ISaGRAF WinCE ViewPAC

VP-23W7

VP-25W7

VP-4137

Available soon **VP-4147**

Features

- PXA270, 520 MHz CPU
- Windows CE 5.0
- Embedded ISaGRAF Ver.3 SoftLogic (IEC 61131-3)
- Hard Real-Time Capability
- 3 I/O Slots
- IP65 Compliant Front Panel
- 3.5"/5.7"/10.4" TFT LCD
- Modbus RTU/TCP (Master, Slave)
- Support Soft-GRAF HMI
- Audio with Microphone-In and Earphone-Out
- Operating Temperature: -20 ~ +70°C

Introduction

The **ISaGRAF WinCE ViewPAC** Series **(VP-23W7/25W7/4137/4147)** is the new generation WinCE 5.0 based ISaGRAF PAC (Programmable Automation Controller) from ICP DAS. Each VP-2xW7/4xx7 is equipped with a PXA270 CPU (520 MHz) running a Windows CE 5.0 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 3.5" TFT LCD with a rubber keypad or a 5.7"/10.4" TFT Touch LCD.
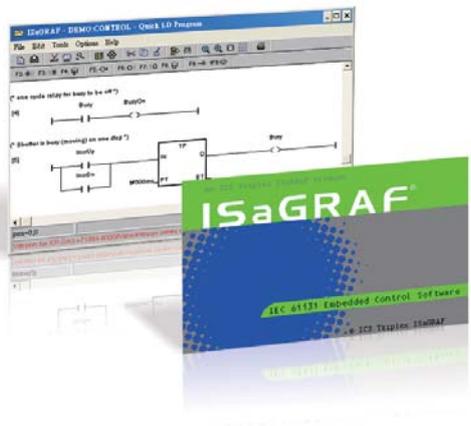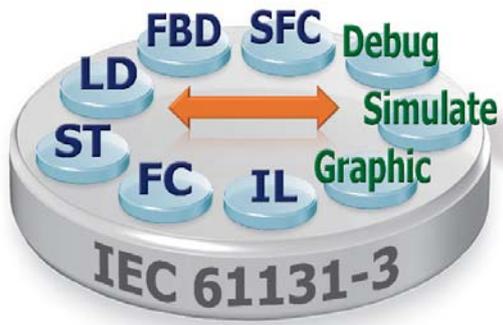
The benefits of running Windows CE 5.0 on a WinPAC device include hard real-time capability, small core size, fast boot speed, interrupt handling at a deeper level and achievable deterministic control. WinPAC devices are also capable of running ISaGRAF and PC-based control software, such as Visual Basic .NET, Visual C#, etc., providing all of the best features of both traditional PLCs and Windows capable PCs.

ISaGRAF Features

ISaGRAF is the most powerful SoftLogic package on the market, and is a PLC-like software suite application that supports IEC 61131-3 standard PLC programming languages (LD, FBD, SFC, ST, IL). ISaGRAF can be used to execute applications generated by the ISaGRAF workbench on any ISaGRAF PAC.

The features of the ISaGRAF workbench Ver. 3.x include:

