

RPAC-2658M

Linux based Win-GRAF PAC with Redundancy

Features

- Cortex-A9 CPU, 1.0 GHz, quad-core
- Linux Kernel 4.1.15
- 1 GB DDR3 RAM and 8 GB eMMC Flash
- 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.

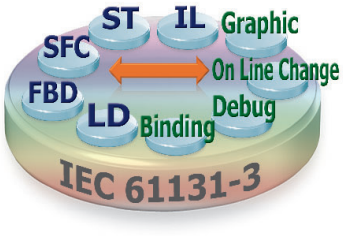
The benefits of running Linux on a Win-GRAF PAC device include real-time capability, achievable deterministic control, and allowing PAC can have a PC-like operating environment. The PAC is capable of running Win-GRAF (IEC 61131-3 Standard) software to develop logic control applications and also supporting 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 soft logic programming platform compliant with the IEC 61131-3 standard, designed for developing industrial control and automation solutions. It serves as a framework that allows users to create customized applications for various industrial systems, such as Programmable Logic Controllers (PLCs), Remote Terminal Units (RTUs), and embedded controllers. The Workbench supports all IEC 61131-3 programming languages, including Structured Text (ST), Function Block Diagram (FBD), Ladder Diagram (LD), Instruction List (IL), and Sequential Function Chart (SFC). With diverse libraries and built-in function blocks, it works seamlessly with all ICP DAS Win-GRAF controllers for fast and efficient development.

The features of the Win-GRAF:

- IEC 61131-3 Standard Open PLC Syntax (LD, FBD, SFC, ST, IL)
- Open Architecture: to integrate and customize for specific applications
- Event Triggered Data Binding (Exchange Data between PACs)
- Provide IDE: includes a user-friendly graphical user interface
- On Line Program Modification
- Various Protocols
- Plenty of Functions, Function Blocks, I/O Boards
- Redundancy





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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; for heartbeat
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)

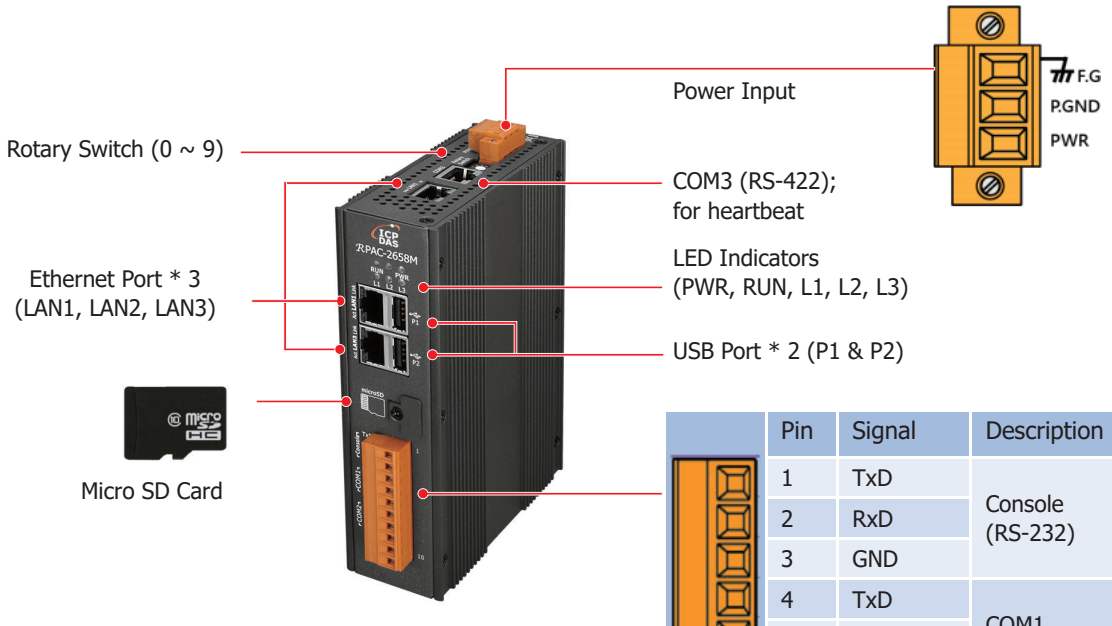
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Win-GRAF Specifications

