

# Win-GRAF ViewPAC



## Features

- 5.7"/10.4"/15" TFT LCD
- Cortex-A8 CPU (32-bit & 1 GHz)
- Windows CE.NET 7.0 Inside
- Embedded Win-GRAF SoftLogic (IEC 61131-3)
- Hard Real-Time Capability
- 3 Slots for High Profile I/O Modules
- IP65 Compliant Front Panel
- Modbus RTU/TCP (Master, Slave)
- 64-bit Hardware Serial Number for Software Protection
- Audio with Microphone-In and Earphone-Out
- Operating Temperature: -20 ~ +70 °C



## Introduction

The **Win-GRAF ViewPAC** with I/O slot Series (**VP-1238-CE7**, **VP-4238-CE7**, **VP-6238-CE7**) is the new generation WinCE 7.0 based Win-GRAF PAC (Programmable Automation Controller) from ICP DAS. Each PAC is equipped with a Cortex-A8 CPU (32-bit & 1 GHz) running a Windows CE 7.0 operating system, a variety of input/output ports (USB, Ethernet, RS-232/485), 3 I/O slots that can be used to integrate high performance parallel I/O modules (high profile I-8K Series) or serial I/O modules (high profile I-87K series), and a 5.7"/10.4"/15" TFT LCD with a rubber keypad.

The Win-GRAF ViewPAC are capable of running Win-GRAF (IEC 61131-3 Standard) software to develop logic control, and also provide a free HMI software "eLogger" to edit the HMI by graphical drag and drop the HMI objects, or support M.S. VS 2008 software (VB .NET, C#) to develop HMI and data management applications, and all can exchange data with Win-GRAF applications. So the application's design is more convenient and practical.

## Windows Embedded Compact 7



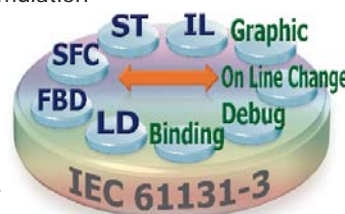
CE7 is a compact and hard real-time OS used to quickly create time critical and high performance applications. Using CE7 gives an ability to run PC-based control software such as Visual Basic .NET, Virtual C#, SCADA software, SoftPLC, etc.

- ★ FTP Server
- ★ Web Server
- ★ SQL Compact Edition 3.5
- ★ .NET Compact Framework 3.5
- ★ Virtual CE Pro (VCEP)

## Win-GRAF

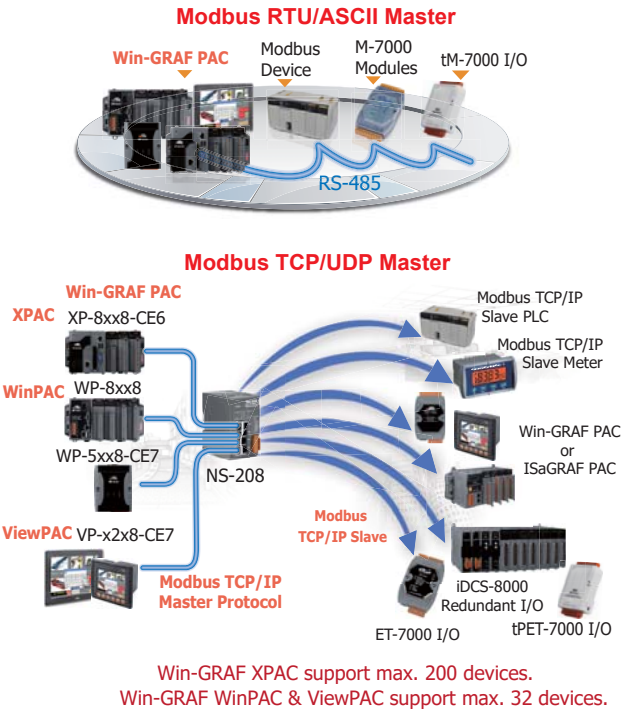
**Win-GRAF** is a powerful, PLC-like, softlogic development software. It is installed on PC with windows 7 or 8. It supports the international PLC language standard - IEC 61131-3 - Ladder Diagram (LD), Function Block Diagram (FBD), Sequential Function Chart (SFC), Structured Text (ST), Instruction Set (IL), suitable to develop applications for the full range of Win-GRAF PACs from ICP DAS.

