



Powered by Zenon

2500VPQSM

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# PREFACE

This *Quick Start Manual* provides reference information for the CTI 2500-VP15 Visualization Panel. The information in this manual is directed to individuals who will be installing and operating the panel as well as those who will be designing systems that use the panel.

## **USAGE CONVENTIONS**

NOTE

Notes alert the user to special features or procedures.

CAUTION

Cautions alert the user to procedures that could damage equipment.

WARNING

Warnings alert the user to procedures that could damage equipment and endanger the user.

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# CHAPTER 1 HARDWARE OVERVIEW AND INSTALLATION

#### 1.1 Introduction

The CTI 2500-VP15 Visualization Panel is a 15" color, touchscreen HMI (Human Machine Interface) panel. It is especially suitable for process control applications that require advanced graphical process visualization, intuitive operational controls, process data trending, and process alarm history. The 2500-VP15 HMI panel is available either integrated with powerful Zenon<sup>®</sup> HMI / Scada software or as a user configurable Windows 7 Embedded operator panel ready for use with your own software.



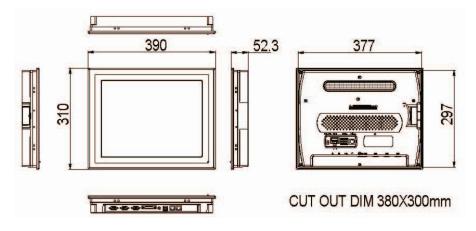
### **1.2 Visualization Panel Features**

#### 1.2.1 Hardware Specifications

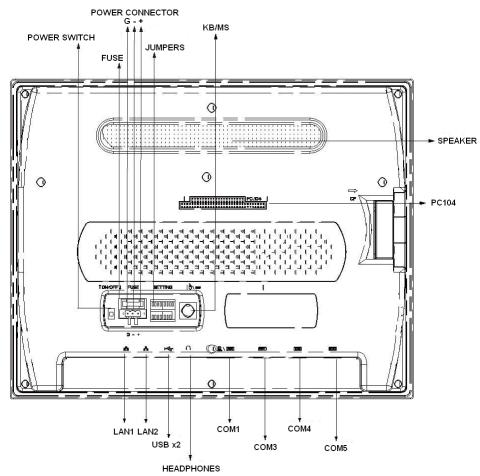
Processor: Resolution: Brightness:	Intel® Atom™ N270 1.6GHz CPU 15" 1024 x 768 XGA Color TFT LCD Super Bright 550 cd/m²
Touchscreen:	8-wire, Analog Resistive
Memory:	2GB of DDR2
Storage:	16GB Compact Flash Card
	64GB Internal SSD Hard Drive (Optional) Part #: 700-00038
Serial Port:	2 x Isolated RS-232 ports; 2 x Isolated RS-422/485 ports
	(with optical isolation design of 3.75KV)
Parallel Port:	1 x LPT
USB Port:	2 x USB 2.0 (Host)
KB/MS:	1 x PS2 Keyboard and Mouse
LAN:	2 x Gigabit Ethernet controllers
Chassis:	Front Panel NEMA4/IP65 Compliance
Materials:	Aluminum (Front Panel), PC + ABS (Bezel)
Cooling:	Passive; Fanless
Power Input:	DC 9 ~ 33V
Consumption:	45W
Op. Temp.:	0 ~ 50°C (32 ~ 122ºF)
Weight:	4.4 kg (9.7 lb)

## 1.2.2 Dimensions and Panel Cutout

Weight:	4.4kg (9.7lbs)
Dimensions:	390.0 x 310.0 x 52.3 [WxHxD]
Panel Cutout:	380.0 x 300.0 (14.96 x 11.81")

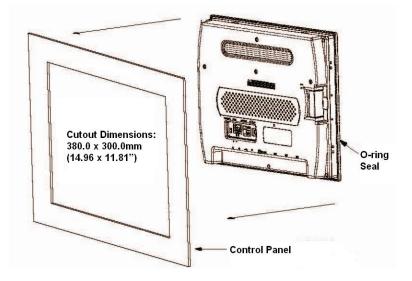




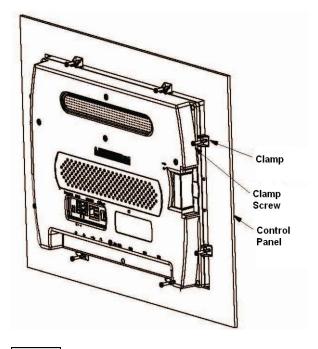


## **1.3 HMI Installation in Control Panel**

**Step 1**: Install rubber o-ring gasket in the grove on the backside of the bezel.



**Step 2**: Insert the back of HMI panel into the control panel cutout.

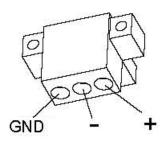


Step 3:

Install 8x mounting clamps and tighten screws against the inside face of the control panel.

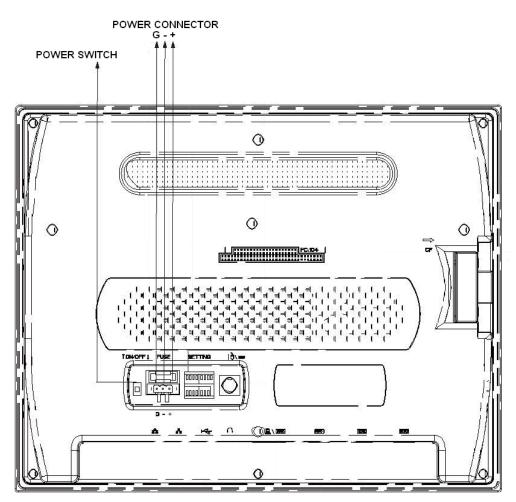
## 1.4 Connecting Power to HMI Panel

- **Step 1**: Verify that the power switch on the back of the HMI panel is on the 'OFF' position.
- **Step 2**: Terminate 9~33VDC power to included power plug. The HMI panel draws 45 watts of power. Make sure your DC power supply has sufficient capacity.





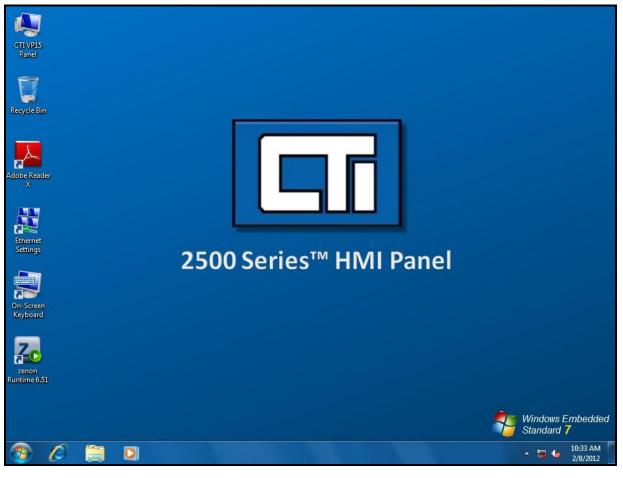
Plug the DC power connector into the receptacle on the back of the panel.



## 1.5 Ethernet Connectivity

Your 2500-VP15 has two onboard gigabit ethernet controllers. When viewing the HMI panel from the screen side, port 1 is on the right and port 2 is on the left. See the IO Connections Diagram in Section 1.2.3.

NOTE When connecting the 2500-VP15 HMI panel to a CTI 2500 Series CPU, it is important to remember that only up to three devices can share communications on the 2500 series CPU ethernet port.

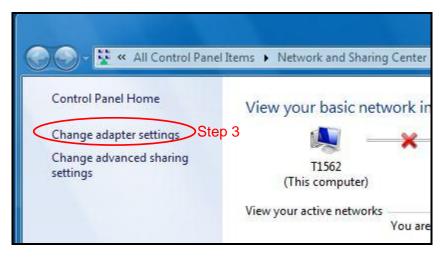


## 1.6 Setting the IP address

**Step 1**: Turn on the power switch on the back of the 2500-VP15 panel in order to boot the panel to the Windows 7 operating system desktop.

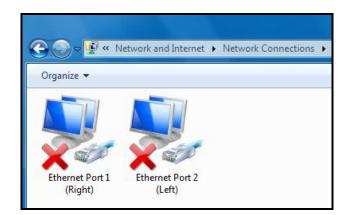


**Step 2**: After your HMI panel has booted to the Windows desktop, the IP address can be set by double tapping on the *Ethernet Settings* icon.





When the Network and Sharing Center window appears, double tap the *Change adapter settings* menu item.



**Step 4**: Double tap the icon of the port to which the network connection will be made. *Ethernet Port 1* is the right-most port from the front side of the panel. *Ethernet Port 2* is the left-most port from the front side of the panel.

Realtek PCle	GBE Family Cont	roller #2	
			Configure
his connection use		1000	
Client for N			
<ul> <li>✓ ➡ File and Pr</li> <li>✓ ➡ QoS Pack</li> </ul>		ICTOSOTE IVEEW	OIKS
<ul> <li>Link-Layer</li> </ul>		erv Manner I/	0 Driver
Link-Layer	1985 - 1		
Reliable M	ulticast Protocol		
Constant States and	otocol Version 6 (	March 10	Step 5
🗹 🔺 Internet Pr	otocol Version 4 (*	TCP/IPv4)	
Install	Uninstal		Properties
Description			
All.	outer to access res	ources on a	Microsoft
Allows your comp		ourood on a .	

Step 5:

Tap to select the *Internet Protocol Version 4 (TCP/IPv4)* connection, and then tap the *Properties* button.

eneral		
	d automatically if your network supp need to ask your network administra	
🔘 Obtain an IP address auto	matically	
() Use the following IP addres	ss:	Ethernet
IP address:	199 . 189 . 175 . 32	Settings
Subnet mask:	255 . 255 . 255 . 0	
Default gateway:		
<ul> <li>Obtain DNS server address</li> <li>Ouse the following DNS server</li> <li>Preferred DNS server:</li> </ul>		On-Screen Keyboard
Alternate DNS server:		
Validate settings upon exi	t Advance	ed

**Step 6:** Enter a static (fixed) IP address for the panel and the appropriate subnet mask that matches the network class to which you will be connecting. An onscreen keyboard is available on the windows desktop. A USB or PS2 keyboard can also be connected to the panel.

#### NOTE

It is recommended that a 'static' (manual) IP address be used for the HMI panel. Using automatic addressing (DHCP) may cause loss of communications between your HMI panel and other devices.

#### NOTE

You must choose your IP address and subnet mask to match the class of network in which your control system will reside. For example, a class 'C' network has a subnet mask of 255.255.0 and the first three numbers of all of the IP addresses on the network must match.

# CHAPTER 2 ZENON EDITOR INSTALLATION

The installation of the Zenon Editor consists of the following steps:

- 1) Reading this Chapter
- 2) Installing the Zenon Editor Software
- 3) Connecting the USB Dongle
- 4) Entering the Serial and Activation Numbers

#### 2.1 Installation of Zenon Editor Software

#### 2.1.1 Computer Considerations

Before installing the Zenon Editor software on your PC, you should be sure that your computer meets the following compatibility criteria:

Operating System: Free Hard Drive Space: Memory: Processor: Port for Dongle: Programming Port: Optical Drive: Windows XP SP3, Vista, or 7 2GB Minimum 2GB Minimum Pentium Class 1 GHz or better 1x USB 1x Ethernet Port DVD-ROM Drive

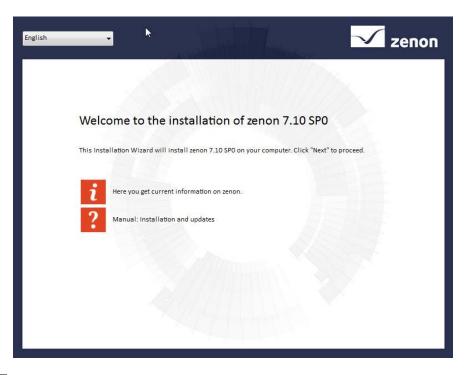
NOTE It is recommended that the user close any open programs and temporarily halt virus protection software during the installation of the Zenon Editor software.

#### 2.1.2 Starting the Installation



Insert the CTI Zenon Editor installation DVD into your DVD-ROM drive. The installation process should begin automatically. If the installation does not automatically commence, run the program 'Start' from the DVD.





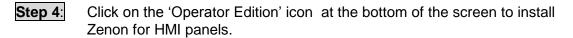
**Step 2**: When the installation welcome menu appears on the screen, click the 'NEXT' button to begin installation. Then accept the license agreement to continue.