- IEC 61131-3 Standard Open PLC Programming Languages (LD, FBD, SFC, ST, IL) + Flow Chart (FC)
- Auto-scan I/O
- Online Debug/Control/Monitor, Offline Simulation
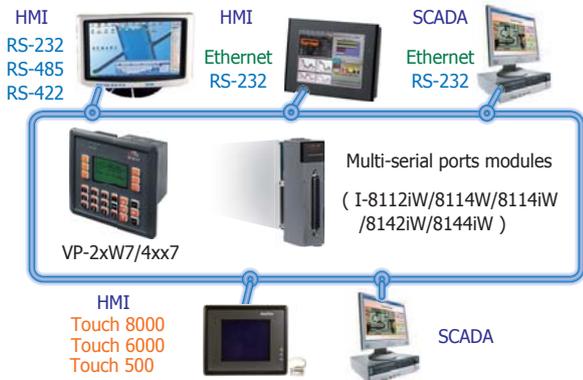- Simple Graphic HMI
- Support Soft-GRAF HMI
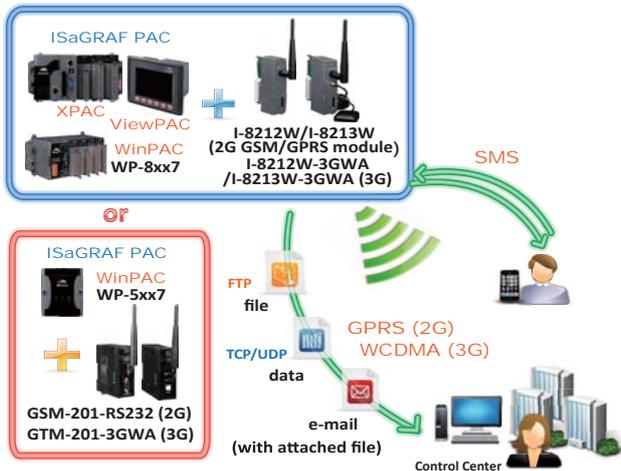
Applications

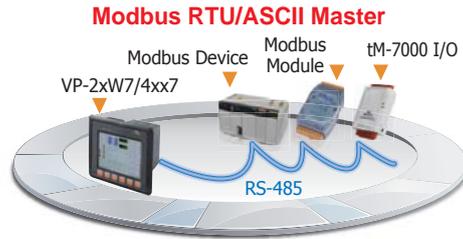## Soft-GRAF Studio Colorful HMI
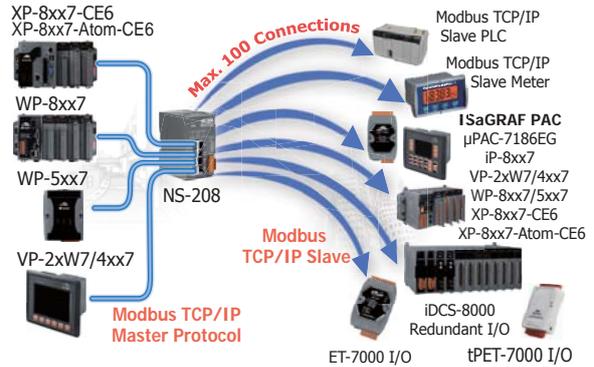

Schedule Control

Modbus RTU/TCP Slave Ports

HMI
RS-232
RS-485
RS-422

HMI
Ethernet
RS-232

SCADA
Ethernet
RS-232

Multi-serial ports modules
(I-8112iW/8114W/8114iW
/8142iW/8144iW)

VP-2xW7/4xx7

HMI
Touch 8000
Touch 6000
Touch 500

SCADA

2G/3G Wireless Application

ISaGRAF PAC

XPAC   ViewPAC

WinPAC
WP-8xx7

I-8212W/I-8213W
(2G GSM/GPRS module)
I-8212W-3GWA
/I-8213W-3GWA (3G)

or

ISaGRAF PAC

WinPAC
WP-5xx7

GSM-201-RS232 (2G)
GTM-201-3GWA (3G)

FTP
file

TCP/UDP
data

e-mail
(with attached file)

SMS

GPRS (2G)
WCDMA (3G)