- IEC 61131-3 Standard Open PLC Syntax (LD, FBD, SFC, ST, IL)
- Using ST Syntax in the FBD or LD Program
- Event Triggered Data Binding (Exchange Data between PACs)
- Online Debugging/Control/Monitoring, Offline Simulation
- On Line Change
- Various Protocols:
  - Modbus TCP/UDP, Modbus RTU/ASCII Master
  - Modbus TCP, RTU Slave
  - DCON ...
- Plenty of Functions, Function Blocks, I/O Boards
- Redundancy (For XP-8xx8-CE6 PAC only)



## Applications

### Modbus Master Ports

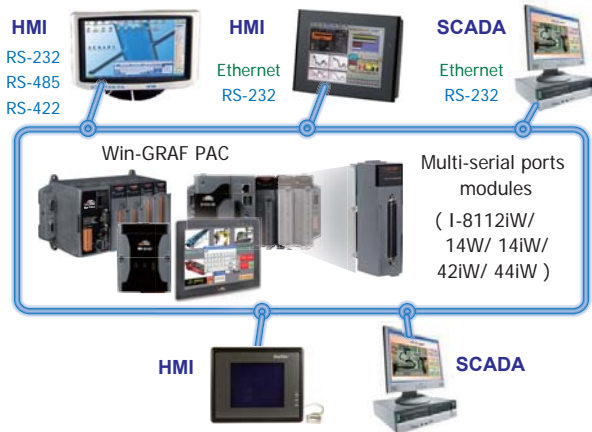


### On Line Change

- Replace the current running project to a new modified one without stopping the project.



### Modbus RTU/TCP Slave Ports

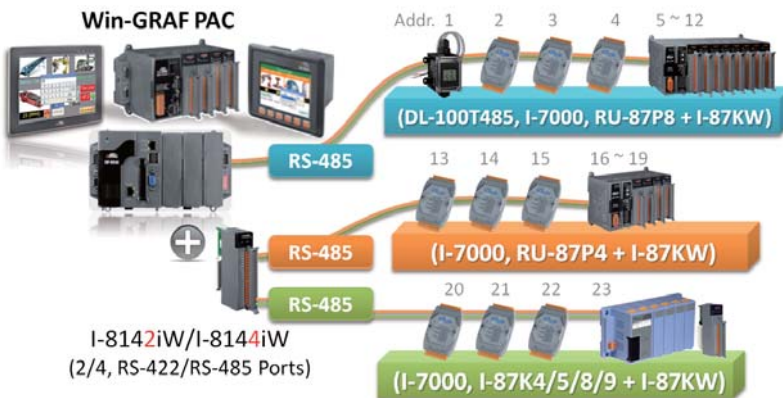


### Support VS 2008 Development

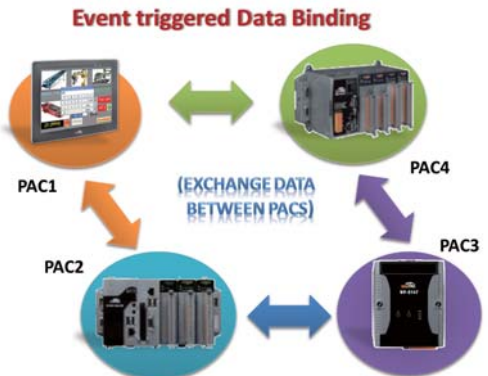
- The Win-GRAF PACs support to use VS 2008 (VB.net, C#) to develop user own HMI and data management programs, and can exchange variables with the Win-GRAF control programs.