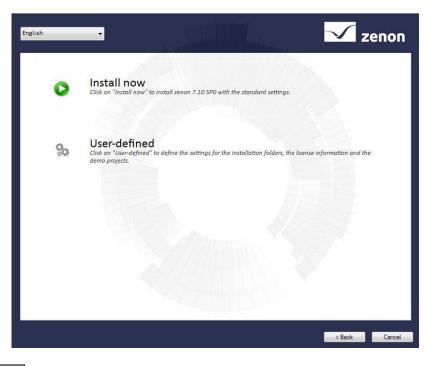




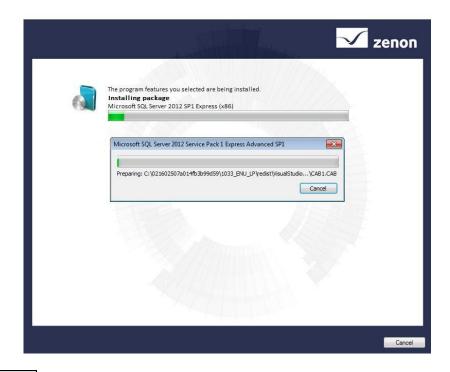
Click on the 'Z with Red Pencil' icon to install the Zenon Editor.

English	- zenon
NH4	Supervisor Edition The platform-independent SCADA-System, professionalizes the comprehensive visualization and control of large plants and aids the optimization of production processes. The large range of drivers ensures excellent connectivity.
	Energy Edition The industry-specific SCADA solution for substation automation and network control technology. Compliance with international standards such as IEC 61850, IEC 60870, IEC 61400-25 and DNP3 is auaranteed. Other hiahliahts are: Topoloaical colorina. fault location. secure commands. and more.
	Pharma Editon The industry-specific SCADA solution for automation projects in the pharmaceutical industry. Developed on the basis of the recognized validation model GAMP 5, it meets all requirements for complete documentation and safe automated oroduction.
28	Operator Edition The HMI system for all Windows operating systems, specialized in simple and ergonomic machine and equipment control. With its clear overview and intuitive operation, the operator orientates themselves to the reauirements of modern eraonomics and usability.
	< Back Cancel

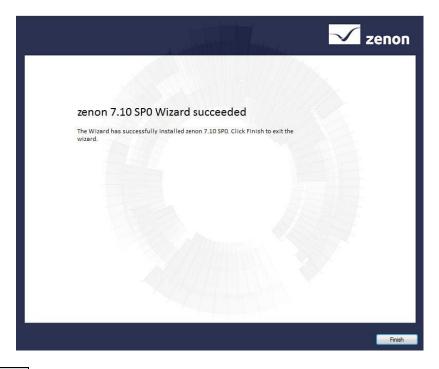


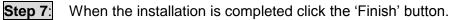


**Step 5**: Choose 'Install now' to install Zenon Operator with standard settings. You may choose user-defined installation if standard settings are not sufficient.



**Step 6**: Zenon and support software will now be installed. The installation process will take 30 minutes or more to complete.





#### 2.2 USB License Dongle

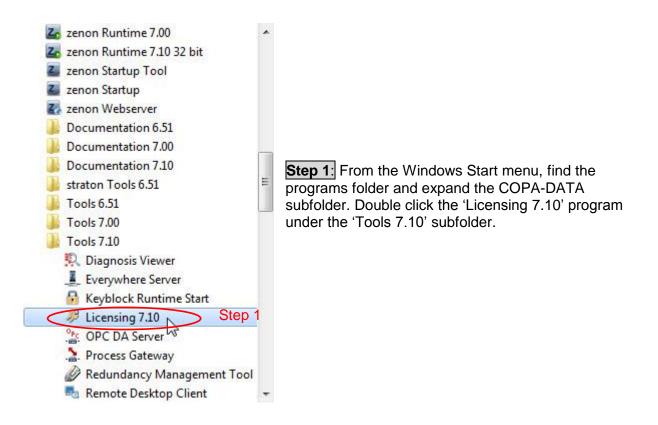
The Zenon editor is licensed with a USB dongle. The dongle can be moved from one computer to another. This allows the editor software to be installed on mulitple computers. When the dongle is connected, the user will be able to run the Zenon editor software in licensed mode.

Once the Zenon editor is installed, connect the USB dongle to one of the computer's available USB ports.



## 2.3 Licensing the Zenon Editor Software

Your Zenon Editor software package includes a license / activation document. This license sheet has the serial number and activation code that works exclusively with the included USB licensing dongle. The 8-digit number printed on the dongle will match the first 8 digits of the serial number on the license sheet. This license and activation can be used on multiple computers but only the computer with the USB dongle connected will be licensed.



	nsing r the license information of your license form / license badge, which you received after longle license. Care for correct capitalization. The entered numbers are saved with OK.
serial numb generated a	ng ng a soft license you will receive a license form with a serial number. Please enter this er and then execute 'Get soft license'. Thus a hardware specific license number is and saved in a text file. Send this file to your distributor. Then you will receive a valid umber. Enter the activation number in this dialog and confirm with OK.
	m is not suitable for licensing of older versions. Please use the licensing software for your version.
	editor / Runtime  Web Server  Analyzer
Serial numb	er
51000450.	190f3ade.0.0.1
Activation n	umber

**Step 2**: Enter the serial and the activation numbers from the license sheet supplied with your editor software. After entering the numbers into the Product Licensing screen correctly, click the 'OK' button. The Zenon editor software is now licensed and ready for use.

NOTE

Keep the license sheet in a safe place. Any time the Zenon editor software needs to be reinstalled the license sheet will be required along with the dongle in order to license your software. If you misplace your license sheet, please call CTI toll-free at 1-800-537-8398 or email us at <u>sales@controltechnology.com</u>.

## CHAPTER 3 Using the Zenon Editor

To begin this chapter, you must have successfully installed and licensed the Zenon editor as detailed in chapter 2.

#### 3.1 Starting the Editor



Start the Zenon editor by clicking on the Zenon Editor icon from the Windows start menu or the Windows desktop. If you have more than one version of the Zenon Editor installed on your computer, then you should use the Zenon Startup Tool to start the Editor.

File Edit Screens Elem	L] ients Control elements		ere ike 1	1	
	- 1 5 0 kg 🛞 1009	and the second	A. Las 4	1 773	目前目 [임미슈] 영화학원 (종內조) 중 영정(과학) 요.
	and the second sec				
		•	• A: A: A		
Project Manager				= 4	S HOME - DEMO1 ×
Workspace C: Users' Workspace C: Users' Workspace C: Users' Workspace C: Users' C: DEMO 1 State Screens C: Screens C: Recipes Workspace C: Users' C: Screens C: Recipes Workspace C: Users' Programming C: Recipes Workspace C: Users' Programming C: Screens Workspace C: Users' Screens Workspace C: Users' Screens Workspace C: Users' Screens Workspace C: Users' Screens Workspace C: Users' Screens Workspace C: Users' Workspace C: Users' Screens Workspace C: Users' Workspace C: Users' Screens Workspace C: Users' Screens Workspace C: Users' Screens Workspace C: Users' Screens Workspace C: Users' Screens Workspace C: Users' Screens Workspace C: Users' Workspace C: Users' Screens Workspace C: Users' Screens Workspace C: Users' Screens Workspace C: Users' Workspace C: Users' Screens Workspace C: Users' Screens Screens Workspace C: Users' Screens Scree	E SYMBOLS: MOME SYMBOLS: PULSINPL SYMBOLS: MENU_DE SYMBOLS: MENU_DE SYMBOLS:	3 Standard Standard 2 Standard Chronologic event list E Standard 5 Standard	Image: Constraint of the second se		HOME 32767
Menus Report Gener	total / 11 filte     topology		MAIN	4 ×	
				_	General General properties of the screen.
General Window style Size	General Name:	HOME		Â	Read more in the online manual This property is available in VBA (with class name) and in the XML export (without class
Execution	Screen type:	Standard			name) under: "Picture"
	Frame:	MAIN WIZARD			
	Background color:	have good to be a second of the second of th			
	Visible under CE			=	
	Eile namei	21022075 chiff idea 200f ibc7216-0	flan		
	File name:	a1e2ae75-c04f-4dce-ac8f-4bc7216a8			
		a1e2ae75-c04f-4dce-ac8f-4bc7216a8 < no equipment group linked >	fba		
	Equipment groups:	< no equipment group linked >			
		< no equipment group linked >			

The Zenon Editor when it starts will open a default Zenon Demo project.

## 3.2 Creating a New Workspace and Project

Sections 3.2 through 3.4 are to be used for those starting a new project without the CTI project template. If you wish to start a project using the CTI project template then you should read sections 3.2-3.4 but skip to section 3.5 to start your project.

From the file menu in the Zenon Editor, select 'New Project'.

File	Edit Options Window Help	
<b>1</b>	Project new	
-	Insert existing project	
5.50 4 00	Insert project 5.50	1
4	Restore project backup	-
	Workspace	•
	Standard configuration	
<del>a</del>	Print screenshot	-

### 3.2.1 Definitions of a Project and a Workspace

A *project* is a summary of settings, screens, functions, variables, recipes, etc. for displaying on a HMI panel. Projects are created in the Editor and downloaded to the HMI panel to be displayed in the Runtime software embedded on the CTI HMI panel. Only one project can be displayed on an HMI panel at a time. Project file storage can take place locally on the Editor computer or on a server. A backup of a project can be created anytime and can be read back on the same or a different computer.

A *workspace* is an administrative unit in the Zenon Editor in which projects can be grouped. A workspace is like a folder in which to keep an HMI project. The Operator version of Zenon only allows one project for each workspace.

#### 3.2.2 Naming a Project and Creating a Workspace

- **Step 1**: Enter a *project name* that is descriptive of the HMI application that you will be creating. Example: HMI\_Furnace1
- **Step 2**: Select the 'Create new workspace' option in the new project window and then enter a 'Workspace name'. Example: Furnace1

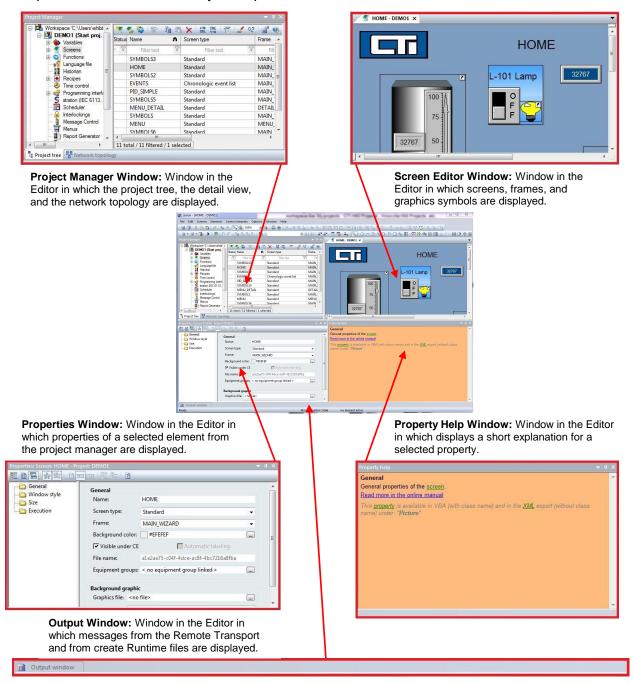
w project	
Project	ОК
Project type	Cance
📲 Standard project 🗳 Global project	
Project name	Help
CTIHMI1 Step 1	
Base folder	
C:\Users\Public\Documents\zenon_Projects\	
Workspace	
Add to active workspace	
Create new workspace	
Workspace name Step 2	
My Projects	
Runtime folder	
C:\Users\Public\Documents\zenon_Projects\My Projects\CTIHMI1	
Options	
Multiuser project	
Project server	
	111

#### 3.2.3 Storing Projects on a Server

If you will be keeping your projects on a central server, then select the 'Multiuser project' option and enter the name of the server on your company network where the projects will be stored. You may also browse the company network to choose the server name. You may need to change the 'base folder' and 'runtime folder' locations if you are storing your projects on a network server.

### 3.3 Learning the Zenon Editor Layout

In this section, you will need to familiarize yourself with the layout of the Zenon Editor Screen. The default Editor layout contains five windows. There is a project manager window, a screen editor window, a properties window, a property help window, and an output window. The default layout is pictured below.



