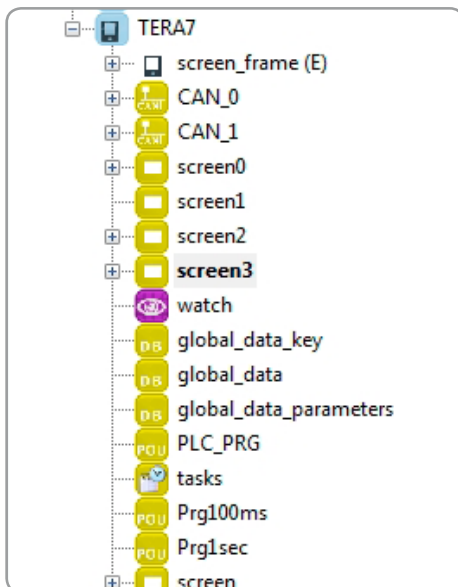
## | Struttura del Sistema Macchina Completo | Full Machine System Layout



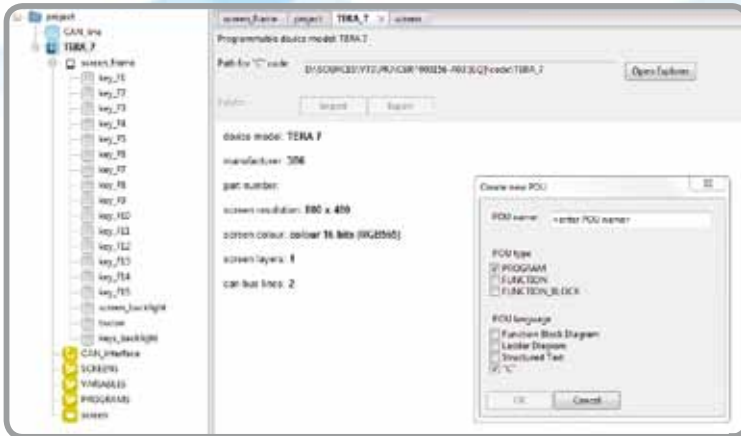
## | Implementazione dei Dispositivi nella Rete | Device Network Implementation



## | Progetto Grafico del Display | Display Graphic Design



| Possibilità di Sviluppare Codice in Linguaggi Differenti  
| *Different Programming Languages Software Development*



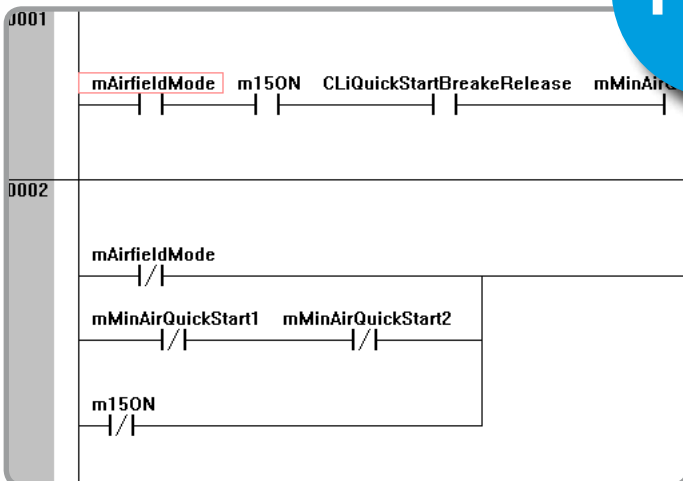
**PLC-PRG**

linguaggio/ language: **C**

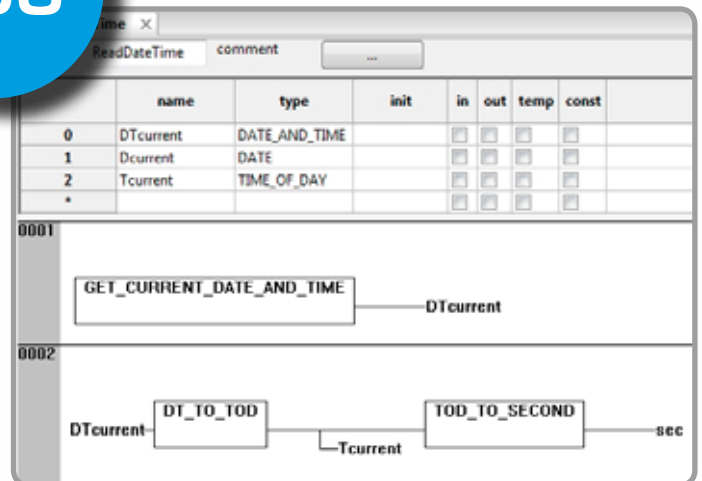
```
FUNCTION gicaCodiceByPass returns BOOL comment
...
80     if (mSelNum7 && ind_screen_frame
81     if (mSelNum8 && ind_screen_frame
82     if (mSelNum9 && ind_screen_frame
83     break;
84
85 }
86
87
88 if (mSelNumC && ShTastoEnter) {
89     cntCodiceByPass = 0;
90     DB1_CodiceByPass = 0;
...
```