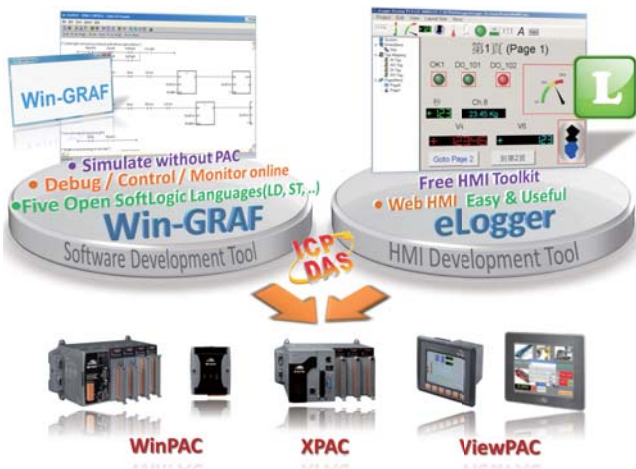
### DCON Remote I/O



### Data Binding



**eLogger HMI**

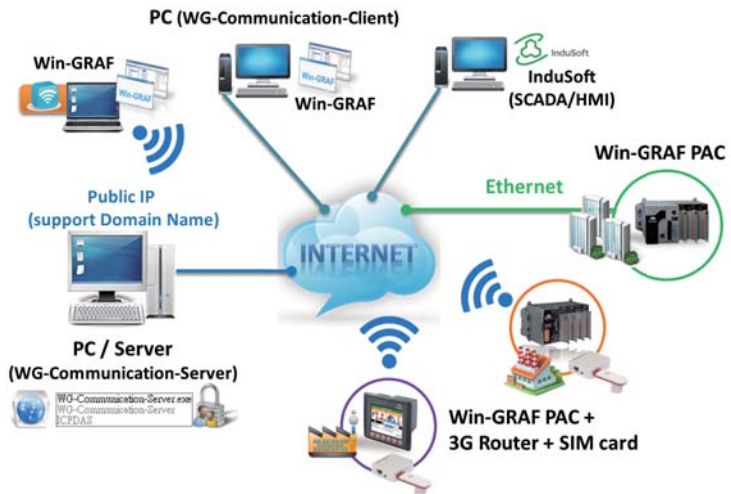


**Schedule Control**



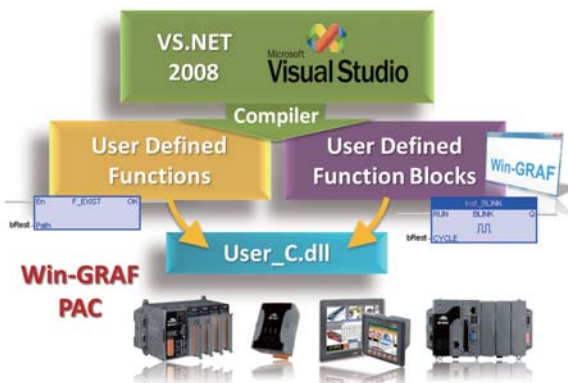
**Intelligent Win-GRAF 3G Solution**

- Only the WG-Communication Server (behavior like a Cloud Server) needs a public IP (Support Domain Name). Other PACs and PCs that connect to this Server no need a public IP.
- The user can monitor the remote PAC by using a 3G wireless network or an intranet.
- The user can use the Win-GRAF Workbench to connect to a remote PAC to debug/update the Win-GRAF program or update the Win-GRAF PAC Driver.
- The PAC can actively send a Log File to a PC (WG-Communication-Server).



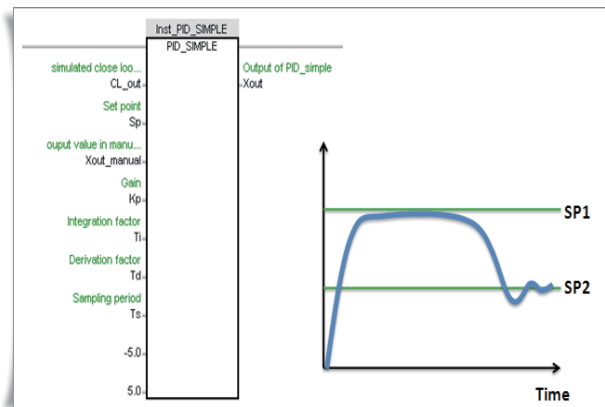
**Create Your Own Functions and Function Blocks**

- For some reason (like business protection, integration with your own product protocol, and etc.), you can develop your own functions and function blocks by VS 2008. Then, you can use these functions and function blocks in the Win-GRAF project.



**PID Control**

- Can Control more than 200 PID in one PAC.