## 3.4 Required Zenon Project Settings for the 2500-VP15 Panel

There are a number of settings that are required in every Zenon project in order for the project to display properly on the CTI 2500-VP15 panel. This section will guide you in making necessary project settings so that your project will work on the CTI panel.

NOTE There is a CTI Project Template file available for download on the Control Technology website <u>www.controltechnology.com</u>. All of the required settings of this section have already been applied to the template file. Section 3.5 of this guide gives instructions on how to use the CTI project template.

## 3.4.1 Setting Properties Window Format

Properties: Screen: HOME - Pro	oject: DEMO1		-	ά×
General Window style Size	General Name:	HOME		Ń
Execution	Screen type:	Standard	-	
	Frame:	MAIN_WIZARD	•	
	Background color:	#EFEFEF		E
	Visible under CE	🗖 Automatic labeling		
	File name:	a1e2ae75-c04f-4dce-ac8f-4bc7216a8fba		
	Equipment groups:	< no equipment group linked >		
	Background graphic	2		
	Graphics file: < no			-

It is recommended that the properties window in the lower left corner of your Zenon editor desktop be set to display information in the dialog view format as pictured above. Property settings changes will be explained in this manual using only the dialog view format. The dialog view format can be displayed by clicking on indicated icon in the above image of the properties window.

## 3.4.2 Adding a PLC Driver to the Project

The first component that must be added to the new project is the PLC driver. This driver will allow the HMI to communicate with a PLC. The 2500-VP15 can communicate with a large variety of PLC brands and types. This manual will deal exclusively with the CTI 2500 series PLC.

NOTE

The CTI panel can communicate with up to three different PLC drivers at a time. Only one instance of each driver can be used in a project. A single instance of the CTI driver can communicate with multiple CTI PLC processors.

Workspace 'C:\Users\Public\[	us Identification 🔥 🕅	말 🗙 🗟 🖌 약 Description	File name
Variables	7 Filter text 7	Filter text	Filter text 🛛
p 1 Datatypes	Driver for system va		SYSDRV
Reaction matrix	Driver for mathema		MATHDR32
→ Allocations	Driver for internal v		Intern
Screens     Functions     Functions     Functions     Functiona     Recipes     Trime control     Straton (IEC 61131-3)     Scheduler     Message Control     Message Control     Menus     Fles     Genot Generator     Files     Fles			

**Step 1**: In the *Project Manager* window, expand the *Variables* branch of the project tree and click on the 'Driver' icon. A list of the installed device drivers will appear in the *Detail View* window to the right of the project tree.

Step 2:

Click on the 'new driver' icon as noted in the picture above. A '*Definition of driver*' window will now appear.

Available drivers	
🗄 – 🧰 BCI	
🕸 💼 Beckhoff	
🗄 🧰 Berg	10
🕀 🔚 Bernecker + Rainer	
🕸 💼 Biffi-Tyco Flow Control	
🗄 🔚 Brodersen	
🕸 📲 Buderus	
🖅 💼 Copalp	
Costronic	
ф-🔄 СП	
🕸 💼 Danfoss	
😥 💼 DataTaker	
🕀 🔚 Dateien	
n 🔁 Datashashas	
Driver name	
CTI driver	
Driver information	
Description:	
Driver for CTI PLCs,, Texas Instruments TI 505 PLCs or Simatic 545/555 PLCs. The	driver
support the protocols CAMP and NITP with Packed Task Codes.	1
Supported PLC types:	
CTI PLCs, Ti505, Simatic 545, Simatic 555	
Supported connection types: Ethernet	
culemet	
Supported communication protocols:	
NITP; CAMP	

**Step 3**: Find and expand the *CTI* folder in the driver list. Select the *CTI driver* and click 'OK' on the bottom of the window.

	Step 4	
Mode:		Cancel
Hardware	<b>~</b>	Help
Keep update lis	in memory	Ste Co ap Co
Variable image	emanent	
Update time glo	pal	ap
Global updatetime	n ms:	Co
1000		
Priority	1000 ms	
high		
higher		
highest		

**Step 4**: When the *Configuration* window appears, click on the *Connections* tab.

**Step 5**: Under the 'Connections' tab, click the 'New' button to add a new PLC connection.

**Step 6:** Enter a unique Net address and Connection name. Enter IP address of the PLC processor.

**Step 7**: After entering the connection information for your PLC, click on the 'Save' button to add the new PLC connection to the CTI driver.

figuration				25
eneral Connections				
Connections		Edit connection		ОК
Connection name	Net address	0 Connection na PLC1 IP address	. 177 . 1	Cancel Help
< New Step	111 Delete Ec <b>3 5</b>		Cancel	

#### NOTE

Be sure that you have entered the correct IP address of the PLC processor to which you the HMI panel will communicate. If the IP address entered does not match the PLC address, the HMI panel and PLC will not communicate.

Connections		Edit connection	
Connection name	Net address	Net address	
PLC1	0	0	
		Connection name	
		PLC1	
		IP address 199 . 184 . 177 . 1	
		and the second se	
		Timeout [ms]	
		3000	
•	m] <b>&gt;</b>		

## Step 8:

The project now contains a connection to the CTI PLC processor at the IP address entered.

## NOTE

Each PLC connection will require a unique net address, connection name, and IP address. Up to three PLC connections can be made under the CTI PLC driver.

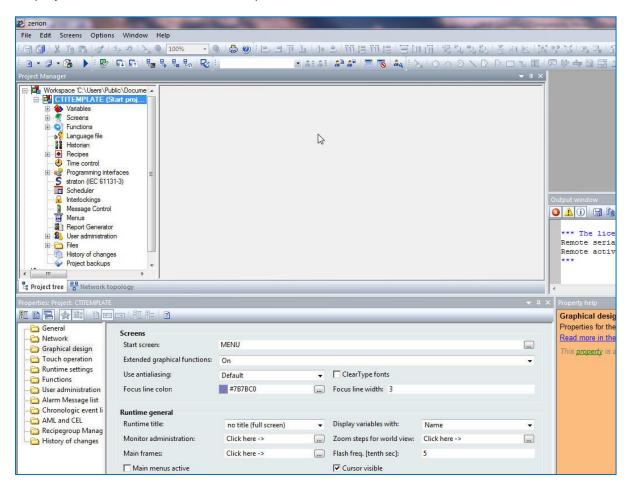
Connections		Edit connection	ок
Connection name	Net address	Net address	Cance
PLC1 PLC2	0	Connection name	Help
		PLC2	
		IP address	
		199 . 184 . 177 . 2 Timeout [ms] 3000	
٠ [ ١	•		



Additional connections to other CTI processors may be added by repeating the procedure of section 3.4.2.

## 3.4.3 Configuring Zenon Runtime Graphical Settings

The maximum display resolution of the CTI 2500-VP15 panel is 1024x768 pixels. Your Zenon project must be configured to the proper screen resolution. When you begin to create frames and screens for your project, you must keep in mind that the maximum displayable screen size is 1024x768 pixels.



Step 1:

Click on the name of your project in the project tree. The property settings for your project will display in the *Properties Window*.

NOTE

The Properties Window should be set to the dialog view option. See Section 3.5.1.

Properties: Project: CTITEMPLATE	2					<b>→</b> ♯ ×
General Step 2 Network Step 2 Graphical design Touch operation Runtime settings Graphical design User administration	Screens Start screen: Extended graphical functions: Use antialiasing: Focus line color:	MENU On Default #787BC0	•	ClearType fonts Focus line width: 3		•
Alarm Message list     Chronologic event li     AML and CEL     Recipegroup Manag     History of changes	Runtime general Runtime title: < Monitor administration: Main frames: Main menus active Display not translated keywo Adjustable dialog font	Step no title (full screen) Click here -> Click here -> Step 4	3	Flash freq. [tenth sec]:	Name Click here -> 5 2 - Standard font2	•
	Locked/Interlocked elements Interlocked buttons: Graphical identification actin Line color of the lock symbol: Locked graphics file:	Normal ve #000000 <no file=""></no>		Background color lock symbo Interlocking graphics file:		•••
< <u> </u>						

- **Step 2**: Click on the *Graphical design* tab in the *Properties* window to view the graphical properties for your runtime project.
- **Step 3**: In the *Runtime title* list box, select 'no title (full screen)' from the drop down menu. This setting will allow your project to be displayed full screen without a title bar on the HMI panel.
- **Step 4**: Click on the button beside the *Monitor administration* property to open the *Monitor Administration* window.

Physical monitors	Monitor profiles	OK
Number 1 Change	Standard	Cancel
/irtual monitors Number 1 Change	Copy Rename Delete Step 6	
Names	Standard  On a remote computer you must enter the monitor profile manually in the zenon6.ini if necessary: [DEFAULT] ScreenProfile='Profile name'  Monitor resolution Step 6 Width/Height_PixeI	
Rename	1024     768     Apply from current monitor       The monitor resolution determines the base size of all frames.     If you change it, all frames, screens, fonts etc. are adapted accordingly!	

## Step 6:

In the *Monitor Administration* window, under the *General* tab, make sure that the 'standard' monitor profile is selected and the monitor resolution is set to 1024x768.

Online menu Show online menu Display time [s] 10 Change label for button "Cancel" Label (% shows the remaining time) CANCEL = %		Appearance in the Runtime Adjust to monitor resolution Consider title bar Consider main menu Show scrollbars		OK Cancel Help			
	s the menu			Virtual monito	rs		
Name	Position	Allocation	tion Online dialog	Name	Name Allocation Online dialog	Online dialog	
M_00	0/0/1024/768		yes	V_00	M_00	no	
Change	Step	7		Change.			

Step 7:

In the *Monitor Administration* window, under the *Standard* tab, click on the 'change' button on the bottom left of the Monitor administration window under the *Physical monitors* display box.

Define physical monitor	
Name	
M_00	
Position	
Monitor does not exist, allocate to	
top 0 left 1024 bottom	768. The 'top' and 'left' boxes should
Options Show in the online menu	contain zeros. Click 'OK' when you are done.
OK Cancel H	elp

## 3.5 Starting a New Project Using the CTI Project Template

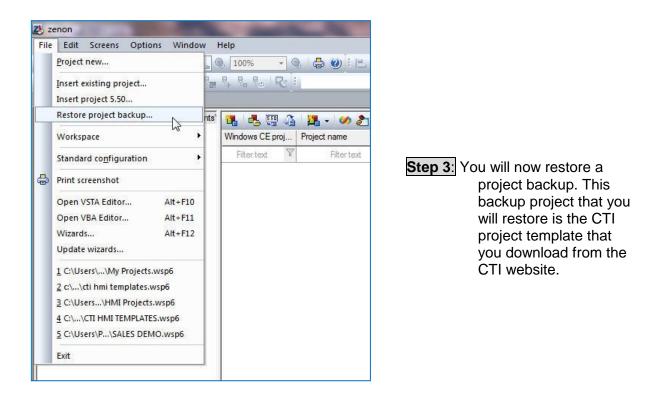
On the Control Technology Website <u>www.controltechnology.com</u>, there is a CTI HMI Project Template available for download. This section will give instructions on how to start a new project using the CTI project template. The CTI project template is preconfigured with the correct settings for the 2500-VP15 panel.

2 z	enon	Contraction of the local division of the loc	
5 zi	Edit       Screens       Options       Window         Project new       Insert existing project       Insert project 5.50       Insert project backup         Restore project backup       Workspace       Image: Complexity of the screen shot       Image: Complexity of the screen shot	Help	<b>Step 1</b> : You will need to create a new workspace. A workspace is lik a folder in which
	Open VSTA Editor Alt+F10 Open VBA Editor Alt+F11 Wizards Alt+F12 Update wizards	Close Create backup Restore backup	to keep a collection of HM projects. A proje
	1 c:\\cti hmi templates.wsp6 2 C:\Users\HMI Projects.wsp6 3 C:\\CTI HMI TEMPLATES.wsp6 4 C:\Users\P\SALES DEMO.wsp6 5 C:\\CTI HMI TEMPLATES.wsp6 Exit		can only be edit if it is added to workspace. Und the <i>File</i> menu a the <i>Workspace</i> menu item, click on the submenu

workspace	ОК
Workspace	
Name	Cancel
<workspace></workspace>	Help
C:\Users\Public\Documents\zenon_Projects\	
Norkspace file	
C:\Users\Public\Documents\zenon_Projects\ <workspace>\<workspace>.wsp6</workspace></workspace>	

Enter a name for your workspace and click 'OK'. A workspace is like a folder where you will store your project.