Control Center

Modbus Master Ports

Modbus RTU/ASCII Master

Modbus Device   Modbus Module   tM-7000 I/O

VP-2xW7/4xx7

RS-485

Modbus TCP/IP Master

XP-8xx7-CE6
XP-8xx7-Atom-CE6

WP-8xx7

WP-5xx7

NS-208

VP-2xW7/4xx7

Max. 100 Connections

Modbus TCP/IP
Slave PLC

Modbus TCP/IP
Slave Meter

ISaGRAF PAC
μPAC-7186EG
iP-8xx7
VP-2xW7/4xx7
WP-8xx7/5xx7
XP-8xx7-CE6
XP-8xx7-Atom-CE6

iDCS-8000
Redundant I/O

ET-7000 I/O   tPET-7000 I/O

Modbus
TCP/IP Slave

Modbus TCP/IP
Master Protocol

Send Email with one Attached File

Gateway Server in
ISP Company

Internet

VP-2xW7/4xx7

Internet

NS-205

RS-485   Ethernet

I-87K4/8   I-7000

I-87K4/8 + I-87K
High Profile I/O

Remote I/O Modules

Remote I/O Application

I-7000   I-87K4/8 + I-87K high profile I/O

Remote I/O

Nearly 100 choices of
Remote I/O modules:
I-7000 & I-87K

COM2: RS-485

VP-2xW7/4xx7

Ethernet
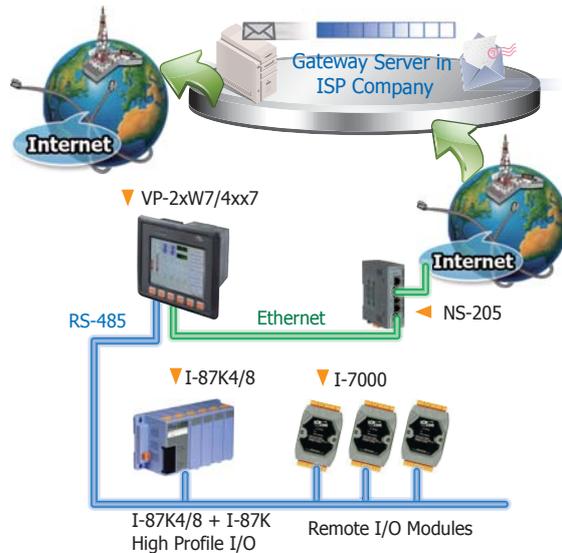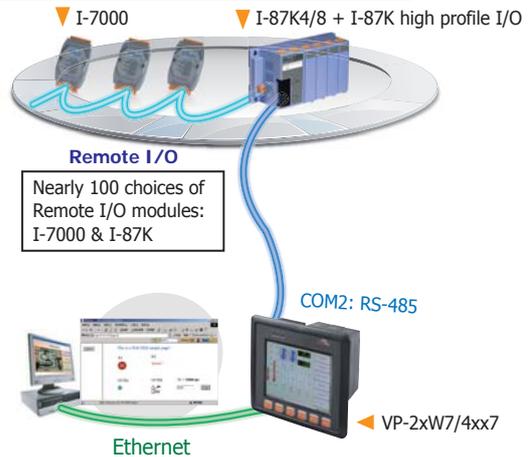
ISaGRAF WinCE ViewPAC