## ViewPAC Specifications

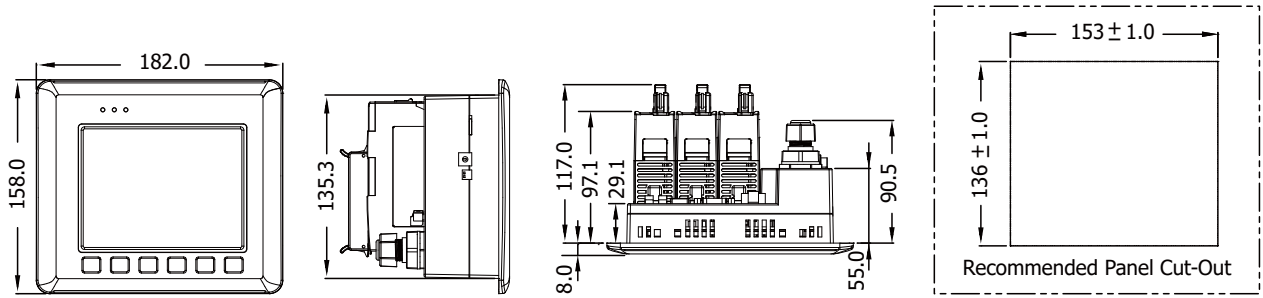
Models	VP-1238-CE7	VP-4238-CE7	VP-6238-CE7
<b>MMI (Man Machine Interface)</b>			
LCD	5.7" TFT (Resolution 640 x 480)	10.4" TFT (Resolution 800 x 600)	15" TFT (Resolution 1027 x 768)
Touch Panel	Yes		
Rubber Keypad	6 Keys	-	
Audio	Microphone-In and Earphone-Out	Earphone-Out	Microphone-In and Earphone-Out
Audio	Microphone-In and Earphone-Out		
LED Indicators	3 Dual-Color LEDs (PWR, RUN, LAN1, L1, L2, L3; L1~L3 For User Programmable)	2 Dual-Color LEDs (PWR, RUN)	
<b>System Software</b>			
OS	Windows CE.NET 7.0		
Framework Support	.NET Compact Framework 3.5		
Embedded Service	FTP server, Web server (supports VB script, JAVA script), Embedded SQL server		
SDK Provided	DII for VC, DII for Visual Studio .Net 2008		
Multilanguage Support	English, German, French, Spanish, Portuguese, Russian, Italian, Korean, Simplified Chinese, Traditional Chinese		
<b>Development Software</b>			
Win-GRAF Software	Win-GRAF	IEC 61131-3 standard	
	Languages	LD, ST, FBD, SFC, IL. Support eLogger HMI : WP-8xx8, WP-5xx8-CE7, WP-8xx8-CE7, XP-8x38-CE6, WP-9xx8-CE7 and VP-x2x8-CE7 PAC	
	Max. Code Size	2 MB	
	Scan Time	3 ~ 15 ms for normal program; 15 ~ 50 ms (or more)for complex or large program	
Non-Win-GRAF	Options: VS.NET 2008 (VB.NET, C#.NET, C)		
<b>CPU Module</b>			
CPU	Cortex-A8 (32-bit and 1 GHz)		
SDRAM	512 MB		
MRAM	128 MB		
Flash	256 MB		
EEPROM	16 KB		
Expansion Flash Memory	microSD socket with one 4 GB microSDHC card (support up to 32 GB microSDHC card)		
RTC (Real Time Clock)	Provide seconds, minutes, hours, day of week/month, month and year, valid from 1980 to 2079		
64-bit Hardware Serial Number	Yes		
Dual Watchdog Timers	Yes		
Rotary Switch	Yes (0 ~ 9)		
<b>Communication Interface</b>			
Ethernet	RJ-45 x 1, 10/100/1000 Base-TX (Auto-negotiating, Auto MDI/MDI-X, LED indicators)		
USB 2.0 (host)	1	2	
COM 2	RS-485 (D2+, D2-); self-tuner ASIC inside; 2500 VDC Isolated.		
COM 3	RS-232 (Rx/D, Tx/D, CTS, RTS, DSR, DTR, CD, RI and GND); Non-isolated		
<b>I/O Expansion Slot</b>			
Slot Number	3 (COM0, For High Profile I-8K and I-87K Modules Only)		
<b>Mechanical</b>			
Dimensions (W x H x D)	182 mm x 158 mm x 125 mm	293 mm x 229 mm x 129 mm	381 mm x 305 mm x 139 mm
Panel Cut-out (W x H)	153 mm x 136 mm ± 1.0 mm	276 mm x 214 mm ± 1.0 mm	366 mm x 290 mm ± 1.0 mm
Ingress Protection	Front panel: IP65		
<b>Environmental</b>			
Operating Temperature	-20 °C ~ +70 °C		
Storage Temperature	-30 °C ~ +80 °C		
Ambient Relative Humidity	10% ~ 90% RH, non-condensing		
<b>Power</b>			
Input Range	+10 ~ +30 VDC	+10 ~ +30 VDC (Redundant Power Inputs)	
Isolation	1 kV		
Capacity	2.5 A, 5 V supply to I/O expansion slots		
Consumption	0.3 A @ 24 VDC	0.45 A @ 24 VDC	0.65 A @ 24 VDC