Example of Workspace name: Winder1HMI



Step 2:

tore project backup	
Settings	
Backup file	6
C:\ProgramData\COPA-DATA\SQL\BACKUP	(
🔲 create new project	Step 4
Backup details	etop i
Name	
Project ID	
- 72 se	
Description	
	OK Cancel Help

# Step 4:

To select a project file to restore, click on the browse button indicated in the image above.

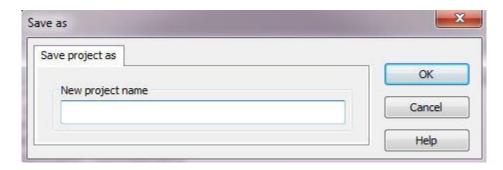
		Size	Туре	Date modified	· · ·	
				Datemouneu	Name	Favorites
			File folder	4/28/2011 10:55 AM	CTITEMPLATE	
			File folder	4/13/2011 10:34 AM	DEMO1	libraries
	3	183 KB	Compressed (zipp	4/28/2011 10:55 AM	🚺 ctitemplate	Documents
						J Music
						E Pictures
						Videos
						1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 -
						🚪 Temp (CTIFPS)
						Utility (CTIFPS)
						Network

# Step 5:

Find and select the file 'CTI\_Template\_V710.zip' that you downloaded and click 'Open'.

Settings Backup file C:\ProgramData\COPA-DATA\SQL\BACKUP\ctitemplate.zip create new project Step 6 Backup details Name CTITEMPLATE Project ID	tore project backup	2 <mark>- ×</mark>
C:\ProgramData\COPA-DATA\SQL\BACKUP\ctitemplate.zip	Settings	
Image: Create new project       Step 6         Backup details       Name         CTITEMPLATE       Project ID	Backup file	
Backup details Name CTITEMPLATE Project ID	C:\ProgramData\COPA-DATA\SQL\BACKUP\ctite	emplate.zip
Name CTITEMPLATE Project ID	Create new project Step 6	
CTITEMPLATE Project ID	Backup details	
Project ID	Name	
	CTITEMPLATE	
	Project ID	
773d5c0a-9817-4e49-8773-58878e36026b	773d5c0a-9817-4e49-8773-58878e36026b	
Description	Description	
Project Template for CTI 2500-VP15 HMI Panel	Project Template for CTI 2500-VP15 HMI Panel	
OK Cancel Help		OK Cancel Help

**Step 6**: Click in the box 'create new project' and then click 'OK'.



# Step 7:

Enter a name for your project and click 'OK'. You are now ready to build your project.

Examples: KnoxvillePlantHMI1 WinderHMI1 FurnaceHMI

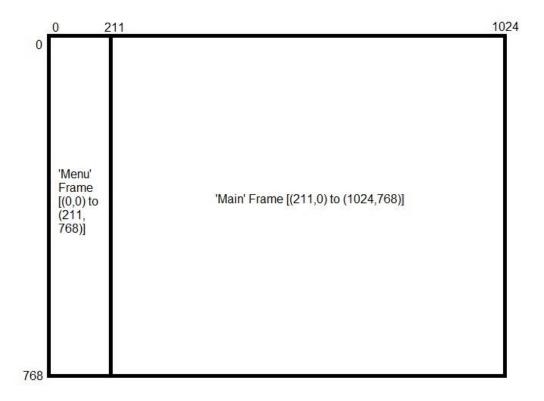
## 3.6 Building a Project with the Zenon Editor

This section will familiarize you with how to create frames, screens, variables, buttons, functions, numerical value displays, and trend elements. These basic elements will allow you to build a project. You will also learn how to test the functionality of your project by starting the runtime on your editor computer.

## 3.6.1 Adding Frames and Screens

A *Frame* defines the size and location of an area on the monitor in which screens are displayed in the Runtime. A frame must be created before you can draw your first screen. A frame is like a template for a screen. You can define certain settings for a frame which are then transferred to all screens which are based on the particular frame.

A *Screen* is a limited area on the monitor which contains elements/objects for operating, controlling, monitoring, evaluating, etc. machinery, equipment, and processes. There are different types of screens which bring along predefined functions. Screens are always based on frames which define their location on the monitor.



The CTI 2500-VP15 panel has a screen resolution of 1024x768 pixels. The frames that you create must fit within the displayable screen size. Above is an example of a two frames that are sized to fit the CTI HMI screen. The 'Main' frame would be used to create your main screens and the 'Menu' frame would be used to create menu screens. All screens draw their size and position properties from the linked frame.

If you are using the CTI template to create your project, then some frames and screens have already been created for you. You can adjust the properties of the existing frames in the detail view or the properties window.

zenon - Frames - CTITEMPLATE		the second s		
File Edit Elements Options Window	Help			
i 🖯 🕼 🕺 🖞 🗇 📐 🍳	50%	🔍 🖨 🕐 🗉 🗉	s <u>r</u> f <u>r</u> f E	s i î î î î î î î î î î î î î î î î î î
i 🗅 • 🖉 • 😘 i 🕨 i 😰 i 🖓 i 🦦 i			• A: A:	🗢 🖉 🔚 📆
Project Manager				<b>→</b> ‡ ×
Workspace 'C:\Users\Public\Documents	N 10 C	P D B X S		QT 📲 🕖
CTITEMPLATE Step 2	Status Display	Name A	Background color	Freely defineable fra
	Filter V	Filter text.	Filter text 🛛 🖓	Filter text
Frames		DETAIL	#C4C6DB	
Eont List Step 1		MAIN	#EFEFEF	
Palettes		ALARM STATUS LINE	#FF0000	
Project symbol library     Si Functions		MENU	#E4EBF1	
w Language file	1 (ki) (ki		hi Al	
Time control				
Scheduler				
Message Control				
Menus				
Report Generator				
Ber administration     Files				
History of changes				
Project backups				
CTIZENONDEMO (Start project)				
Global symbol library				

#### 3.6.1.1 Adding a Frame

#### Step 1:

Click on the 'Frames' icon in the Project tree under the 'Screens' branch.

## Step 2:

Click on the 'New Frame' icon in the detail view of the Property tree. See the image above.

**Step 3**: Adjust the size and position of your new frame. Frames can be sized and positioned in the Detail View of the Project Tree, in the Screen Editor Window, and in the Properties Window.

Status Display	Name M	Background color	Freely defineable fram	Left [pixels]	Top [pixels]	Right [pixels]	Bottom [pixels]
Filter 🖓	Filter text.	Filter text	Filter text.	Filter text 🛛	Filter text 🛛	Filter text 🛛	Filter text
	DETAIL	#C4C6DB		211	708	1024	768
<b>V</b>	MAIN	#EFEFEF		211	0	1024	768
$\checkmark$	ALARM STATUS LINE	#FF0000		0	0	1024	18
	MEAU	#E4EBF1		0	0	211	768

#### Detail View

In the Detail View of the Project tree, a frame's size and position can be changed numerically. This same numerical data is available in the Properties Window.

MENU	TAIN
Left: 0 - Top: 0	Left: 211 - Top: 0
Width 211 - Height	Width: 813 - Height: 768
ringin. Err mögne.	
	DETAIL
	Left: 211 - Top: 708

#### Screen Editor Window

In the Screen Editor Window, a frame's size and position can be changed graphically by dragging and stretching the frame.

# 3.6.1.2 Adding a Screen

zenon - [HOME - CTITEMPLATE]	-			
File Edit Screens Elements Control ele	ments	Options Window	Help	
🗒 🗊 X 🖻 💁 🍼 🦐 🤊 📐 🍳	2 10	0% 💽 🤤 🥵	2 4 d T E E 🗐	1111 III
🖸 • 🖉 • 🚰 l 🕨 🔛 🖙 l 🧤		- Po <b>- Po</b> -	- a: a: A	a 🔏 👔
roject Manager	5	Step 2		
Workspace C:\Users\Public\Documents		5 S 12 16 6	x 🔝 📲 🛣 🗹 🔍	<b>1</b> 0
CTITEMPLATE (Start project)     Start project)	Status	Name / M	Screen type	Frame
	=	Filter text 🛛 🍸	Filter text	1.530 V
	=V	Filter text 🛛 🍸	Filter text T Alarm Message list	1.530 V
Screens 	=Y		1 must tune	Filter
E Screens SF Frances Font lists SP Palettes	▼	ALARM	Alarm Message list	Filter
Franks Franks Franks Palettes Project symbol library	Y	ALARM EVENTS	Alarm Message list Chronologic event list	Filter MAIN MAIN MAIN
Screens Franks Franks Font lists Palettes	Y	ALARM EVENTS HOME	Alarm Message list Chronologic event list Standard	Filter MAIN MAIN

Step 1:

Click on the 'Screens' icon in the Project tree.

**Step 2**: Click on the 'New Screen' icon in the Detail View window.

Status	Name / M	Screen type	Frame
7	Filter text 🛛 🍸	Filtertext	Filter text
	ALARM	Alarm Message list	MAIN
	EVENTS	Chronologic event list	MAIN
	HOME	Standard	MAIN
11	KEYBOARD	Keyboard	KEYBOARD
	MENU	Standard	MENU
	NUMPAD	Keyboard	NUMPAD
	PLC_MENU	Standard	DETAIL
	SCREEN1	Standard	MAIN
	SCREEN2	Standard	MAIN
	SCREEN3	Standard	MAIN
	SCREEN4	Standard	MAIN
11	SCREEN5	Standard	MAIN
	Screen 0	Standard	MENU



Type a name for your new screen. The default name is 'Screen 0'.

Status	Name /	Screen type	Frame
Y	Filter text 🛛 🖓	Filtertext	Filter text 🛛 🖤
	ALARM	Alarm Message list	MAIN
	EVENTS	Chronologic event list	MAIN
	HOME	Standard	MAIN
	KEYBOARD	Keyboard	KEYBOARD
	MENU	Standard	MENU
	NUMPAD	Keyboard	NUMPAD
	PLC_MENU	Standard	DETAIL
	SCREEN1	Standard	MAIN
	SCREEN2	Standard	MAIN
	SCREEN3	Standard	MAIN
	SCREEN4	Standard	MAIN
	SCREEN5	Standard	MAIN
	Screen 0	Standard	MENU
•		Alarm Message List Filter Archive revision Chronologic event list Chronological Event List Filte Extended trend HTML Keyboard Login Notepad Recipegroup Manager Report	er
13 to	tal / 13 filtered / 1 sele	Scheduler	
		Standard Standard regimes	
E ?)		Standard recipes Time filter Variable diagnosis Video	
		Worldview overview	

**Step 4**: Select the *Screen type* for your new screen. The default type is 'Standard'. Most screens that you will create will be of the 'Standard' type.

Status	Name	Screen type	Frame 🏟
	Filter text 🛛 🌱	Filtertext	Filter text 🛛 🖓
	ALARM	Alarm Message list	MAIN
	EVENTS	Chronologic event list	MAIN
	HOME	Standard	MAIN
	KEYBOARD	Keyboard	KEYBOARD
	MENU	Standard	MENU
	NUMPAD	Keyboard	NUMPAD
	PLC_MENU	Standard	DETAIL
	SCREEN1	Standard	MAIN
	SCREEN2	Standard	MAIN
	SCREENB	Standard	MAIN
	SCREEN4	Standard	MAIN
	SCREEN5	Standard	MAIN
	Screen 0	Standard	MENU
			DETAIL KEYBOARD
			MAIN MENU

# Step 5:

Select one of your project's Frames to use as the new screen's template.

Status	Name / M	Screen type	Frame	Background color	Start function	End function
= 🖓	Filter text 🛛 🖓	Filter text 🛛 🍸	Filter text 🛛 🍸	Filter text 🛛 🏹	Filter text 🛛 🍸	Filter text 🛛 🗑
	ALARM	Alarm Message list	MAIN	#EFEFEF	< no function	< no function
	EVENTS	Chronologic event list	MAIN	#EFEFEF	< no function	< no function
	HOME	Standard	MAIN	#EFEFEF	< no function	< no function
(	KEYBOARD	Keyboard	KEYBOARD	#EFEFEF	< no function	< no function
	MENU	Standard	MENU	#E4EBF1	scrSTART	< no function
	NUMPAD	Keyboard	NUMPAD	#EFEFEF	< no function	< no function
	PLC_MENU	Standard	DETAIL	#C4C6DB	< no function	< no function
	SCREEN1	Standard	MAIN	#EFEFEF	< no function	< no function
1	SCREEN2	Standard	MAIN	#EFEFEF	< no function	< no function
	SCREEN3	Standard	MAIN	#EFEFEF	< no function	< no function
	SCREEN4	Standard	MAIN	#EFEFEF	< no function	< no function
	SCREEN5	Standard	MAIN	#EFEFEF	< no function	< no function
	Screen 0	Standard	MAIN	#EFEFEF	< no function	< no function

#### Step 6:

You can change the background color of your screen, set the Start function and End function from the Detail View window. The *Start function* is a function that is executed just after your screen has been opened. The *End function* is a function that is executed when the screen is closed.