ViewPAC Specifications

Models	VP-23W7	VP-25W7	VP-4137	VP-4147
System Software				
OS	Windows CE 5.0			
.Net Compact Framework	3.5			
Embedded Service	FTP server, Web server (supports VB script, JAVA script), Embedded SQL server			
SDK Provided	Dll for eVC, Dll for Visual Studio.Net 2005/2008			
Multilanguage Support	English, German, French, Spanish, Russian, Italian, Korean, Simplified Chinese, Traditional Chinese			
Development Software				
ISaGRAF Software — ISaGRAF Ver.3	IEC 61131-3 standard			
ISaGRAF Software — Languages	LD, ST, FBD, SFC, IL & FC; Support Soft-GRAF HMI: XP-8xx7-CE6/8xx7-Atom-CE6, WP-8xx7/5xx7 and VP-2xW7/4xx7 PAC			
ISaGRAF Software — Max. Code Size	1 MB			
ISaGRAF Software — Scan Time	3 ~ 15 ms for normal program 15 ~ 50 ms (or more)for complex or large program			
Non-ISaGRAF	Options: MS eVC++ 4.0 or VS .NET 2005/2008 (VB.NET, C# .NET)			
Web Service				
Web HMI	PC running Internet Explorer can monitor/control PAC via Internet/modem			
Security	Support three-level username and password protection. (high/middle/low)			
CPU Module				
CPU	PXA270, 520 MHz			
SDRAM	128 MB			
Flash	96 MB		128 MB	
Expansion Flash Memory	microSD socket with one microSD card (support up to 32 GB)			
Dual Battery Backup SRAM	512 KB; data valid up to 5 years (for retain variables)			
EEPROM	16 KB			
RTC (Real Time Clock)	Provide second, minute, hour, date, day of week, month, year			
64-bit Hardware Serial Number	Yes, for Software Copy Protection			
Dual Watchdog Timers	Yes (0.8 second)			
Rotary Switch	Yes (0 ~ 9)			
Communication Interface				
Ethernet	RJ-45 x 1		RJ-45 x 2	
	10/100 Base-TX (Auto-negotiating, LED indicators)			
USB 1.1 (host)	1		2	
USB 1.1 (client)	-		1	
COM 0	Internal communication with the high profile I-87K series modules in slots			
COM 1	-			
COM 2	RS-485 (Data+, Data-) with internal self-tuner ASIC; 2500 V$_{DC}$ isolated			
COM 3	RS-232 (RxD, TxD, CTS, RTS, DSR, DTR, CD, RI and GND); Non-isolated			
MMI (Man Machine Interface)				
LCD	3.5″ TFT (Resolution 320 x 240)	5.7″ TFT (Resolution 640 x 480)	10.4″ TFT (Resolution 800 x 600)	
Touch Panel	-		Yes	
Rubber Keypad	24 keys	6 Keys	-	
Audio	Microphone-In and Earphone-Out		Earphone-Out	
LED Indicators	3 Dual-Color LEDs (PWR, RUN, LAN1, L1, L2, L3; L1 ~ L3 for User Programmable)		2 LEDs (PWR, RUN)	
I/O Expansion Slots				
Slot Number	3			
	Note: For High Profile I-8K and I-87K Modules Only			
Mechanical				
Dimensions (W x L x H)	182 mm x 158 mm x 125 mm		293 mm x 231 mm x 129 mm	
Installation	Panel Mounting			
Ingress Protection	Front panel: IP65			
Environmental				
Operating Temperature	-20 ~ +70°C			
Storage Temperature	-30 ~ +80°C			
Ambient Relative Humidity	10 ~ 90% RH (non-condensing)			
Power				
Input Range	+10 ~ +30 V$_{DC}$			
Isolation	1 kV			
Capacity	12.5 W			
Consumption	7.2 W		8.5 W	