## Win-GRAF Specifications

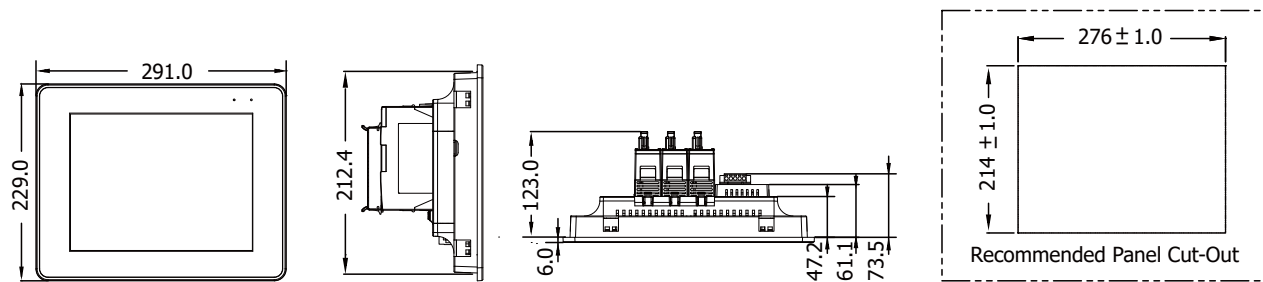
Models	VP-1238-CE7, VP-4238-CE7, VP-6238-CE7
<b>Protocols (Note that certain protocols require optional devices)</b>	
NET ID	1~255, for Modbus TCP/RTU Slave, user-assigned
Modbus TCP Master	A max. of <b>200</b> IP links to access/control the devices supporting Standard Modbus TCP Slave protocol.
Modbus RTU/ASCII Master	A max. of <b>14</b> ports: COM2, 3 and COM5 to 16 (*)
	Using COM ports to connect other Modbus Slave devices (Like M-7000). Recommend connecting no more than 32 devices in each port for better scan rate.
Modbus RTU Slave	A max. of <b>14</b> ports: COM2, 3 and COM5 to 16 (*)
	Using COM ports for connecting SCADA/HMI.
Modbus TCP Slave	One Ethernet ports (LAN1) support up to 64 connections. If the PAC uses 1 connection to connect each PC/HMI, it can connect up to 64 PCs/HMIs; If the PAC uses 2 connections to connect each PC/HMI, it can connect up to 32 PCs/HMIs; If one of the Ethernet port malfunctions, the other one can still be used to connect the PC/HMI.
User-defined Protocol	COM2, 3 and COM5 to 16 (*)
	Custom protocols can be applied at COM by using Serial communication functions or function blocks.
DCON Remote I/O	A max. of <b>14</b> RS-485 ports: COM2, 3 and COM5 to 16 (*)
	Each port can connect max. 50 nos I-7000 series modules or 50 nos I-87xxxW I/O modules in expansion units (I-87K4, I-87K8, I-87K9, RU-87P8, RU-87P4). Recommend connecting no more than 32 modules in each port for better scan rate.
App Protection	Using the unique 64-bit (8 bytes) PAC serial number to generate a protection password by your own algorithm to protect your Win-GRAF application. Then, if someone intend to copy your application in the PAC to another new PAC with the same PAC model, this application will not work properly in that new PAC.
Data Binding	Exchange data between ICP DAS Win-GRAF PAC via Ethernet port (LAN1). The data transmission is event triggered. It is much efficient than polling way.
On Line Change	For application field that not allowed to stop the Win-GRAF program and wish to run a new program modified a little from the original program.
Modbus RTU I/O	When software enables Modbus RTU Master function, the PAC can connect ICP DAS M-7000 and tM series and LC series I/O modules which support Modbus RTU protocol.
Modbus TCP I/O	When software enable Modbus TCP Master function, the PAC can connect ET-7000, I-8KE4/8-MTCP and tPET/tET series I/O modules of ICP DAS which support Modbus TCP protocol.
Schedule Control	Supports the "Schedule-Control Utility" (free) to implement schedule control. Each PAC can control max. 10 Targets (devices) with different schedule settings in each day / holiday / special day / season / year .