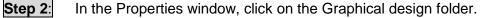
## 3.6.1.3 Setting the Project Start Screen

Your project must have a starting screen that is called when the project runtime is started.

Step 1:

Click on your project's name in the Project tree.

Ceneral	Screens					$\sim$
Graphical design	Start screen:	MENU			Step 3	
Touch operation	Extended graphical functions:	On			•	$\smile$
Runtime settings	Use antialiasing:	Default		ClearType fonts		
🛅 User administration	Focus line color:	#7B7BC0		Focus line width: 3		
🚞 Alarm Message list 🛅 Chronologic event li	Runtime general					
AML and CEL	Runtime title:	no title (full screen)	•	Display variables with:	Name	•
History of changes	Monitor administration:	Click here ->	)	Zoom steps for world view:	Click here ->	
	Main frames:	Click here ->		Flash freq. [tenth sec]:	5	
	Main menus active			Cursor visible		
	Display not translated keywo	ords				
	Adjustable dialog font			Dialog font:	2 - Standard font2	)



**Step 3**: In the Properties detail window, click on the button for setting the Start screen.

CTITEMPLATE		h n 1			
	Status	Name	Screen type	Frame	Backgro
	=	Filter text 🛛 🖓	Filter text 🛛 🍸	Filter text 🛛 🝸	Filter
		SCREEN5	Standard	MAIN	#EF
		ALARM	Alarm Message list	MAIN	#EF
		MENU	Standard	MENU	#E4
	1	HOME	Standard	MAIN	#EF
		SCREEN3	Standard	MAIN	#EF
		PLC_MENU	Standard	DETAIL	<b>#</b> C
		KEYBOARD	Keyboard	KEYBOARD	#EF
		EVENTS	Chronologic event list	MAIN	#EF
		NUMPAD	Keyboard	NUMPAD	#EF
		SCREEN1	Standard	MAIN	#EF
		SCREEN4	Standard	MAIN	#EF
		SCREEN2	Standard	MAIN	#EF
		SCREEN4	Standard	MAIN	

**Step 4**: In the Screen selection window, select your desired starting screen and click the OK button.

## 3.6.2 Adding Variables to Your Project

A variable represents a value in the memory of the control system. Variables are based on a data type and a driver object type. All variables are linked to an object driver. Some variables are linked to an internal driver and some are linked to an external driver. The CTI 2500 Series driver is an external driver.

A PLC driver must be added to your project in order to create variables mapped to that PLC. See section 3.5.2 for instructions on adding a PLC driver.

		CTI 25	500 Series Variable	Types
Driver Object Type	Channel Type	Read / Write	Supported Data Types	Description
V memory	64	R/W	BOOL, SINT, USINT, INT, UINT, DINT, UDINT, REAL, STRING	Programmable Data Memory
K memory	65	R	BOOL, SINT, USINT, INT, UINT, DINT, UDINT, REAL, STRING	Constant Memory
STW memory	66	R/W	INT,UINT	PLC Status Word Memory
WX memory	67	R/W	INT,UINT	Analog Input Memory
WX memory	68	R/W	INT,UINT	Analog Output Memory
X memory	69	R/W	BOOL	Digital Input Memory
Y memory	70	R/W	BOOL	Digital Output Memory
C memory	71	R/W	BOOL	Control Relay Memory
Time/Counter	72	R/W	INT	Timer and Counter Memory
Drum	73	R/W	INT	Drum Variable Memory
Loop variable	74	R/W	INT,UINT,REAL	PID Loop Variable Memory
Alarm variable	75	R/W	INT,UINT,REAL	Alarm Variable Memory

In the above table, the different *Driver Object types* or *Variable types* are listed for the CTI 2500 Series driver. All variable types can be read and written except the K memory which is read only. The supported data types are also listed for each variable type.

Some variable types like timers, counters, loops, and alarms have a *Secondary Object type*. These variable types have more than one value associated with them. For example, a timer has a preset value and a current count value. CTI has chosen to make these values accessible under the timer object type as secondary objects.

The following table contains the available Secondary Object types available with the CTI 2500 Series driver.

CTI 2500 Series Secondary Variable Types						
Secondary Object Type	Data Type	Object Value				
Timer / Counter						
Preset (TCP)	INT	0				
Current (TCC)	INT	1				
Drum						
Step Preset (DSP)	INT	0				
Step Current (DSC)	INT	1				
Count Preset (DCP)	INT	2				
Count Current (DCC)	INT*	3				
Loop Variable						
Gain (LKC.)	REAL	0				
Reset Time - min (LTI.)	REAL	1				
Rate Time – min (LTD.)	REAL	2				
Sample Rate – sec (LTS)	REAL	3				
Process Variable (LPV)	REAL, INT	4				
PV High Limit (LPVH)	REAL	5				
PV Low Limit (LPVL)	REAL	6				
Set Point (LSP)	REAL, INT	7				
SP High Limit (LSPH)	REAL, INT	8				
SP Low Limit (LSPL)	REAL, INT	9				
Output (LMN)	REAL, INT	10				
Bias (LMX)	REAL, INT	11				
Error (empty)	REAL, INT	12				
High-High Alarm Limit (LHHA)	REAL, INT	13				
High Alarm Limit (LHA)	REAL, INT	14				
Low Alarm Limit (LLA)	REAL, INT	15				
Low-Low Alarm Limit (LLLA)	REAL, INT	16				
Alarm Deadband (LADB)	REAL, INT	17				
Orange Dev Alarm Limit (LODA)	REAL, INT	18				
Yellow Dev Alarm Limit (LYDA)	REAL, INT	19				
Rate of Change Alarm Limit (LRCA)	REAL	20				
Alarm Acknowledge Flags (LACK)	UINT	21				
Deriv Gain Limiting Coeff (LKD)	REAL	22				

	1	
Loop Status	UINT	23
Loop Mode	UINT	24
Loop V-Flags (LVF)	UINT	25
Control Flags – MSW (LCFH)	UINT	26
Control Flags – LSW (LCFL)	UINT	27
Ramp/Soak Status Flags (LRSF)	UINT	28
Ramp/Soak Step Number (LRSN)	INT	29
Alarm Variable		
Sample Rate – sec (ATS)	REAL	0
Process Variable (APV)	REAL, INT	1
PV High Limit (APVH)	REAL	2
PV Low Limit (APVL)	REAL	3
Set Point (ASP)	REAL, INT	4
SP High Limit (ASPH)	REAL, INT	5
SP Low Limit (ASPL)	REAL, INT	6
Error (AERR)	REAL, INT*	7
High-High Alarm Limit (AHHA)	REAL, INT	8
High Alarm Limit (AHA)	REAL, INT	9
Low Alarm Limit (ALA)	REAL, INT	10
Low-Low Alarm Limit (ALLA)	REAL, INT	11
Alarm Deadband (AADB)	REAL, INT	12
Orange Dev Alarm Limit (AODA)	REAL, INT	13
Yellow Dev Alarm Limit (AYDA)	REAL INT	14
Rate of Change Alarm Limit (ARCA)	REAL, INT	15
Alarm Acknowledge Flags (AACK)	UINT*	16
Alarm V-Flags (AVF)	UINT*	17
Alarm Control Flags – MSW (ACFH)	UINT	18
Alarm Control Flags – LSW (LCFL)	UINT	19

\* Read Only

# 3.6.2.1 Creating a New Variable

**Step 1**: In the Project tree, click on the *Variables* branch.

zenon							
File Edit Screens Options Window I	Help						
日日は 131313139136	100%	- 🧠 😓 🤇	[ E _ I : ()	<u>t[.   [] [</u>	<u>*</u>   111 E	111	11
🖻 • 🔮 • 😘 l 🕨 🔛 🖓 🖓	₽, ₽, ₽ <sub>Φ</sub>	R: 1		• A: A:	1 4ª 4ª 1	•	24
roject Manager	Ste	p 2					
⊡ 🖬 Workspace ℃:\Users\Public\Documents		PIRAX	1 肥・ 🛯 🤇	V 💿 🕼	XIIL 🛃 -	70 -	77
CTITEMPLATE (Start project)	Status Name	CL STID	Contraction of the	Net address	Data block	Offset	Bit n
	🔤 🐳 Var	iable new In:	Filter text	Filter text 🛛	Filter text	Filt	Filter
🕀 🛒 Screens	Insuranting	THE OF LOUIS	1 HEGE EGOLE				
Functions	x4	THE COLU		0	0	4	
	x4 x5		THEST COL	Contraction of the second second	A DELENGTING		
				0	0	4 5 3	
	x5			0	0	4	

Step 2:

In the Detail View window, click on the Variable new icon.

x6 Stor	2	
Driver Step	5	
CTI - CTI driver		•
Driver object type		
X-Memory		
Datatype		
BOOL		
Array settings		
Start index is 0		
Start index is 1		
Dim 1	Dim 2	Dim 3
0	0	0
Addressing options		
Automatic addre	essing	
Addressing acco	rding to data type offset a	and start offset
🔘 Manual addressi	ng	
🕖 Each datatype s	tarts with new offset	
Automatic addressi	ng	
Activate all elem	ents	
<ul> <li>Activate element</li> </ul>		

Step 3:

When the Create variable window appears, enter a name for your variable in the name box.

Create variable	
Settings Name: x6 x6 Driver CTI - CTI driver Driver object type	Step 4
X-Memory	<b></b>
Alarm-Variable C-Memory Driver variable Drum K-Memory Loop-Variable STW-Memory Timer/Counter V-Memory WX-Memory WX-Memory WY-Memory Y-Memory Y-Memory	Step 5
Step 4: In the Create variab	ble window, select the PLC driver.
Step 5: In the Driver object	<i>type</i> list box, select the variable type

- 5: In the *Driver object type* list box, select the variable type that you wish to create.
- **Step 6**: Click the finish button when you are done.

## 3.6.2.2 Selecting a Secondary Object Type

Timer, counter, drum, loop, and alarm variables in the CTI 2500 Series PLC are known as secondary object variables. These secondary object variables have multiple memory registers whereas standard variable types like 'V', 'X', 'C', and 'Y' variables have one associated value in memory. For example, a timer variable has a preset (TCP) value and a current (TCC) value. When creating a secondary object variable in the Zenon Editor, it is necessary to specify the variable's secondary object type. Only the CTI driver uses secondary object types.

#### Step 1:

In the Variables Detail window, select the variable that requires a secondary object.

Caneral General	Addressing				
Value calculation	Net address: 0	)	Data block:	0	
🛅 Write set value	Offset: 0	)	Bit number:	0	Step 2
Limits	Alignment: 0	)	String lengt	. 0	
🛅 Alarm handling 🛅 Harddisk data storac	Secondary object:	Preset (TCP)			
Additional settings		Surrent (TCC)			
🛅 External settings	Driver connection	Preset (TCP)			
	Driver:	CTI - CTI driver			
	Datatype:	INT			•
	Driver object type:	Timer/Counter	✓ Priority: No	ormal	<u>ج</u> ک
	Only read from st	andby			5



Under the Addressing folder in the Properties window, select the Secondary Object type from the list box.

## 3.6.2.3 Setting the Variable Offset

Another necessary step after creating a new variable is setting the variable's offset. The offset value corresponds to the memory address of the PLC variable to which you are connecting. For example, for the X memory type of the CTI PLC, the offset value is '1' for digital input 'x1'. If there was a counter 2 variable in the CTI PLC the offset would be a value of '2'.

Properties: Variable: Timer 1 Pre	set - Project: CTITEMPLATE				💌 🗜
General Stee     General Stee     Addressing     Value calculation     Write set value     Limits     Alarm handling     Harddisk data storage     Additional settings	Addressing Net address: 0 Offset: 1 Alignment: 0	Step 2	Data block: Bit number: String length:	0 0 0	•
External settings	Driver connection				
	Driver:	CTI - CTI driver			
	Datatype:	INT			•
	Driver object type:	Timer/Counter	Priority: No	rmal	- C
	Only read from sta	ndby			2



In the Variables Properties window, click on the *Addressing* folder.