◪ ISaGRAF Specifications

Protocols (Note that certain protocols require optional devices)	
NET ID	1 ~ 255, user-assigned by software
Modbus TCP/IP Master	Link to a max. of 100 devices that support the Standard Modbus TCP/IP Slave protocol (FAQ-113)
Modbus RTU/ASCII Master	A max. of 10 ports: COM2, 3 and COM5 ~ 14. (To connect to other Modbus Slave devices.) Support Multi-port. (*)
Modbus RTU Slave	A max. of 5 ports: one of COM2/3, COM5 ~ 8. (For connecting ISaGRAF, PC/HMI/OPC Server and HMI panels.) (*)
Modbus TCP/IP Slave	LAN1 and optional 2nd Ethernet Port in I-8135W support total up to 32 connections for connecting ISaGRAF and PC/HMI. If one of the Ethernet port malfunctions, the other one can still be used to connect to the PC/HMI.
Web HMI Protocol	Ethernet ports for connecting a PC running Internet Explorer.
User-defined Protocol	Custom protocols can be applied at COM2~3 and COM5~14 using Serial communication function blocks. (*)
I-7000 & I-87K RS-485 Remote I/O	One of COM2 or COM3 supports I-7000 I/O modules, I-87K base + I-87K Serial I/O boards, or RU-87Pn + I-87K High Profile I/O boards as remote I/O. A max. of 255 I-7000/87K remote I/O modules can connect to one PAC. (*)
M-7000 Series Modbus I/O	A max. of 10 RS-485 ports: COM2, 3, 5 ~ 14. Each port can connect to up to 32 M-7000 modules. (With optional I-7510 repeater connected can connect to up to more than 32 M-7000 Modules) (*)
Modbus TCP/IP I/O	Supports ICP DAS Ethernet I/O : I-8KE4-MTCP and I-8KE8-MTCP. If LAN1 malfunctions, it will automatically switch to the 2nd Ethernet port (in optional I-8135W card) to continuously work. (The IP address for LAN1 and the 2nd Ethernet's IP should be set in the same IP domain) (FAQ-042)
FRnet I/O	Enable a max. of 3 pcs. I-8172W boards in slot 0~2 to be used to connect to FRnet I/O modules, such as FR-2053, FR-2057, FR-32R, FR-32P. Each I-8172W board can link to a max. of 256 DI plus 256 DO channels. (FAQ-082, 154)
Send Email	Provide functions to send email with a single attached file via the Ethernet port.
Ebus	Used to exchange data between ICP DAS ISaGRAF Ethernet PACs via the Ethernet port. (LAN1 Port only)
SMS: Short Message Service	Either COM3 or COM5 can link to a GSM Modem to support SMS. The user can request data/control the controller via a cellular phone. The controller can also send data and alarms to the user's cellular phone. Optional GSM Modem: GTM-201-RS232 (850/900/1800/1900 GSM/GPRS External Modem)
MMICON/LCD	COM3 or COM5 supports the ICP DAS MMICON. (*) The MMICON is featured with a 240 x 64 dot LCD & a 4 x 4 Keyboard to display picture, string, integer, float, & input a char, string, integer & float.
UDP Server & UDP Client : Exchange Message & Auto-report	LAN1 or the 2nd Ethernet (in optional I-8135W card) supports the UDP Server and UDP Client protocols allowing messages to be sent/received to/from a PC/HMI or other device. For example, data can be automatically reported to the InduSoft's RXTX driver.
TCP Client : Exchange Message & Auto-report	LAN1 or the 2nd Ethernet (in optional I-8135W card) supports the TCP Client protocol allowing messages to be sent/received to/from a PC/HMI or other device that supports the TCP server protocol. For example, data can be auto-matically reported to the InduSoft's RXTX driver, or to connect a location camera.
GPRS/SMS	Enable the I-8212W (2G/3G) card allowing short messages to be sent/received to/from or to access a dial up con-nection to link to the Internet and using a GPRS connection to send an email or communicate with remote stations using the "FTP Client" (FAQ-151) or the "TCP Client"/"UDP Server"/"UDP Client" (FAQ-143) protocols.
SQL Client	Support for the SQL Client function that allows data to be written (or read from) a Microsoft SQL Server (2000 SP3, 2005, 2008).
Hot-Swap and Redundant System	Must enable the 2nd Ethernet port in the optional I-8135W card. This redundant system has setup two "Active IP" address point to the active VP-2xW7/2xW6 's LAN1 and 2nd Ethernet ports always. One or two or more PC / HMI / SCADA can communicate with this redundant system via one of the two given active IP. So the PC / HMI / SCADA can access to the system easily without any notice about which VP-2xW7/2xW6 is currently active. Moreover, the new redundant system can integrate with the RU-87P4 and RU-87P8 expansion unit plus the I-87K high-profile I/O cards to support the hot-swap application. If the I/O card is damaged, the maintenance person just takes one good-card with same model number to hot-swap the damaged one without stopping this redundant system. (FAQ-093)
CAN/CANopen	COM3 or COM5~14 can connect to one I-7530 (converter: RS-232 to CAN) to support CAN/CANopen devices and sensors. One PAC supports a max. of 10 RS-232 ports to connect a max. of 10 I-7530. (*) (FAQ-086)
CANopen Master	Enable the I-8123W CANopen Master card to connect to other CANopen Slave devices. (FAQ-145)
HART Solutions	Enable I-87H17W modules in slots 0 to 2 to communicate with other HART devices.
FTP Client	Enable the FTP Client to upload files from the PAC to a remote FTP server on a PC. (FAQ-151) The Soft-GRAF g_Alarm and g_Logger1 HMI objects also support FTP Client. (FAQ-146)
Soft-GRAF HMI	Provide support for the Soft-GRAF HMI. The user can design the HMI screen using the Soft-GRAF Studio on the PC and then download it to the PAC to display the HMI on the PAC. (FAQ-146)

