RPAC-2658M

Win-GRAF based LinPAC-2000

Features

- Cortex-A9 CPU, 1.0 GHz, quad-core
- 1 GB DDR3 RAM and 8 GB eMMC Flash
- Linux Kernel 4.1.15
- Embedded Win-GRAF SoftLogic (IEC 61131-3)
- Support Dual PAC Redundant System
- Real-Time Capability
  (Built-in Xenomai Real-Time Core Architecture)
- 64-bit Hardware Serial Number for Software Protection
- 10/100/1000M Three Ethernet Ports
- 4 Serial Ports (RS-232/485/422)

Introduction

The Win-GRAF LinPAC-2000 Series (RPAC-2658M) is the new generation Linux based Win-GRAF PAC (Programmable Automation Controller) from ICP DAS. This PAC is equipped with a Quad-core Cortex-A9 CPU (1 GHz) and running a Linux operating system. Using the built-in microSD, the RPAC-2658M can save application programs, files, and data.

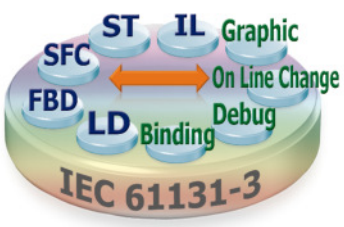
The benefits of running Linux on a Win-GRAF PAC device include real-time capability, achievable deterministic control, and allowing PAC can have a PC-like operating environment. The PAC is capable of running Win-GRAF (IEC 61131-3 Standard) software to develop logic control applications and also supporting C, C++ to develop data management applications that can exchange data with Win-GRAF applications. So the application's design is more convenient and more practical.

Win-GRAF

Win-GRAF is a powerful, PLC-like, softlogic development software. It is installed on PC with Windows 7/8 (or later version). 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.

The features of the Win-GRAF:

- 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 and RPAC-2658M



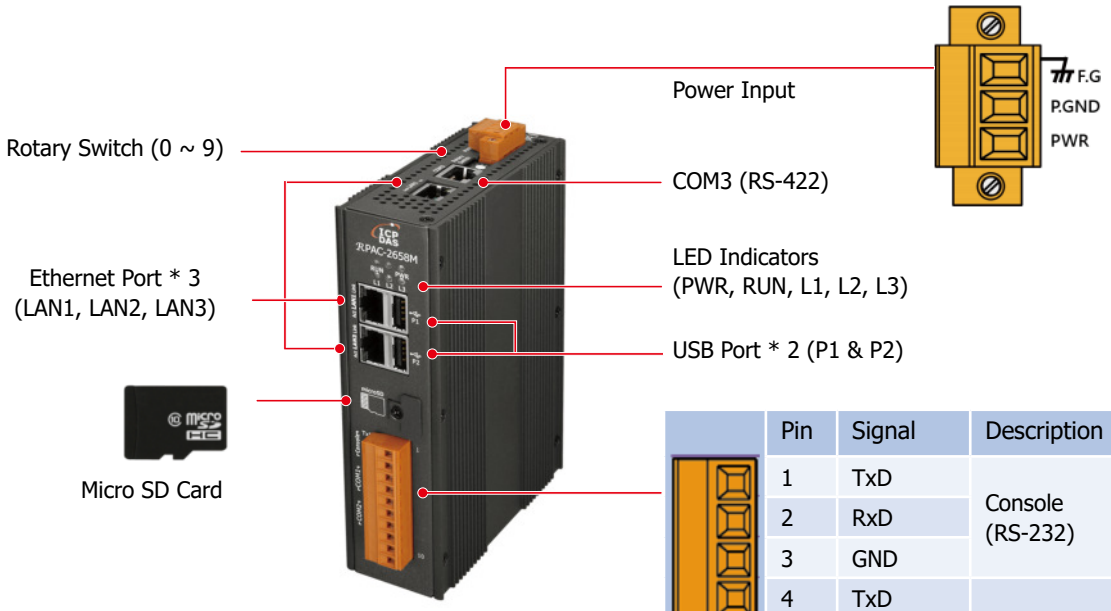
PAC Specifications

Models		RPAC-2658M
System Software		
OS		Linux Kernel 4.1.15
Embedded Service		SSH Server, Web Server
Development Software		
Win-GRAF Software	Win-GRAF	IEC 61131-3 standard
	Languages	LD, ST, FBD, SFC, IL
	Max. Code Size	2 MB
	Scan Time	1 ~ 15 ms for normal program; 15 ~ 50 ms for complex or large program
Non-Win-GRAF		GCC 5.4.0 (C, C++)
CPU Module		
CPU		Cortex-A9 CPU, 1.0 GHz, quad-core
DDR3 SDRAM		1 GB
Flash		8 GB eMMC
MRAM		128 KB
FRAM		64 KB
Storage		4 GB microSD card (up to 32 GB)
RTC (Real Time Clock)		Provides seconds, minutes, hours, dates, day of week, month, year
64-bit Hardware Serial Number		Yes, for Software Copy Protection
Watchdog Timer		Yes
LED Indicators		1 x System, 1 x Power, 2 x Programmable, 1 x Redundancy
Rotary Switch		1 x 10 Position (0 ~ 9)
VGA & Communication Ports		
Ethernet		3 x RJ-45, 10/100/1000 Based-TX (Auto-negotiating, Auto MDI/MDI-X, LED indicators)
USB 2.0 (host)		2
Console		RS-232 (RxD, TxD and GND); Non-isolated
COM 1		RS-232 (RxD, TxD and GND); 2500 VDC isolated
COM 2		RS-485 (Data+, Data-); 2500 VDC isolated
COM 3		RS-422 (TxD+, TxD-, RxD+, RxD-); 2500 VDC isolated
Mechanical		
Casing		Metal
Dimensions (W x L x H)		42 mm x 164 mm x 129 mm
Ingress Protection Rating		IP30 (Aluminum)
Installation		DIN-Rail Mounting
Environmental		
Operating Temperature		-25 ~ +75 ° C
Storage Temperature		-40 ~ +80 ° C
Ambient Relative Humidity		10 ~ 90% RH (non-condensing)
Power		
Input Range		+12 ~ 48 VDC
Consumption		7.2 W (0.3 A @ 24 VDC)

Win-GRAF Specifications

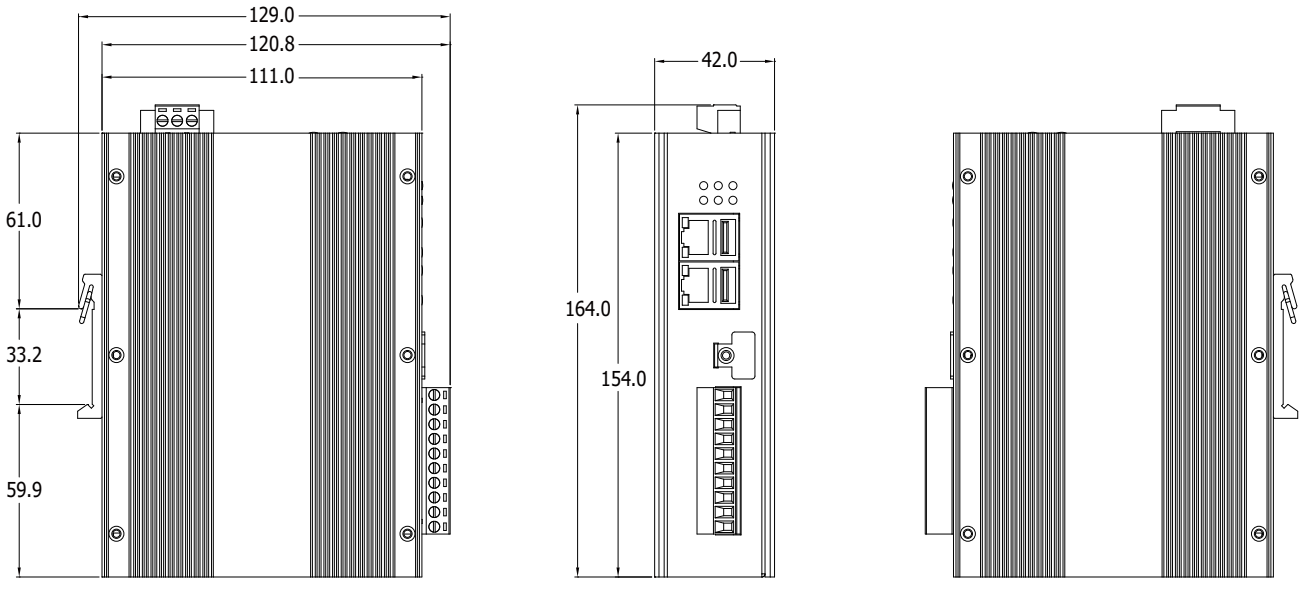
Models	RPAC-2658M
Protocols (Note that certain protocols require optional devices)	
NET ID	1~255, for Modbus TCP/RTU Slave, user-assigned
Modbus TCP/IP Master	A max. of 200 IP links to access/control the devices supporting Standard Modbus TCP/IP Slave protocol.
Modbus RTU/ASCII Master	A max. of 3 ports: COM1 ~ 3 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 3 ports: COM1 ~ 3 for connecting SCADA/HMI.
Modbus TCP/IP 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	Custom protocols can be applied at COM1 ~ 3 by using Serial communication functions or function blocks.
DCON Remote I/O	A max. of 3 ports: COM1 ~ 3. 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.

Appearance



Pin	Signal	Description
1	TxD	Console (RS-232)
2	RxD	
3	GND	
4	TxD	COM1 (RS-232)
5	RxD	
6	ISO.GND	
7	D+	COM2 (RS-485)
8	D-	
9	ISO.GND	
10	F.GND	Frame Ground

Dimensions



Left Side View | Front View | Right Side View

Ordering Information

RPAC-2658M CR	Win-GRAF based PAC with Quad-core Cortex-A9 CPU, Linux OS and three LAN port (RoHS)