**Step 2**: Enter the Offset value in the Properties detail window.

#### 3.6.2.4 Setting Variable Limits

The Limit property of a variable is a very important feature for obtaining variable status and triggering alarms. Limits are handled in the properties of the variable not in the properties of an onscreen object. If, for example, you would like a picture of a valve to turn red when closed and green when opened, then you must use the limit property of the variable tied to the valve position.

Example: A valve has a position switch wired to digital PLC input 'X1'. This switch gives a full signal when the valve is opened and no signal when the valve is closed.



Create a variable for the CTI driver named 'X1'. This variable will be an X memory variable with an offset of 1. See Section 3.7.2.1 for instructions to create a new variable.

Properties: Variable: x1 - Project					<b>▲</b> †
E E E 🔁 🔂 🗉 🖂					
Addressing	Limits				
Dalue calculation	{Limit new}: Click	here ->			
Write set value	Reaction matrix				
	Reaction matrix	active			2
Limit[2]	Reaction matrix:				- Z
Alarm handling 		L			
Additional settings	Limit[1]				
External settings	Limit active		Click h	ere ->	
	Limits[1]				
	Limit text:				2
	Limit:	0	Minimum/Maximum:	Minimum	-
	Threshold value:	0.000000	Delay time [s]:	0	2
	Dynamic limit a	tive	Variable:	< no variable linked >	Z
	AML/CEL[1]				
	In Alarm Messag		In Chronological Ev	ent List	2
	🔽 To acknowledge		🗹 🥅 To delete		2
	Fint Print				2
	Alarm group:	0 - < not used >			ج ک
	Alarm class:	0 - < not used >			ح ک
	Function[1]				
	Function:	< no function	n linked >		<b>?</b>
	Call via button in	i Alarm Message List			2
	Additional attribute				
	Limit color:	#FF0000			
	Invisible		E Flashing		2
	User property 1:				7
	User property 2:				
	Help[1]				

## Step 2:

In the Properties window for the new variable that you just created, expand the *Limits* folder. You will see two limits already defined by Zenon by default.

Properties: Variable: x1 - Projec	t: CTITEMPLATE				<b>→</b> ¤ ×
H 🗈 🚍 🖕 🕮 🗅 🖻					
General	Limits				<u>^</u>
Addressing Value calculation	{Limit new}: Click	here ->			
Write set value					
	3 Reaction matrix				
	Reaction matrix	active			2
Limit[2]	Reaction matrix:				- <b>Z</b>
Harddisk data storac					
	Limit[1]	Step 4			
External settings	✓ Limit active		Cli {Delete limit}: Cli	ck here ->	]
	Limits[1]				
	Limit text:				2
	Limit:	Step 5	Minimum/Maximu	im: Minimum	
	Threshold value:	0.000000	Delay time [s]:	0	2
	Dynamic limit a	tive	☑ Variable:	< no variable linked >	
				ene tandore inited i	
	AML/CEL[1]				
	In Alarm Messag	e List	In Chronologica	I <mark>l Event Lis</mark> t	2
	🔽 To acknowledge		🗷 🥅 To delete		۲
	Frint Print				C
	Alarm group:	0 - < not used >			- C
	Alarm class:	0 - < not used >			- C
	Function[1]				
	Function:	< no function linked	>		S
	Call via button in	n Alarm Message List			5
	Additional attribute	d1) Otom 5			
	Limit color:	s[1] Step 5			
	Invisible		E Flashing		2
	User property 1:				2
	User property 2:				
- III	Help[1]				

Step 3:

Click on the Limit[1] folder.

- **Step 4**: Notice that the *Limit active* checkbox is checked. In order for a limit to be enabled, the *Limit active* box must be checked.
- **Step 5**: Notice that Limit 1 has been preconfigured to be a minimum limit of value '0' with a limit color of red. What this means is that when X1 is equal to zero then the limit color of red is triggered.

A *Minimum* limit is triggered when a variable value is equal to or less than the minimum limit value.

perties: Variable: x1 - Proje	ct: CTITEMPLATE					-
<ul> <li>General</li> <li>Addressing</li> <li>Value calculation</li> <li>Write set value</li> </ul>	Help[1] Help file: <n Help chapter:</n 	o file>				
Limits Step Limit[1] Limit[2]	Limit[2]	) Ste	p 7	☑{Delete limit}: Click	here ->	
<ul> <li>Harddisk data storaç</li> <li>Additional settings</li> <li>External settings</li> </ul>	Limits[2] Limit text:					Z
	Limit:		Stop 9	Minimum/Maximum:	Maximum	- Z
	Threshold value:	0.000000	Step 8	Delay time [s]:	0	3
	🗖 Dynamic limit a	ctive		🗷 Variable:	< no variable linked >	Z
	AML/CEL[2]					
	🔽 In Alarm Messa	ge List		In Chronological E	vent List	2
	🔽 To acknowledg	2		🗷 🥅 To delete		3
	Frint Print					2
	Alarm group: Alarm class:	0 - < not used	>			<u>ج</u> ک
		0 - < not used	>			× 7
	Function[2]					
	Function:		ono function linked	>		Z
	Call via button i	n Alarm Message L	ist			2
	Additional attribute		Ctop 0			
	Limit color:	#00FF00	Step 8	2011/2-091		
	Invisible Invisible			Flashing		2
	User property 1:					2
	User property 2:					
	Help[2]					
	Help file: <n< td=""><td>o file&gt;</td><td></td><td></td><td></td><td></td></n<>	o file>				
4 111	Help chapter:					2

Step 6:

Click on the *Limit*[2] folder.

- **Step 7**: Notice that the *Limit active* checkbox is checked. In order for a limit to be enabled, the *Limit active* box must be checked.
- **Step 8**: Notice that Limit 2 has been preconfigured to maximum limit of value '1' with a limit color of green. This means that when X1 is equal to '1' then the limit color of green is triggered.

A *Maximum* limit is triggered when a variable value is equal to or greater than the maximum limit value.

For integer or real type variables, multiple limits can be added and configured.

General     Addressing     Value calculation     Write set value	Limits {Limit new}: Click here ->	Step 9
Write set value     Limits     Limits     Limit[1]     Limit[2]     Alarm handling	Reaction matrix Reaction matrix active Reaction matrix:	5 
🛅 Harddisk data stora <u>c</u> 🛅 Additional settings 🎦 External settings	Limit[1]	☑{Delete limit): Click here

Step 9:

To add a new limit, click on the *Limit new* button in the Limits folder.

## 3.6.3 Creating Functions

A function is a predefined action which can be triggered in the Runtime; e.g. a screen switch or a file operation, etc. Before a button can be added to your project, you must first create the function that the button will activate. Two of the most common functions that you will use are the *screen switch* and *write set value* functions.

File Edit Screens Elements Cont	trol elements Options Windo	w Help	
	📐 🤁 100% 🔹 🤤 🧲		小鸟 顺度 而信 语
	termine the second s		
D • @ • 😘 🕨 💀 का का	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	i di	at at at at 🗖 🐻 🗛
roject Manager	Step 2		<b>▼</b> ‡ :
🗆 🖬 Workspace 'C:\Users\Public\Docu		X 1 1 1 1 1	्र 📑 🕖
CTITEMPLATE (Start projetion) Output: Contemplation of the start project of the sta	ect) Statut Name	Туре	Parameter
Screens	🔤 📢 New function	Ins Filter text 🛛 🖤	Filter text
Functions Step 1	scrSCREEN4	Screen switch	SCREEN4
	scrSCREEN3	Screen switch	SCREEN3
Historian	scrSCREEN2	Screen switch	SCREEN2
Recipes     Time control	scrEVENTS	Screen switch	EVENTS - [*][*]-[T,Rel:0d,1h,
Programming interfaces	scrNUMPAD	Screen switch	NUMPAD
5 straton (IEC 61131-3)	scrKEYBOARD	Screen switch	KEYBOARD
Scheduler	scrALARM	Screen switch	ALARM - [*][*]-[T,Rel:0d,1h,
- 🔒 Interlockings	ExitRuntime	Exit Runtime	
Message Control	ReloadProject	Reload project onli	changed objects
Menus	StartIExplorer	Start program	\windows\iesample.exe
Report Generator	scrMENU	Screen switch	MENU
By User administration     Files	scrSTART	Screen switch	HOME
History of changes	scrSCREEN1	Screen switch	SCREEN1
Project backups	scrPLC_Menu	Screen switch	PLC MENU

Step 1:

Step 2:

In the Project tree, click on the Functions icon.

In the Detail view, click on the New function icon.



#### Step 3:

When the *Select a function* window appears, select a function from the list and then click the OK button. In this example, the screen switch function is selected.

Workspace C:\Users\Public\Doc	🦉 🖣 🖻 🖉						
	Status	Name 🏟	Screen type	Frame	Backgro		
	=V	Filtertext	Filter text	Filtertext 🛛 🍸	Filtert		
	-	SCREEN5	Standard	MAIN	#EF		
		ALARM	Alarm Message list	MAIN	#EF		
	-	MENU	Standard	MENU	#E4		
		HOME	Standard	MAIN	#EF		
	-	SCREEN3	Standard	MAIN	#EF		
	1	PLC_MENU	Standard	DETAIL	#C4		
	-	KEYBOARD	Keyboard	KEYBOARD	#EF		
		EVENTS	Chronologic event list	MAIN	#EF		
		NUMPAD	Keyboard	NUMPAD	#EF		
		SCREEN1	Standard	MAIN	#EF		
		SCREEN4	Standard	MAIN	#EF		
		SCREEN2	Standard	MAIN	#EF		
	4						
<b>b</b>		tal / 12 filtered / 1 sele		1			
	12 00	tor/ 12 meercu/ 1 sere	cicu				

# **Step 4**: When the *Screen - selection* window appears, select a screen from the list and then click the OK button.

Status	Name M	Туре	Parameter
=	Filter text 🛛 🍸	Filter text 🛛 🍸	Filtertext
	scrSCREEN4	Screen switch	SCREEN4
	scrSCREEN3	Screen switch	SCREEN3
	scrSCREEN2	Screen switch	SCREEN2
	scrEVENTS	Screen switch	EVENTS - [*][*]-[T,Rel:0d,1h,0
	scrNUMPAD	Screen switch	NUMPAD
	scrKEYBOARD	Screen switch	KEYBOARD
	scrALARM	Screen switch	ALARM - [*][*]-[T,Rel:0d,1h,0
	ExitRuntime	Exit Runtime	
	ReloadProject	Reload project onli	changed objects
	StartIExplorer	Start program	\windows\iesample.exe
	scrMENU	Screen switch	MENU
	scrSTART	Screen switch	HOME
	scrSCREEN1	Screen switch	SCREEN1
	scrPLC_Menu	Screen switch	PLC_MENU
	Function 0	Screen switch	SCREEN1



In the Detail View, you can click on the new function to rename it.

#### 3.6.4 Creating Buttons

**Step 1**: In the Project tree, click on the Screens icon. In the Detail View, double click on the screen in which you will be placing a new button.

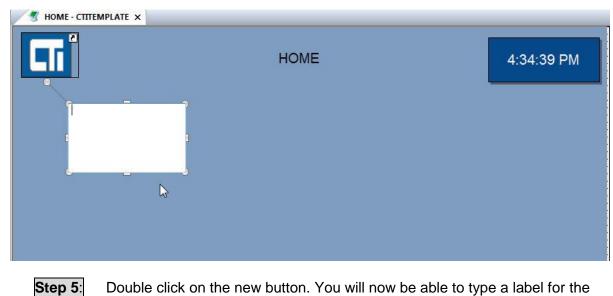
B00010	) P 🗆 t 🗉 🕢 🖓 🖶 🖬 🖼	💥 🗊 🔟 📑 🍄 🔤 į	a 🐺 ¥ 🐮 🛙	J *C
	Step 2			
		HOME		4:16:22 PM
	Step 3			
	Functions selection		-	
	Workspace 'C:\Users\Public\Doc			
	CTIZENONDEMO	Status Name 🖊	Туре	Parameter
	-	Filter text	Filter text 🛛 🍸	Filter text 🛛 🕅
		scrSCREEN4	Screen switch	SCREEN4
		scrSCREEN3	Screen switch	SCREEN3
		scrSCREEN2	Screen switch	SCREEN2
		scrEVENTS	Screen switch	EVENTS - [*][*]-[T,Rel:0d,1h,0m,0s]
		scrNUMPAD	Screen switch	NUMPAD
		scrKEYBOARD	Screen switch	KEYBOARD
		scrALARM	Screen switch	ALARM - [*][*]-[T,Rel:0d,1h,0m,0s]
		ExitRuntime	Exit Runtime	The same [ ][ ] [ ] [ ] ( ] ( ] ( ] ( ] ( ] ( ]
		ReloadProject	Reload project onli	changed objects
		StartIExplorer	Start program	\windows\iesample.exe
		scrMENU	Screen switch	MENU
		scrSTART	Screen switch	HOME
		scrSCREEN1	Screen switch	SCREEN1
		scrPLC_Menu	Screen switch	PLC_MENU
Output window		Ste	р 4	
Insert proj	• <u> </u>	14 total / 14 filtered / 1 sele	cted	
Load projec		No selection	_	OK Cancel Help
		NO SCIECUUIT		
-				

Step 2:

Click on the icon for Create a button.