linguaggio/ language: **ST** IEC61131

```
project PLC_PRG x
PROGRAM PLC_PRG comment
...
0 CNTLAMP INT
*
1 (* VARIABLES INITIALIZATION *)
2 IF FLAG_START_LOOP = FALSE THEN
3     EV_A:=TRUE;
4     FLAG_START_LOOP:=TRUE;
5     g_nStateA:=-1;
6     g_nStateB:=-1;
7     ALIGNMENT_REQUEST:=FALSE;
8     FLAG_START_POST:=FALSE;
...
(* COUNTER *)
```



linguaggio/ language: **LD** IEC61131



linguaggio/ language: **FBD** IEC61131



# Integrazione Protocollo CAN CAN Protocol Integration

| Possibilità di Gestione del Protocollo CAN

| Possibility to Manage the CAN Protocol

Definizione IO  
IO Definition

	pin	variable	configuration	parameter	description
HILO_IN1	1.1	hilo_in1	PIN_HI_DIGITALIN		High Side digital input input %d BOOL
HILO_IN2	1.2	hilo_in2	PIN_HI_DIGITALIN		High Side digital input input %d BOOL
HILO_IN3	1.3	hilo_in3	PIN_HI_DIGITALIN		High Side digital input input %d BOOL

CAN  
L2

- CAN1
- CAN1\_10D\_Nano
- CAN1\_20D\_Nano
- CAN1\_30D\_Nano
- CAN1\_40D\_Nano
- CAN1\_102\_KEYB\_LED
- CAN1\_120
- CAN1\_121
- CAN1\_122
- CAN1\_124
- CAN1\_125
- CAN1\_126\_TEST\_INV\_LH
- CAN1\_127\_TEST\_INV\_PUN
- CAN1\_128\_TEST\_INV\_RH
- CAN1\_129
- CAN2

project: CAN1\_102\_KEYB\_LED

CAN-bus message COB-ID: 102 extended:  Byte base: 0

dlc: 8 Var name prefix:

transmit rate: 100 alarm timeout: 1000 alarm off count: 1 alarm on count:

	name	type	byte	bit pos	bit len	endian	msl	dlv	add	init	bit mask	comment	RX
0	L9	BOOL	0	0	1	LE	1	1	0	0	0		<input type="checkbox"/>
1	bb1	BOOL	0	1	1	LE	1	1	0	0	0		<input type="checkbox"/>
2	L8	BOOL	0	2	1	LE	1	1	0	0	0		<input type="checkbox"/>
3	bb3	BOOL	0	3	1	LE	1	1	0	0	0		<input type="checkbox"/>
4	L7	BOOL	0	4	1	LE	1	1	0	0	0		<input type="checkbox"/>
5	bb5	BOOL	0	5	1	LE	1	1	0	0	0		<input type="checkbox"/>
6	L6	BOOL	0	6	1	LE	1	1	0	0	0		<input type="checkbox"/>
7	bb7	BOOL	0	7	1	LE	1	1	0	0	0		<input type="checkbox"/>
8	L5	BOOL	1	0	1	LE	1	1	0	0	0		<input type="checkbox"/>

CAN  
J1939

- CTL\_Continuous\_Torque\_Speed\_Limit\_Usage
- CWV\_Combination\_Vehicle\_Weight
- DC1\_Door\_Control\_1
- DC2\_Door\_Control\_2
- DD\_Dash\_Display
- DI\_Drivers\_Identification
- DISP1\_Test\_Display
- DM01\_Active\_Diagnostic\_Trouble\_Codes
- DM02\_Previously\_Active\_Diagnostic\_Trouble\_Codes
- DM04\_Freeze\_Frame\_Parameters
- DM05\_Diagnostic\_Readiness\_1
- DM06\_Pending\_DTCs
- DM07\_Command\_Noncontinuously\_Monitored\_System\_1
- DM08\_Test\_Results\_for\_Noncontinuously\_Monitored\_System\_1
- DM09\_Noncontinuously\_Monitored\_System\_1
- DM12\_Emissions\_Related\_Active\_DTCs
- DM13\_Stop\_Start\_Broadcast
- DM14\_Memory\_Access\_Request

project: CAN1\_102\_KEYB\_LED

CAN-bus message COB-ID: 18 FF Co ID extended:  Byte base: 1

dlc: 8 Var name prefix: DM01

priority: 6 SA:  SP:

PGN: 4333 PF: 254 PS: 207

transmit rate: 5 alarm timeout: 0 alarm off count: 3 alarm on count: 1

	name	type	byte	bit pos	bit len	endian	msl	dlv	add	init	bit mask	comment	RX
0	PanicLamp	Bool	1	0	2	LE	1	1	0	0	0	Return Lamp (858 SP4 807)	<input type="checkbox"/>
1	ActiveWarningLamp	Bool	1	2	2	LE	1	1	0	0	0	Active Warning Lamp (858 SP4 808)	<input type="checkbox"/>
2	RedStopLamp	Bool	1	4	2	LE	1	1	0	0	0	Red Stop Lamp (858 SP4 809)	<input type="checkbox"/>
3	HighFunctionIndicatorLamp	Bool	1	6	2	LE	1	1	0	0	0	Malfunction Indicator Lamp (858 SP4 810)	<input type="checkbox"/>
4	FlashPanicLamp	Bool	1	8	2	LE	1	1	0	0	0	Flash Panic Lamp (858 SP4 811)	<input type="checkbox"/>
5	FlashActiveWarningLamp	Bool	1	10	2	LE	1	1	0	0	0	Flash Active Warning Lamp (858 SP4 812)	<input type="checkbox"/>
6	FlashRedStopLamp	Bool	1	12	2	LE	1	1	0	0	0	Flash Red Stop Lamp (858 SP4 813)	<input type="checkbox"/>
7	FlashHighFunctionIndicatorLamp	Bool	1	14	2	LE	1	1	0	0	0	Flash Malfunction Indicator Lamp (858 SP4 814)	<input type="checkbox"/>
8	FlashReturnLamp	Bool	1	16	2	LE	1	1	0	0	0	Flash Return Lamp (858 SP4 815)	<input type="checkbox"/>

CAN  
OPEN

Import from IDS Files

project: TPFD01\_CPU1

- CAN1
- DISPLAY\_TERA12
- JOCOTE
- CAN\_Interface
- TPFD01\_CPU1
- TPFD01\_CPU12

device model:

manufacturer:

part number:

screen resol:

screen colour:

screen layer:

can bus speed:

project: TPFD01\_CPU1

CAN-bus message COB-ID: 185 extended:  Byte base: 0

dlc: 3 Var name prefix:

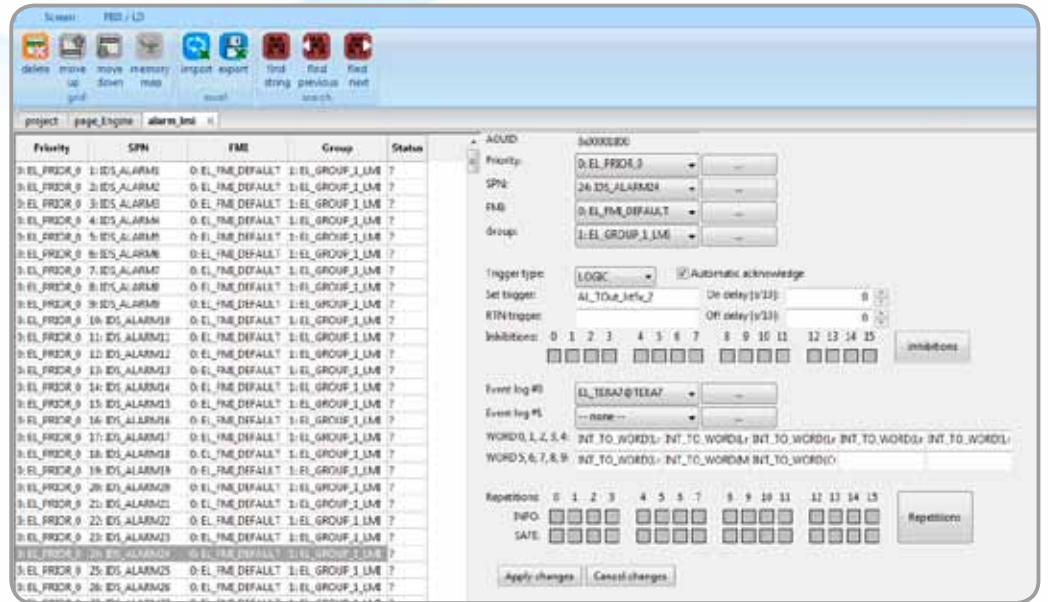
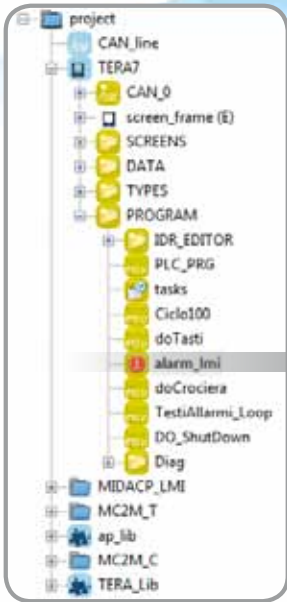
transmit rate: 1000 alarm timeout: 1500 alarm off count: 3 alarm on count: 1