Models	RPAC-2658M
Protocols (Note that certain protocols require optional devices)	
OPC UA Server	The OPC UA Server is an application that provides data and information, serving as the core of OPC UA technology. It is responsible for managing, collecting, storing, and distributing data. Acting as a central controller, the OPC UA Server connects with various clients to facilitate data access and exchange.
Modbus TCP/IP Master	Supports connection of up to 128 IP devices
Modbus TCP/IP Slave	Supported. Up to 64 connections supported via two Ethernet ports (LAN1 & LAN2).
Modbus RTU/ASCII Master	Supported. Up to 32 communication ports.
Modbus RTU Slave	Supported. Up to 32 communication ports.
User-defined Protocol	Supported. Up to 32 communication ports.
Functions	
Dual Controller Redundancy	Two RPAC-2658M units can form a redundant system. The redundancy switchover time is 0.2 seconds.
Password Protection	Equipped with a built-in 64-bit (8-byte) hardware serial number and a proprietary algorithm that generates authentication codes to effectively protect the security of Win-GRAF programs.
Data Binding	Supported. Enables data exchange between Win-GRAF Runtime devices.
Online Program Modification	Supports the On-line Change function.
Retain Variables	Supported. Up to 128K bytes of non-volatile memory for data retain after power loss.
File Access & Data Log	Supports file Read/Write.
Additional I/O Module Support	
Modbus TCP I/O	Supports ET-7000 series, I-8KE4/8-MTCP, and tPET/tET series I/O modules.
Modbus RTU I/O	Supports M-7000 series, tM series, and LC series I/O modules.
DCON Remote I/O	Supports I-7000 series, M-7000 series, and I-87K expansion units.

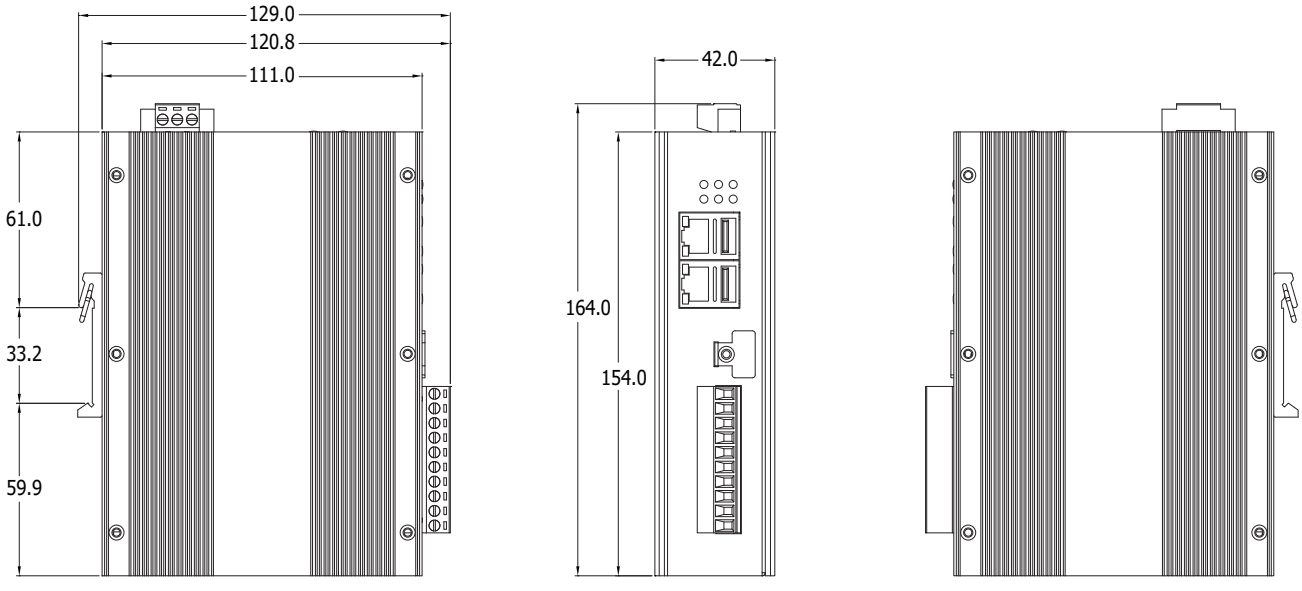
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Appearance



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)

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