**Step 3**: In the *Screen Editor* window, click and drag a new button on the screen.

**Step 4**: You will now need to select a function for your button. When the Functions selection window appears, select the function and click the OK button.



Double click on the new button. You will now be able to type a label for the button.

# 3.6.5 Adding Graphical Symbols

The Zenon Editor has a large graphical symbols library that you may use to create your project screens. You may use these symbols in your project or create your own by editing an existing symbol.

ile Edit Screens Elements Control ele	ments Options Window He	lp		
B 🗊 🐰 🖻 😤 🛷 🦘 🔊 📐 🤅	3 100% 💽 🤤 🕘		😫   111 🖂 111	e i t
D • @ • 🖓   🕨 🔛 🖓 🖓		• 4:4:	🔺 🖉 📰 🐻	20
oject Manager				<b>4</b>
- Workspace 'C:\Users\Public\Documents'	隆 📩 🗔 🖉 🦧 😰 🛛	h n × III - I		5
CTITEMPLATE (Start project)     Start project)	Element name M	Preview	Category	
🗄 📲 Screens	Filtertext	Filter text 🛛 🖓	Filter text	-
Constant Service	+-ISA-S55D			
Time control Programming interfaces S straton (IEC 61131-3)	+-Misc CE			
Scheduler     Interlockings     Message Control     Menus	- Motors CE			
	brake motor CE			
History of changes     Project backups     CTIZENONDEMO     Global symbol library	-chemical pump CE			
	simple mixer CE			
	single level compressor CE			
	•	III		

- **Step 1**: To add a graphical symbol to your project screen, click on the *Global symbol library* icon in the Project tree.
- **Step 2**: Find a symbols folder that contains your desired symbol, for example the 'Motors' folder contains a variety of motor and pump symbols.
- **Step 3**: Click on the '+' beside the desired folder to view the symbols contained therein.

		10	• u ×	S HOME - CTITEMPLATE X	
🍄 🏷 🛛 🛃 🛷 🦉 👘 Element name	Preview	- III III III III III Ma Category	• ol		LION
Filter text. 🛛 🍸	Filter text	♥ Filter text	_		HOME
+ Misc CE			-	۹	
Motors CE					
brake motor CE					
-chemical pump CE		15			
simple mixer CE					



Click and drag a symbol from the library folder onto an open screen in the Screen Editor window.

## 3.6.5.1 Linking a Variable to a Graphics Symbol

The color and visibility of a graphics symbol can be controlled by linking the symbol to a variable which has defined limits. For example, earlier in section 3.7.2.1, we created a variable which we named 'X1'. Variable 'X1' had two defined limits, one limit that displayed the color red when X1 was equal to '0' and the other limit that displayed the color green when X1 was equal to '1'.

If we link this variable to the background color property of the new graphics symbol that we added to our project, then the motor color will appear red when X1 is equal to zero and it will appear green when X1 is equal to '1'.

Properties: Linked symbol: brak	e motor CE - Screen: HON	ME - Project: CTITEMPLATE	<b>→</b> ¤ ×
Representation     Color     Visibility/flashing     General     Position     Size and rotation dyi     Runtime     Linking rule	Colors dynamic Text/line color:	< no variable linked > < no variable linked >	Step 2

## Step 1:

In the Properties window for the new graphics symbol, click on the *Color* folder. You can also link a variable to *Visability/flashing* properties.

**Step 2**: Click on the Background color button to link a variable to this property.

Workspace 'C:\Users\Public\Doc	•	h n 🛃				
	Status	Name 🏼 🕅	Identification	Measur	Net address	Data I
, <b>**</b> - 2017 - 21 - 22 - 22 - 22 - 2	= 🍸	Filtertext	Filter text	7 Filter 7	Filter text 🛛 🖓	Filter text
		x4			0	
		х5			0	
		хЗ			0	
		<u>x1</u>			0	
		x2 45			0	

**Step 3**: Select the variable to link to your symbol and then click the OK button.

## 3.6.6 Adding Numerical Displays

A Numerical value display box is used to give a graphical readout of a variable value on a project screen.

A 0 ~ 8 \ D D D 2	🎟   🖓 🔅 🛶 🛛 🗮 兰 🔅 폐 🚰 🍄 🎟 🔄   🐺 🍝 抗 🖵 🍕
MOME - CTITEMPLATE X	Numerical value
	Create numerical value

# Step 1:

To add a *Numerical value* display to your project screen, click on the *Numerical value* icon in the *Elements* toolbar.

and a second second								_
			но	ME			11	:43:11 AM
•	Variable selection (Filtered: Numerica	3						×
	🖂 🖬 Workspace 'C:\Users\Public\Doc	<b>.</b>	21/					
	CTITEMPLATE CTIZENONDEMO	Status Na	me	M	Identification	Measur	Net address	Data b
	d_ ChileNonDemo	=	Filter text	Y	Filtertext	Pilter T	Filter text 🛛	Filter text
		x4					0	
		x5 x3		i.			0	-
		x1				1	0	- 1
		x2					0	
** 		Ste	эр З					
	۰ III ا	<ul> <li>5 total /</li> </ul>		ected 5 t	ags used / unlimite		ole	Help



Click and drag the numerical display to the desired size.

**Step 3**: When the variable selection window appears, click to select a variable to display and then click the OK button.

1		10
	1	

There are a number of properties available to customize your Numerical value display. We will examine a couple of them.

Properties: Numerical value: Nu 🏭 🖺 🚍 🙀 💷 🕕 📼	merical value_1 - Screen:	HOME - Project	: CTITEMPLATE	<b>→</b> ‡ X
Representation     Color     Borders/Shadows     Visibility/flashing     General	Colors static Text color: ##00 Transparent	00000	Background color:	#000
	Colors dynamic Text/line color:	< no variable	linked >	
Authorization     VBA     Write set value     Variable / function	Background color:	< no variable	linked >	 23

Step 4:

Under the color folder, the background color and Text/line color can be link to a variable with defined limits.

Properties: Numerical value: Nu	-	: HOME - Proje	d: CTITEMPLATE	★ û ×
Color Color Color Dorders/Shadows	Write set value		I propose current	value
General Position	Set value / change	e 0 🗸	Write set value via:	Dialogbi 👻
Size and rotation dyi	External program:			
Runtime Authorization	☑ Use screen Key	board	Screen Keyboard:	<no scre<="" td=""></no>
	SV limits static Take set value	limits from vari	iable	
	Minimum:	0.000000	Maximum: 1.00000	0

Step 4:

Under the Write set value folder, the Setting values active checkbox allows the value in the Numerical value display to be changed in the Runtime by the user. Removing the check from the checkbox disables the Runtime user from being able to change the value from the Numerical value display. If *Setting values active* is selected then you may configure the input method. You may use a dialog box, an onscreen keyboard, a slider, etc. for the input method.

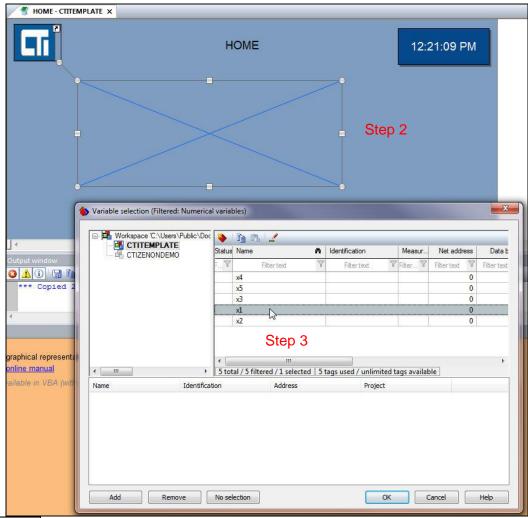
# 3.6.7 Adding a Trend Element

A Trend element is a dynamic element for displaying variable values in trend curves. Trend curves depict the course of value over a selected time interval.





To add a *Trend element* to your project screen, click on the *Trend Element* icon in the *Elements* toolbar.



Step 2:

Click and drag the Trend element to the desired size.

**Step 3**: Select a variable to display in the trend graph.

personal processing and the second se	element: Trend element_3 - Screen: HOME - Project: CTITEMPLATE	★ # X
Represent	Curves {Curve new}: Click here ->	<u>ع</u> الي ال
	In the Properties window, click on the <i>Curves</i> folder.	
Step 6:	Click the <i>Curve new</i> button. When a variable selection window appears, select a variable from the click the OK button	ne list and
x1 01	click the OK button.	
100%]		

	12:14:09 PM	12:16:09 PM	12:18:09 PM	12:20:09 PM	12:22:09 PM	12:24:09 PM
25%	;-					
50%	-					
100%						

The Trend element display contains a data chart area and a variable key.

**Step 7**: Resize the trend chart as needed to allow for proper viewing of data.

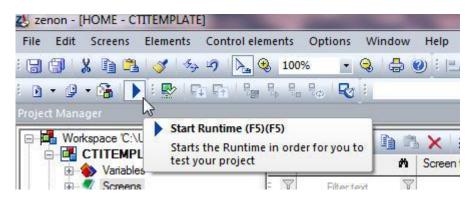
Properties: Trend element: Tren	id element_1 - Screen	HOME - Project: CT	TTEMPLATE		<b>▼</b> ₽ ×
		Ì			
Color	Curves {Curve new}: (	Click here ->			
	Curve[1]				
- Carlosition	{Delete curve}:	Click here ->			
🛅 Runtime 🛅 VBA	Line color:	#000000	Line type:	[	•
	Curve name:				
Curve[ht]	Variable:	x1			
	Display range st		1		
		y range from variab			
	Min. display rar	nge: 0.000000	Max. displa	ay range: 1.000	000

**Step 8**: Properties for the new Trend curve such as line color and type can be changed in the Properties window under the Curve folder.

**Step 9**: Additional curves can be added to the Trend element display by clicking on the *Curve new* button.

## 3.6.8 Testing your Runtime Project

After adding various elements to your project, you can test them by executing a test runtime on your computer.



**Step 1**: Click the *Start Runtime* button in the Runtime files toolbar to test your Project changes. If you do not have an Exit button defined in your project, press ALT+F4 to exit the runtime.

# 3.7 Transfering a Project Runtime to the Panel

Transfering a project runtime to your HMI panel consists of the following steps:

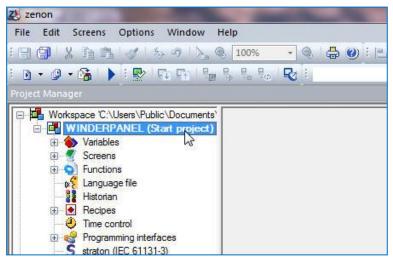
- 1) Reading this Section
- 2) Setting the IP address of your Panel
- 3) Connecting the Editor PC to 2500-VP15 Panel
- 4) Establishing a Remote Transfer Connection
- 5) Transfering Project Files
- 6) Setting the Start Project

#### 3.7.1 Configuring Communications Between Editor PC and HMI Panel

To download a runtime project to your HMI panel you will need to do the following things to establish a communication link:

- 1. Connect your editor computer to the CTI 2500-VP15 panel with an Ethernet cable. You may also connect through an Ethernet switch or over a network.
- 2. Boot your panel to the Windows Desktop.
- 3. Ensure that you have chosen an IP address and subnet mask for your panel that matches the class of the network to which you are connecting. See section 1.6.