	name	type	byte	bit pos	bit len	endian	msl	dlv	add	init	bit mask	comment	RX
0	AnalogInputs_0_7	BYTE	0	0	8	LE	1	1	0	0	0		<input type="checkbox"/>
1	AnalogInputs_8_15	BYTE	1	0	8	LE	1	1	0	0	0		<input type="checkbox"/>
2	DigitalInputs_2_3	BYTE	2	0	8	LE	1	1	0	0	0		<input type="checkbox"/>

Messaggi selezionabili da database pre-configurato  
Selectable messages from pre-configured database



**Generazione Tabella Allarmi**  
**Alarms Schedule Issue**



**Download Applicativo sui Dispositivi**  
**Application Software Download**

**Online**  
**Online**

**Tutti i Dispositivi**

*All Devices*

**Download Automatico dei Dispositivi Programmabili**

*Programmable Devices Automatic Download*

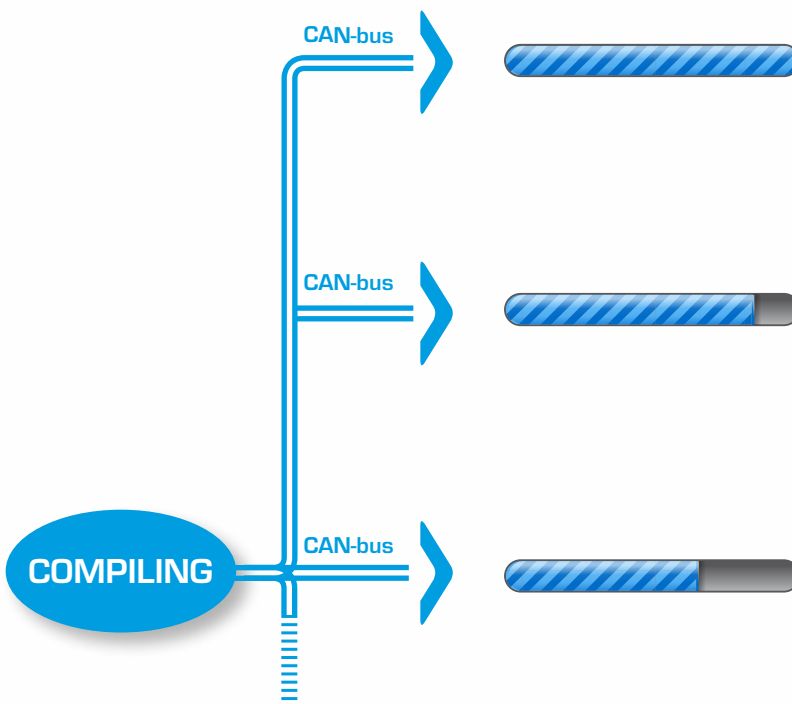
**Download di Tutti i Dispositivi**

*All Devices Download*

Display  
*Displays*

Quadri di Bordo  
*Clusters*

Centraline  
*ECU*

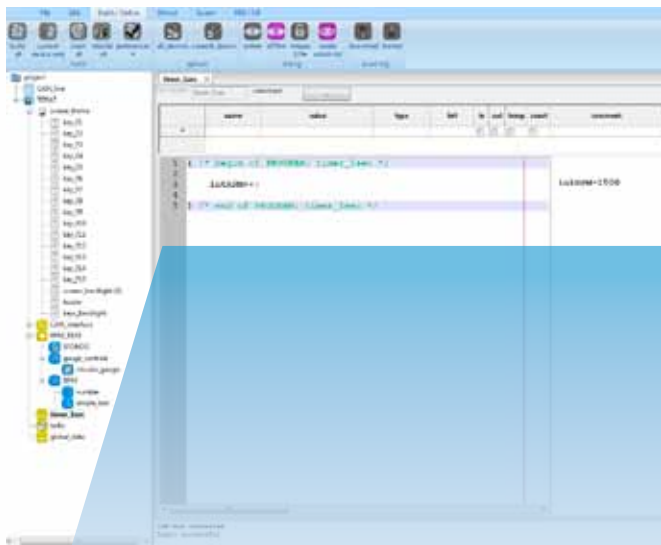




## Debugger in Tempo Reale Realtime Debugger

| Debugger in Tempo Reale  