Optional I/O Functions (Refer to the ISaGRAF PAC I/O Selection Guide for I/O Module list)		
PWM Output	High Speed PWM Module	I-7088, I-8088W, I-87088W: 8-ch. PWM outputs, software support 1 Hz~100 kHz (non-continuous), duty: 0.1~99.9%
	DO Module as PWM	8-ch. max. 250 Hz max. For Off=2 & On=2 ms. Output square curve: Off: 2 ~ 32766 ms, On: 2 ~ 32766 ms. Optional DO Boards: I-8037W, 8041W, 8041AW, 8042W, 8050W, 8054W, 8055W, 8056W, 8057W, 8060W, 8063W, 8064W, 8068W, 8069W. (Relay Output boards cannot generate fast square wave)
Counter, Encoder, Frequency	Parallel DI Counter	8-ch. max. For 1 controller. Counter val: 32-bit. 250 Hz max. Min. ON & OFF width must > 2 ms. Optional DI boards: I-8040W, 8040PW, 8042W, 8046W, 8048W, 8050W, 8051W, 8052W, 8053W, 8053PW, 8054W, 8055W, 8058W, 8063W.
	Serial DI Counter	Counter input: 100 Hz max. Counter value: 0 ~ 65535 (16-bit) Optional serial I-87K DI boards: I-87040W, 87046W, 87051W, 87052W, 87053W, 87053W-A5, 87054W, 87055W, 87058W, 87059W, 87063W.
	Remote DI Counter	All remote I-7K/I-87K DI modules support counters. 100 Hz max. Value: 0 ~ 65535
	High Speed Counter	I-87082W: 100 kHz max., 32-bit; I-8084W: 250 kHz max., 32-bit
	Encoder	I-8093W: 3-axis Encoder Module, max. 1M Hz for quadrant input mode, max. 4 MHz for pulse/direction and cw/ccw input mode. (FAQ-112) I-8084W: 250 kHz max., 4-ch encoder, pulse/direction or up/down or A/B phase (Quad. mode), Not support Encoder Z-index. (FAQ-100)
	Frequency	I-87082W: 2-ch, 1 Hz ~ 100 kHz; I-87088W: 8-ch, 0.1 Hz ~ 500 kHz; I-8084W: 8-ch, 1 Hz ~ 250 kHz;
Motion	Motion Control	one I-8091W (2-axis) or two I-8091W (4-axis) can do motion control. only one I-8091W can do X-Y dependent motion.
Port	Second Ethernet	VP-2xW7/2xW6/4137 can add one optional I-8135W card in its slot 0 ~ 2 to expand the second Ethernet port.

* Note: The COM5 ~ COM14 ports are located in the expansion boards if they are installed in slots 0~2 of VP-2xW7/4xx7.
* ISaGRAF FAQ: www.icpdas.com > Support > FAQ > ISaGRAF Soft-Logic PAC
* ICP DAS recommends using NS-205/208 or RS-405/408 (Ring Switch) Industrial Ethernet Switches.