#### 3.7.2 Configuring and Establishing a Remote Transfer Connection



Step 1:

Click on the name of your project in the Project tree of your Zenon Editor software.

Properties: Project: WINDERPANE				<b>▼</b> ‡ ×
General Network Graphical design Touch operation Runtime settings Functions User administration Alarm Message list	General Remote transport: Create RT files for: Windows CE pro Multiuser project	oject	RT changeable data: Project description: Database server:	
Chronologic event li	Name/Folder			
	Project name: \	WINDERPANEL		
History of changes	Runtime folder:	C:\Users\Public\Documents\:	zenon_Projects\My Projects\WINDERPANEL	
	Project ID: 1	b5613c2-8bcb-4816-b4a6-99	fe4663fff3	
	Data folder:			
	File storage: 0	Click here ->		

# Step 2:

In the *Properties* window of the Editor, click on the *General* folder. Then click on the button for *Remote transport* found in the properties detail window.

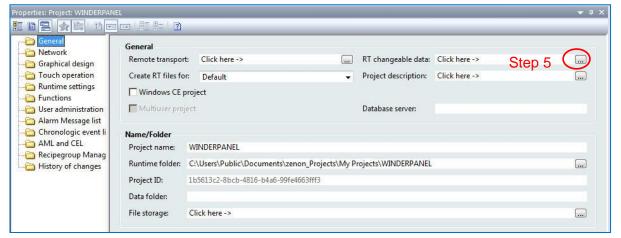
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	active		Target	Revision	Description A	
1		C:\Users\Public\Documents\zenon_Projects\CTI HMI TEMPLATES\CTITEMPLA_c:\hard disk\zenon		Сору	Runtime folder	
2	-	C:\Users\Public\Documents\zenon_Projects\CTI HMI TEMPLATES\CTITEMPLA		Сору	Graphics	
3	-	C:\Users\Public\Documents\zenon_Projects\CTI HMI TEMPLATES\CTITEMPLAT C:\Users\Public\Documents\zenon_Projects\CTI HMI TEMPLATES\CTITEMPLAT	Step 4	Сору	Texts and formats Multimedia	
4		C:\Users\Public\Documents\zenon_Projects\CTI HMI TEMPLATES\CTITEMPLA C:\Users\Public\Documents\zenon_Projects\CTI HMI TEMPLATES\CTITEMPLA	otop i	Сору	Table folder (*.xrs	
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7		C:\Users\Public\Documents\zenon_Projects\CTI HMI TEMPLATES\CTITEMPLAT C:\Users\Public\Documents\zenon_Projects\CTI HMI TEMPLATES\CTITEMPLAT		Сору	Others	
8		C:\Users\Public\Documents\zenon_Projects\CTI HMI TEMPLATES\CTITEMPLAT		Сору	Driver	
9		C:\Users\Public\Documents\zenon_Projects\CTI HMI TEMPLATES\CTITEMPLAT		Сору	straton	
	X			Сору	Staton	

#### Step 3:

Enter the IP address of the CTI panel in the box near the top of the remote transport window.

#### Step 4:

Enter the following *Target* location in line 1 of the Source/target table: *'c:\zenon'*. Then, click the OK button.



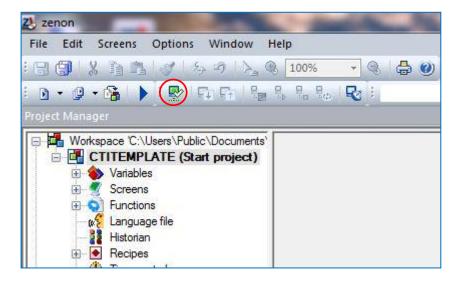
#### Step 5:

In the *Properties* window of the Editor, click on the *General* folder. Then click on the button for *RT changeable data* found in the properties detail window.

angeable data			
Module	Do not generate and transfer	Do not decompile	OK
Recipegroup Manager			Help
Standard recipes			
User administration			
Scheduler			
Message Control			



Make sure that all of the boxes are empty in the RT changeable data window. If there are any check marks in the boxes, click to remove them. Then click the OK button.



#### Step 7:

Click on the icon for *Establishing a Remote Transport Connection* as indicated in the above image.

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[ c	hange connection pa	assword
Options		
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**Step 8**: When the window pictured above appears, click on the OK button. No password is required unless you choose to require a download password.

#### 3.7.1 Transferring Project Files and Setting Start Project

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		SCREEN5		
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Step 1:

Click on the icon for *Transfer changed runtime files* as indicated in the image above. In the Output window of the Zenon editor, you will see a number of files being transferred to the CTI Panel.

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**Step 2**: Click on the icon for *Set remote start project* as indicated in the image above.

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**Step 3**: Click on the icon for *Remote: Start runtime* as indicated in the image above. Your project should soon appear on the 2500-VP15 panel.

## 3.8 Running Your Project for the First Time

After you have successfully transferred your project to the CTI Panel, the panel is ready to be connected to your control system. Once a project is loaded on the CTI panel, the panel will automatically start the project when the panel is rebooted.



Connect the Ethernet Cable to the 2500-VP15 that permits it to communicate with the PLC processor(s).

NOTE The 2500-VP15 has two Ethernet ports. Ensure that you have connected to and configured the correct panel Ethernet port.

NOTE It is recommended that a 'static' (manual) IP address be used for the HMI panel. Using DHCP may cause loss of communications between your HMI panel and other devices.

NOTE You must choose your IP address and subnet mask to match the class of network in which your control system will reside. For example, a class 'C' network has a subnet mask of 255.255.255.0 and the first three numbers of all of the IP addresses on the network must match.

Step 2:

Reboot the 2500-VP15 panel. Your HMI project should automatically load.

**Step 3**: Test your project screens for proper data display and control functionality.

NOTE

If there is a communication problem between your HMI panel and target device(s), you will see small, square red dots next to data display items. The red dot indicates that a variable cannot be updated due to failed communications.

# LIMITED PRODUCT WARRANTY

<u>Warranty</u>. Control Technology Inc. ("CTI") warrants that this CTI Industrial Product (the "Product") shall be free from defects in material and workmanship for a period of one (1) year from the date of purchase from CTI or from an authorized CTI Industrial Distributor, as the case may be. Repaired or replacement CTI products provided under this warranty are similarly warranted for a period of 6 months from the date of shipment to the customer or the remainder of the original warranty term, whichever is longer. This Product and any repaired or replacement products will be manufactured from new and/or serviceable used parts which are equal to new in the Product. This warranty is limited to the initial purchaser of the Product from CTI or from an authorized CTI Industrial Distributor and may not be transferred or assigned.

2. <u>Remedies.</u> Remedies under this warranty shall be limited, at CTI's option, to the replacement or repair of this Product, or the parts thereof, only after shipment by the customer at the customer's expense to a designated CTI service location along with proof of purchase date and an associated serial number. Repair parts and replacement products furnished under this warranty will be on an exchange basis and all exchanged parts or products become the property of CTI. Should any product or part returned to CTI hereunder be found by CTI to be without defect, CTI will return such product or part to the customer. The foregoing will be the exclusive remedies for any breach of warranty or breach of contract arising therefrom.

3. <u>General.</u> This warranty is only available if (a) the customer provides CTI with written notice of a warranty claim within the warranty period set forth above in Section 1 and (b) CTI's examination of the Product or the parts thereof discloses that any alleged defect has not been caused by a failure to provide a suitable environment as specified in the CTI Standard Environmental Specification and applicable Product specifications, or damage caused by accident, disaster, acts of God, neglect, abuse, misuse, transportation, alterations, attachments, accessories, supplies, non-CTI parts, non-CTI repairs or activities, or to any damage whose proximate cause was utilities or utility-like services, or faulty installation or maintenance done by someone other than CTI.

4. <u>Product Improvement.</u> CTI reserves the right to make changes to the Product in order to improve reliability, function or design in the pursuit of providing the best possible products.

5. <u>Exclusive Warranty.</u> THE WARRANTIES SET FORTH HEREIN ARE CUSTOMER'S EXCLUSIVE WARRANTIES. CTI HEREBY DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED. WITHOUT LIMITING THE FOREGOING, CTI SPECIFICALLY DISCLAIMS THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NON-INFRINGEMENT, COURSE OF DEALING AND USAGE OF TRADE.

6. <u>Disclaimer and Limitation of Liability.</u> TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, CTI WILL NOT BE LIABLE FOR ANY BUSINESS INTERRUPTION OR LOSS OF PROFIT, REVENUE, MATERIALS, ANTICIPATED SAVINGS, DATA, CONTRACT, GOODWILL OR THE LIKE (WHETHER DIRECT OR INDIRECT IN NATURE) OR FOR ANY OTHER FORM OF INCIDENTAL, INDIRECT OR CONSEQUENTIAL DAMAGES OF ANY KIND. CTI'S MAXIMUM CUMULATIVE LIABILITY RELATIVE TO ALL OTHER CLAIMS AND LIABILITIES, INCLUDING OBLIGATIONS UNDER ANY INDEMNITY, WHETHER OR NOT INSURED, WILL NOT EXCEED THE COST OF THE PRODUCT(S) GIVING RISE TO THE CLAIM OR LIABILITY. CTI DISCLAIMS ALL LIABILITY RELATIVE TO GRATUITOUS INFORMATION OR ASSISTANCE PROVIDED BY, BUT NOT REQUIRED OF CTI HEREUNDER. ANY ACTION AGAINST CTI MUST BE BROUGHT WITHIN EIGHTEEN (18) MONTHS AFTER THE CAUSE OF ACTION ACCRUES. THESE DISCLAIMERS AND LIMITATIONS OF LIABILITY WILL APPLY REGARDLESS OF ANY OTHER CONTRARY PROVISION HEREOF AND REGARDLESS OF THE FORM OF ACTION, WHETHER IN CONTRACT, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHERWISE, AND FURTHER WILL EXTEND TO THE BENEFIT OF CTI'S VENDORS, APPOINTED DISTRIBUTORS AND OTHER AUTHORIZED RESELLERS AS THIRD-PARTY BENEFICIARIES. EACH PROVISION HEREOF WHICH PROVIDES FOR A LIMITATION OF LIABILITY. DISCLAIMER OF WARRANTY OR CONDITION OR EXCLUSION OF DAMAGES IS SEVERABLE AND INDEPENDENT OF ANY OTHER PROVISION AND IS TO BE ENFORCED AS SUCH.

7. <u>Adequate Remedy.</u> The customer is limited to the remedies specified herein and shall have no others for a nonconformity in the Product. The customer agrees that these remedies provide the customer with a minimum adequate remedy and are its exclusive remedies, whether based on contract, warranty, tort (including negligence), strict liability, indemnity, or any other legal theory, and whether arising out of warranties, representations, instructions, installations, or non-conformities from any cause. The customer further acknowledges that the purchase price of the Product reflects these warranty terms and remedies.

8. <u>Force Majeure.</u> CTI will not be liable for any loss, damage or delay arising out of its failure (or that of its subcontractors) to perform hereunder due to causes beyond its reasonable control, including without limitation, acts of God, acts or omissions of the customer, acts of civil or military authority, fires, strikes, floods, epidemics, quarantine restrictions, war, riots, acts of terrorism, delays in transportation, or transportation embargoes. In the event of such delay, CTI's performance date(s) will be extended for such length of time as may be reasonably necessary to compensate for the delay.

9. <u>Governing Law.</u> The laws of the State of Tennessee shall govern the validity, interpretation and enforcement of this warranty, without regard to its conflicts of law principles. The application of the United Nations Convention on Contracts for the International Sale of Goods shall be excluded.

# **REPAIR POLICY**

In the event that the Product should fail during or after the warranty period, a Return Material Authorization (RMA) number can be requested orally or in writing from CTI main offices. Whether this equipment is in or out of warranty, a Purchase Order number provided to CTI when requesting the RMA number will aid in expediting the repair process. The RMA number that is issued and your Purchase Order number should be referenced on the returning equipment's shipping documentation. Additionally, if the product is under warranty, proof of purchase date and serial number must accompany the returned equipment. The current repair and/or exchange rates can be obtained by contacting CTI's main office at 1-800-537-8398 or go to www.controltechnology.com/support/repairs/.

When returning any module to CTI, follow proper static control precautions. Keep the module away from polyethylene products, polystyrene products and all other static producing materials. Packing the module in its original conductive bag is the preferred way to control static problems during shipment. Failure to observe static control precautions may void the warranty.