| Realtime Debugger

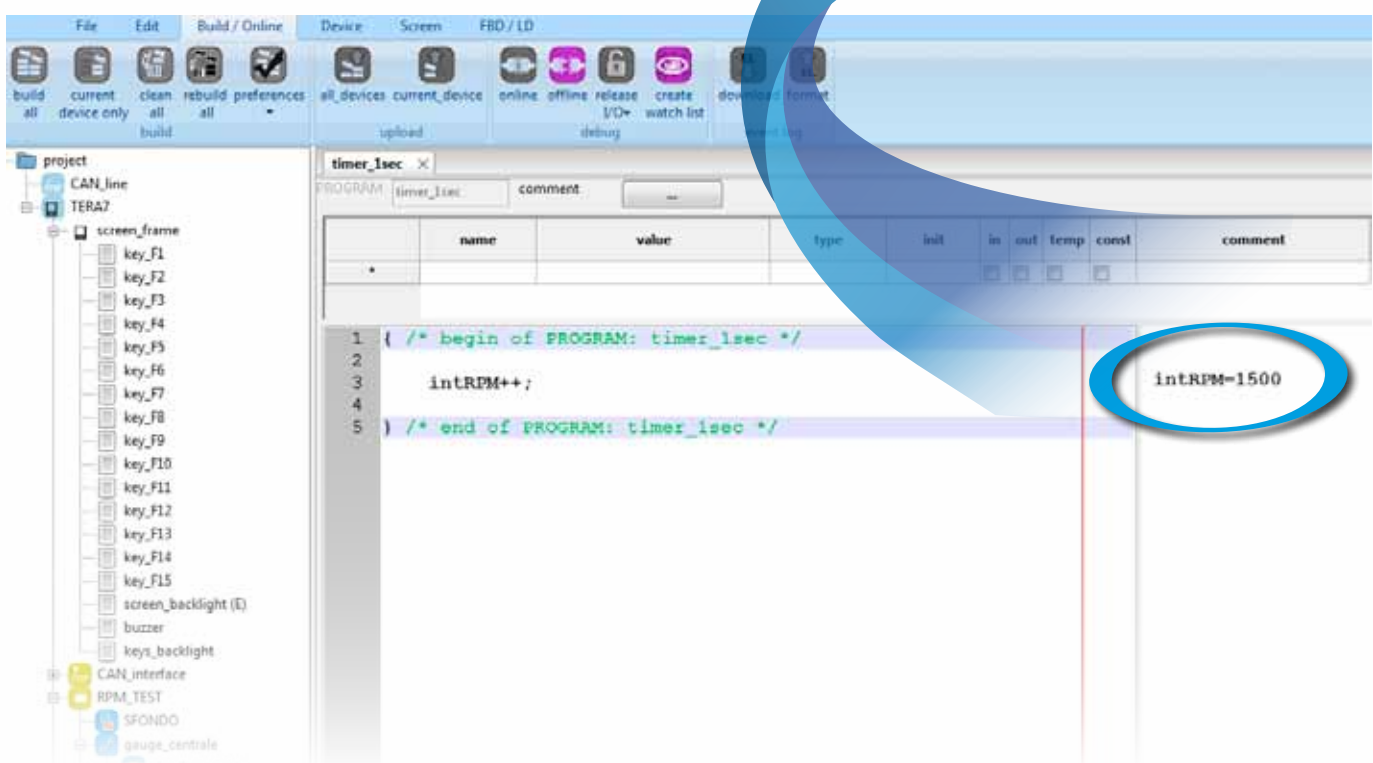
| Online  
| Online



Nella Modalità ON LINE DEBUGGER:  
le variabili si aggiornano in tempo reale

*In ON LINE DEBUGGER Mode:  
variables are updated in real time*

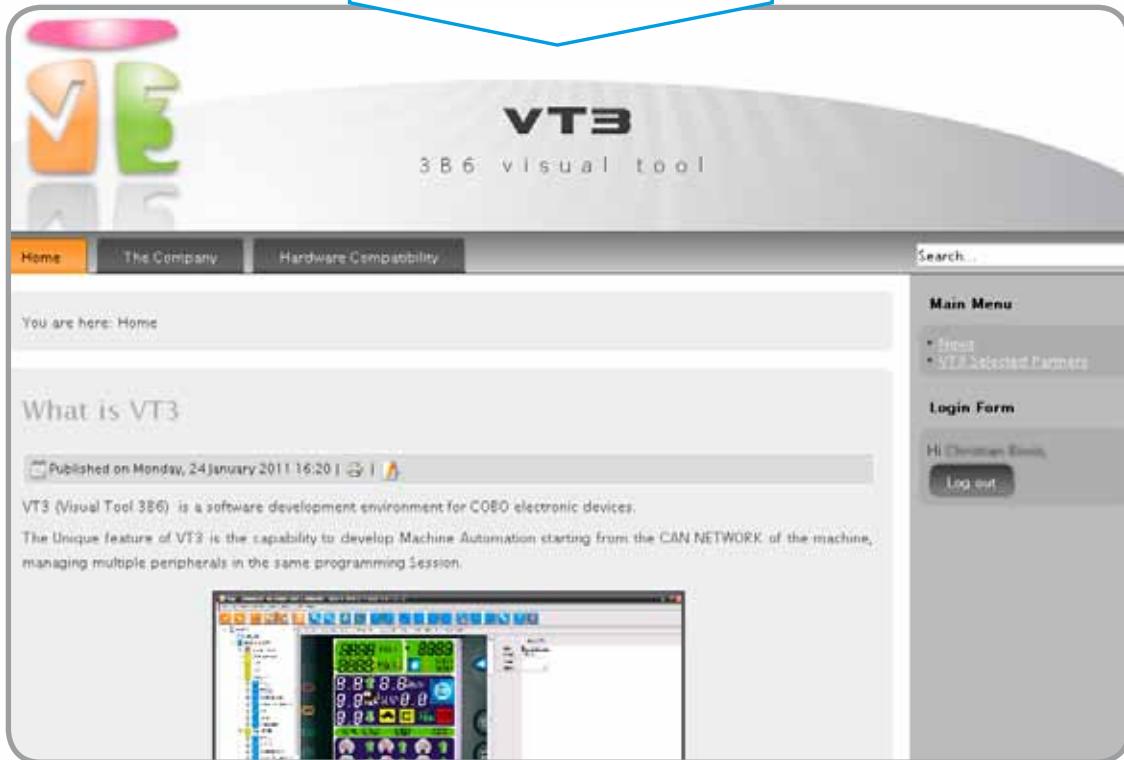
Realtime  
Debugger



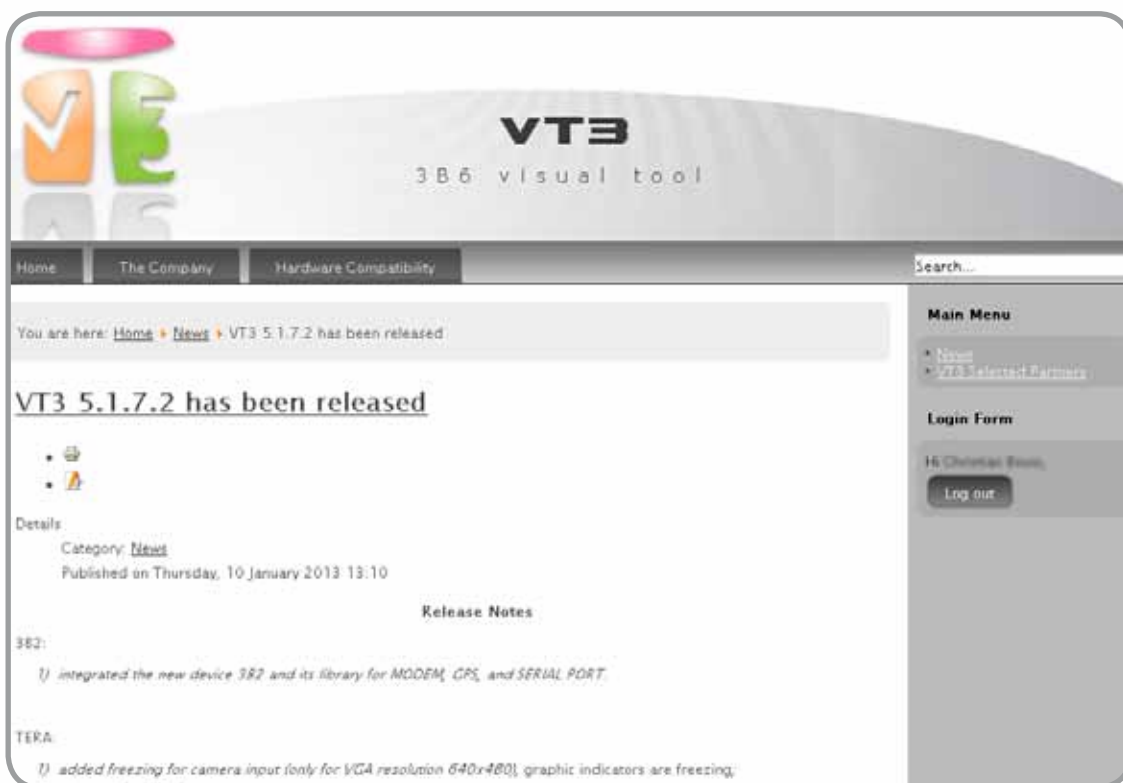
| VT3 dispone di un sito dedicato per presentare le novità, scaricare gli aggiornamenti e fornire supporto agli utenti