Retain Variables	Built-in the fast retain memory that can retain up to 12,000 Win-GRAF variables.
File Access & Data Log	The Win-GRAF supports file operation functions to read/write files in the PAC's micro_SD or flash memory to do data log or file access.
eLogger HMI	Support to run HMI program (developed by the eLogger) together with the Win-GRAF logic-control program in the same PAC.
<b>Optional I/O List</b> (Refer to <a href="http://www.icpdas.com/root/product/solutions/remote_io/rs-485/i-8k_i-87k/i-8k_i-87k_selection.html#a">http://www.icpdas.com/root/product/solutions/remote_io/rs-485/i-8k_i-87k/i-8k_i-87k_selection.html#a</a> )	
Digital Input (DI)	I-8040W, I-8040PW, I-8046W, I-8051W, I-8052W, I-8053W, I-8053PW, I-87040W, I-87040PW, I-87046W, I-87051W, I-87052W, I-87053W, I-87053PW, I-87053W-A2, I-87053W-A5, I-87053W-E5
Digital Input/Output (DIO)	I-8042W, I-8050W, I-8054W, I-8055W, I-87042W, I-87054W, I-87055W
Digital Output (DO)	I-8037W, I-8041W, I-8041AW, I-8056W, I-8057W, I-87037W, I-87041W, I-87057W, I-87057PW
Relay Output	I-8060W, I-8063W, I-8064W, I-8068W, I-8069W, I-87061W, I-87061PW, I-87063W, I-87064W, I-87065W, I-87066W, I-87068W, I-87068W-2A, I-87069W, I-87069PW
AC Input	I-8058W, I-87053W-AC1, I-87058W, I-87059W
Analog Input (AI)	I-8017DW, I-8017HW, I-8017HCW, I-87017W, I-87017RW, I-87017RCW, I-87017DW, I-87017W-A5, I-87017ZW, I-87018W, I-87018RW, I-87018PW, I-87018ZW, I-87019PW, I-87019RW, I-87019ZW
Analog Output (AO)	I-8024W, I-87024CW, I-87024UW, I-87024DW, I-87024RW, I-87024W, I-87028CW, I-87028UW, I-87028VW, I-87028VW-20V
Multifunction (DIO, AIO)	I-87026W
Temperature Input	Thermister: I-87005W; RTD: I-87013W, I-87015W, I-87015PW T/C: I-87018W, I-87018RW, I-87018PW, I-87018ZW, I-87019PW, I-87019RW, I-87019ZW
Strain Gauge	I-87016W
Counter/Frequency Input	I-8084W, I-87082W, I-87084W
Encoder Input	I-8093W
PWM Output	I-8088W
HART	I-87H17W
GPS	GPS-721
Communication Module	I-8112iW, I-8114W, I-8114iW, I-8142iW, I-8144iW
Temperature & Humidity Input	DL-100T485, DL-100T485-W, DL-100T485P, DL-100T485P-W (DCON Protocol) DL-100TM485, DL-100TM485-W, DL-100TM485P, DL-100TM485P-W (Modbus RTU Protocol)
<p>* Note: The COM5 ~ COM16 ports are located in the expansion boards if they are installed in slot 0 ~ 2 of VP-1238-CE7.</p> <p>* ICP DAS recommends using NS-205/208 or RS-405/408 (Ring Switch) Industrial Ethernet Switches.</p> <p>* For application with 1000 Mbps Ethernet communication, please select proper switch which support 1000 Mbps (like the NS-208AG, ...)</p>	