ISaGRAF WinCE ViewPAC

☑ Appearance

VP-23W7	VP-25W7	VP-23W7/25W7

Rubber Keypad
3.5″ TFT LCD
LED Indicators
microSD Socket
Rotary SW.

Rubber Keypad
5.7″ TFT LCD with Touch Panel
LED Indicators
microSD Socket
Rotary SW.

I/O Expansion Slots   Power In & F.G.

Earphone-Out   USB   COM2 RS-485

Microphone-In   COM3 RS-232   LAN1 Ethernet

VP-4137/4147	VP-4137

10.4″ TFT LCD with Touch Panel

Power In & F.G.   I/O Expansion Slots   microSD Socket

USB Client
Earphone-Out
USB
Ethernet
RS-485   RS-232

☑ Ordering Information

VP-23W7-EN CR	ISaGRAF based ViewPAC with 3.5″ LCD and 3 I/O slots (Multilanguage Version of OS) (RoHS)
VP-23W7-TC CR	ISaGRAF based ViewPAC with 3.5″ LCD and 3 I/O slots (Traditional Chinese of OS) (RoHS)
VP-23W7-SC CR	ISaGRAF based ViewPAC with 3.5″ LCD and 3 I/O slots (Simplified Chinese of OS) (RoHS)
VP-25W7-EN CR	ISaGRAF based ViewPAC with 5.7″ Touch LCD and 3 I/O slots (Multilanguage Version of OS) (RoHS)
VP-25W7-TC CR	ISaGRAF based ViewPAC with 5.7″ Touch LCD and 3 I/O slots (Traditional Chinese of OS) (RoHS)
VP-25W7-SC CR	ISaGRAF based ViewPAC with 5.7″ Touch LCD and 3 I/O slots (Simplified Chinese of OS) (RoHS)
VP-4137-EN CR	ISaGRAF based ViewPAC with 10.4″ Touch LCD and 3 I/O slots (Multilanguage Version of OS) (RoHS)
VP-4137-TC CR	ISaGRAF based ViewPAC with 10.4″ Touch LCD and 3 I/O slots (Traditional Chinese of OS) (RoHS)
VP-4137-SC CR	ISaGRAF based ViewPAC with 10.4″ Touch LCD and 3 I/O slots (Simplifi ed Chinese of OS) (RoHS)
VP-4147-EN CR	ISaGRAF based ViewPAC with 10.4″ Touch LCD, 3 I/O slots and 2 Ethernet ports (Multilanguage Version of OS) (RoHS)
VP-4147-TC CR	ISaGRAF based ViewPAC with 10.4″ Touch LCD, 3 I/O slots and 2 Ethernet ports (Traditional Chinese of OS) (RoHS)
VP-4147-SC CR	ISaGRAF based ViewPAC with 10.4″ Touch LCD, 3 I/O slots and 2 Ethernet ports (Simplifi ed Chinese of OS) (RoHS)

☑ Software and Accessories

ISaGRAF Development Software	
ISaGRAF-256	ISaGRAF Workbench Software Ver.3 (256 I/O Tags) with one USB Dongle
ISaGRAF-32	ISaGRAF Workbench Software Ver.3 (32 I/O Tags)

Note: No upgrade service from ISaGRAF-32 to ISaGRAF-256 is available. (ISaGRAF-32 can be used to control more than 32 I/O tags. Please refer to Ch. 3.4 of the ISaGRAF User Manual.)

Accessories	
DP-660	24 V_{DC}/2.5 A, 60 W and 5 V_{DC}/0.5 A, 2.5 W Power Supply with DIN-Rail Mounting
MDR-60-24 CR	24 V_{DC}/2.5 A, 60 W Power Supply with DIN-Rail Mounting (RoHS)

ISaGRAF WinCE ViewPAC