| VT3 has a dedicated website to download updates, news and FAQ

www.vt3-tool.com







### Versioni VT3 VT3 Versions

	DEMO	EVALUATION	TERA	FULL
IDE SOFTWARE (INTEGRATED DEVELOPMENT ENVIRONMENT)	x	x	x	x
PROGETTAZIONE GRAFICA PER DISPLAY E QUADRI DI BORDO <i>GRAPHIC DESIGN FOR DISPLAYS AND CLUSTERS</i>	x	x	x	x
PROGRAMMAZIONE CENTRALINE IN LINGUAGGIO C E IEC61131 <i>C AND IEC 61131 PROGRAMMING LANGUAGES OF CONTROLLERS</i>	x	x	x	x
COMPILATORE PER DISPLAY LINEA TERA <i>TERA LINE DISPLAY COMPILER</i>		x	x	x
COMPILATORE PER DISPOSITIVI CON MICROPROCESSORE A 16 BIT <i>COMPILER FOR 16 BIT PROCESSORS DEVICES</i>		x		x
COMPILATORE PER DISPOSITIVI CON MICROPROCESSORE A 8 BIT <i>COMPILER FOR 8 BIT PROCESSORS DEVICES</i>		x		x
USB ESTERNA PER FIRMA DIGITALE <i>EXTERNAL USB FOR DIGITAL SIGNATURE</i>			x	x
LICENZA A SCADENZA (3 MESI) <i>LIMITED LICENSE (3 MONTHS)</i>		x		
GRATUITO <i>FREE OF CHARGE</i>	x	x		



## winscope net

| Tool Diagnostica

| Diagnostic Tool

Name	Description	Value	Units	Status
IdleLoop	Idle Counter	59626		OK
MainLoop	Loop 100ms Counter	3516		OK
Main1Loop	Loop 1s Counter	352		OK
Main2Loop	Loop 50mS Counter	7032		OK
CPULoad	Cpu actual Load	71		OK
MaxCPULoad	Max Cpu actual Load	71		OK
mBlk	Flag Blink @ 0.1 sec	FALSE		OK
mBlk1	Flag Blink @ 0.2 sec	FALSE		OK
mBlk2	Flag Blink @ 0.5 sec	TRUE		OK
mBlk3	Flag Blink @ 1 sec	TRUE		OK
mBlk4	Flag Blink @ 2 sec	TRUE		OK
mBlk5	Flag Blink @ 5 sec	FALSE		OK
oldBlk	Old Flag Blink @ 0.1 sec	TRUE		OK
oldBlk1	Old Flag Blink @ 0.2 sec	FALSE		OK
oldBlk2	Old Flag Blink @ 0.5 sec	TRUE		OK
oldBlk3	Old Flag Blink @ 1 sec	TRUE		OK
oldBlk4	Old Flag Blink @ 2 sec	TRUE		OK
oldBlk5	Old Flag Blink @ 5 sec	FALSE		OK
reBlk	Rising Edge of Flag Blink @ 0.1 sec	TRUE		OK
reBlk1	Rising Edge of Flag Blink @ 0.2 sec	FALSE		OK
reBlk2	Rising Edge of Flag Blink @ 0.5 sec	FALSE		OK
reBlk3	Rising Edge of Flag Blink @ 1 sec	FALSE		OK
reBlk4	Rising Edge of Flag Blink @ 2 sec	FALSE		OK
reBlk5	Rising Edge of Flag Blink @ 5 sec	FALSE		OK
feBlk	Falling Edge of Flag Blink @ 0.1 sec	FALSE		OK

Log **START** **STOP** **STATUS RUNNING...** **MODIFY VALUE** **VIEW GRAPH** << Page Page >> Close