## Dimensions

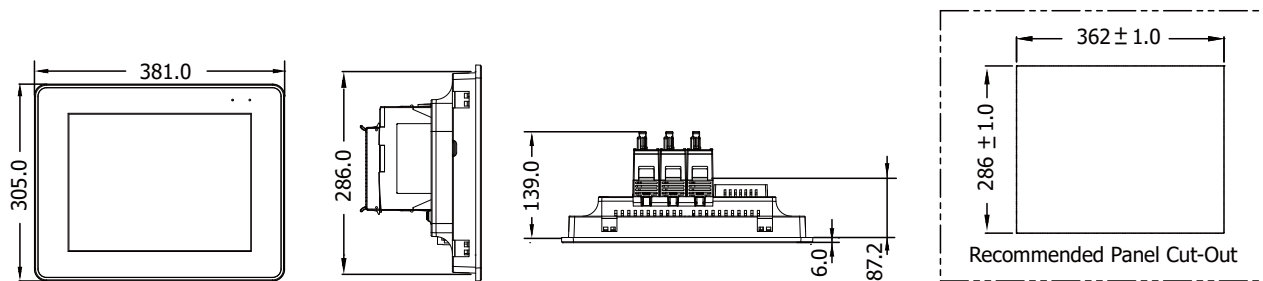
### VP-1238-CE7



### VP-4238-CE7

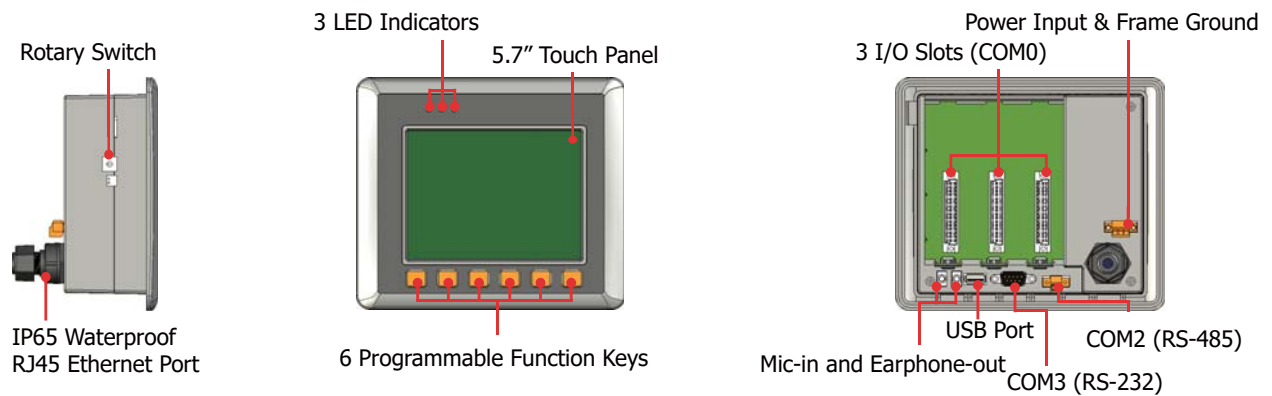


### VP-6238-CE7

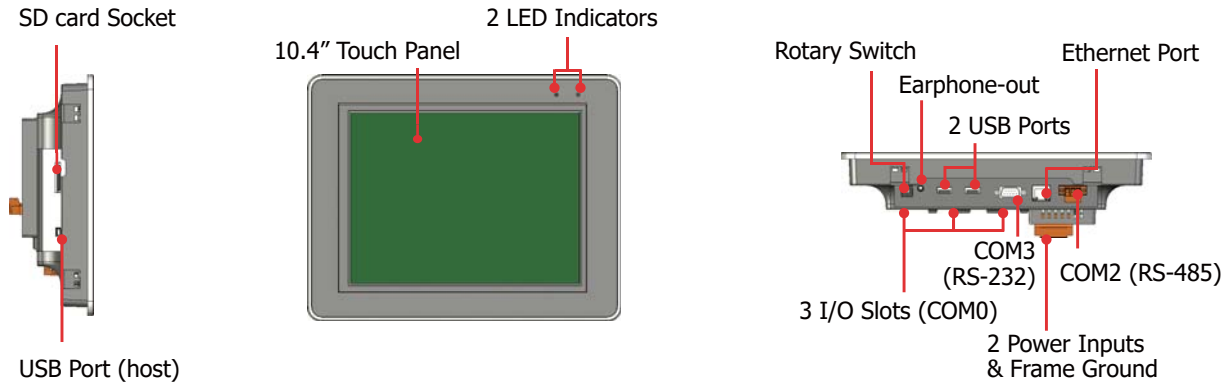


## Appearance

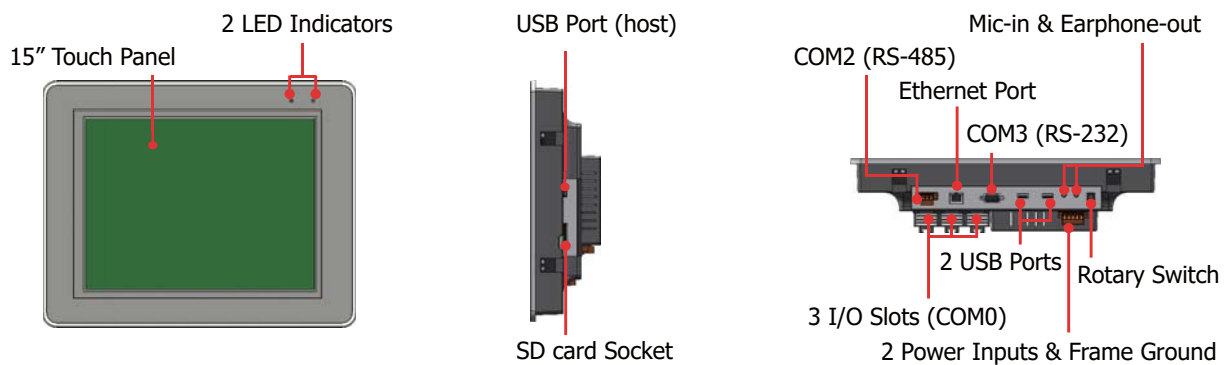
### VP-1238-CE7



**VP-4238-CE7**

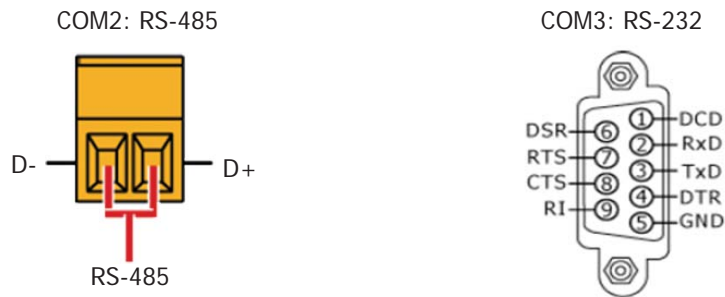


**VP-6238-CE7**



Win-GRAF ViewPAC

**Pin Assignment**



**Ordering Information**

<b>VP-1238-CE7 CR</b>	Win-GRAF based ViewPAC with 5.7" LCD and 3 I/O slots (RoHS)
<b>VP-4238-CE7 CR</b>	Win-GRAF based ViewPAC with 10.4" LCD and 3 I/O slots (RoHS)
<b>VP-6238-CE7 CR</b>	Win-GRAF based ViewPAC with 15" LCD and 3 I/O slots (RoHS)

**Related Products**

<b>Win-GRAF Development Software</b>	
Win-GRAF Workbench	Win-GRAF Workbench Software (Large I/O Tags) with one USB Dongle

**Option Accessories**

DP-660	24 VDC/2.5 A, 60 W and 5 VDC/0.5 A, 2.5 W Power Supply with DIN-Rail Mounting
DP-1200 CR	24 VDC/5.0 A, 120 W Power Supply with DIN-Rail Mounting (RoHS)
MDR-60-24 CR	24 VDC/2.5 A, 60 W Power Supply with DIN-Rail Mounting (RoHS)
NS-205 CR / NS-208 CR	5-port / 8-port Unmanaged Industrial 10/100 Ethernet Switch with Plastic Case (RoHS)
RS-405 CR / RS-408 CR	5-port / 8-port Real-time Redundant Ring Switch (RoHS)