- Programma per il caricamento e salvataggio su PC dei parametri dell'applicativo tramite CAN-bus o RS232
- Gestione livelli di accesso utente
- Visualizzazione e scrittura delle variabili di diagnostica in funzione dei livelli di accesso utente
- Forzatura dei valori di I/O
- Possibilità di gestire una rete CAN-bus di dispositivi
- Integrazione con "winloader" ed "e.log viewer"
- Tool to upload, download and save application software parameters via CAN-bus or RS232
- Different access levels management
- Reading and writing diagnosis variables in real time (according to user level)
- I/O forcing by user for diagnosis
- Possibility to manage a CAN-bus network of devices
- Compatible with "winloader" and "e.log viewer"



# WINLOADER

Software Applicativo - *Software Tool*



## winloader

- | Strumento Downloader
- | *Downloader Tool*



- Programma per il caricamento su qualunque device del software applicativo
- *Application software download tool on any device*



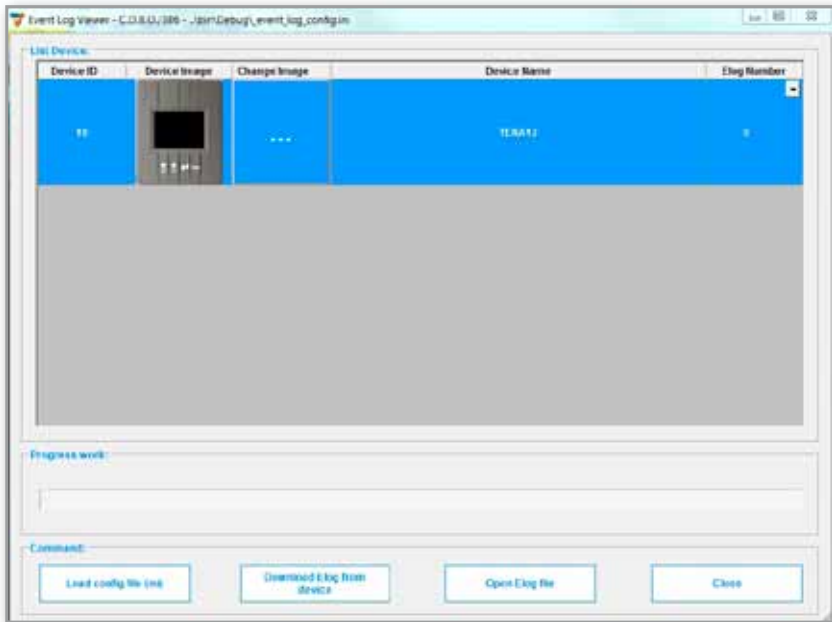


e.log viewer

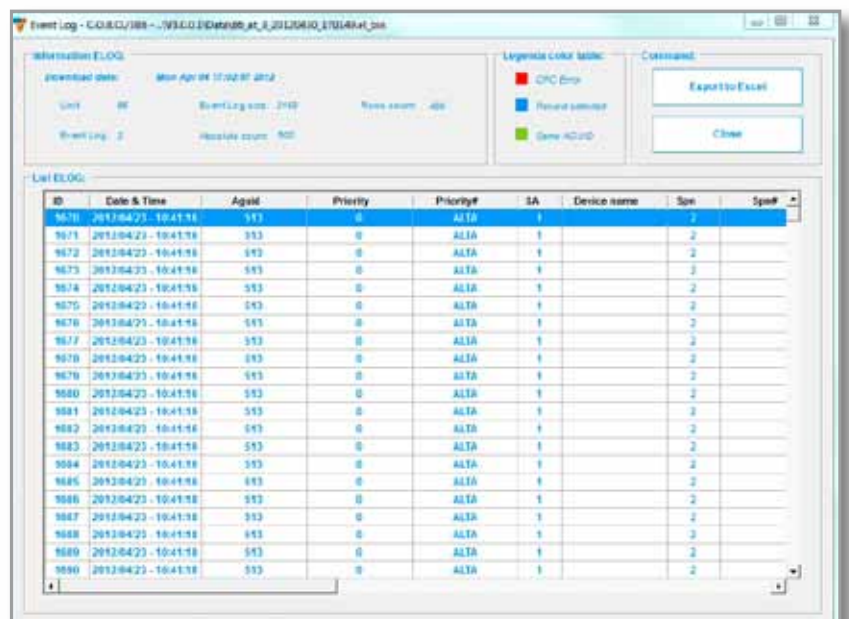
e.log viewer

| Visualizzatore Datalogger

| *Datalogger Viewer*



- Programma per il download e visualizzazione dei dati del Datalogger
- Data export sui diversi formati
- *Datalogger download and visualization tool*
- *Data export on different formats*





## Esempi di impiego *Application Examples*



winscope



winloader



e.log viewer









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