



RPAC-2858M

Win-GRAF PAC with Linux Kernel

Features

- Cortex-A53 CPU, 1.6 GHz, quad-core
- Linux Kernel 4.1.78
- 2 GB LPDDR4 SDRAM 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 **RPAC-2858M** is a next-generation Linux-based Win-GRAF programmable automation controller (PAC) developed by ICP DAS. It is equipped with a 1.6 GHz quad-core Cortex-A53 processor to run the Linux operating system and uses a built-in micro SD card to provide storage space for applications, images, and data.

With built-in Win-GRAF SoftLogic, it supports multiple IEC 61131-3 standard programming languages, offering flexible control program development. It features a wide range of communication interfaces such as Ethernet, RS-232/485/422, and USB, and supports protocols including OPC UA, Modbus, DCON, and user-defined protocols.

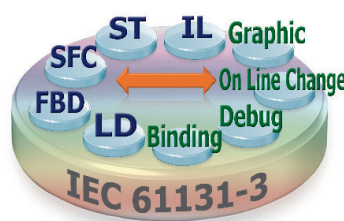
The RPAC-2858M also supports **dual-host redundancy**; if the main controller fails, the backup controller can quickly take over to ensure uninterrupted system operation, enhancing stability and reliability. Designed for real-time control, it is ideal for industrial applications such as smart factories, energy management, and building automation.

Win-GRAF

Win-GRAF is 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) and 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)
- 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:
 - OPC UA
 - Modbus TCP/UDP, Modbus RTU/ASCII Master
 - Modbus TCP, RTU Slave
 - DCON ...
- Plenty of Functions, Function Blocks, I/O Boards
- Redundancy



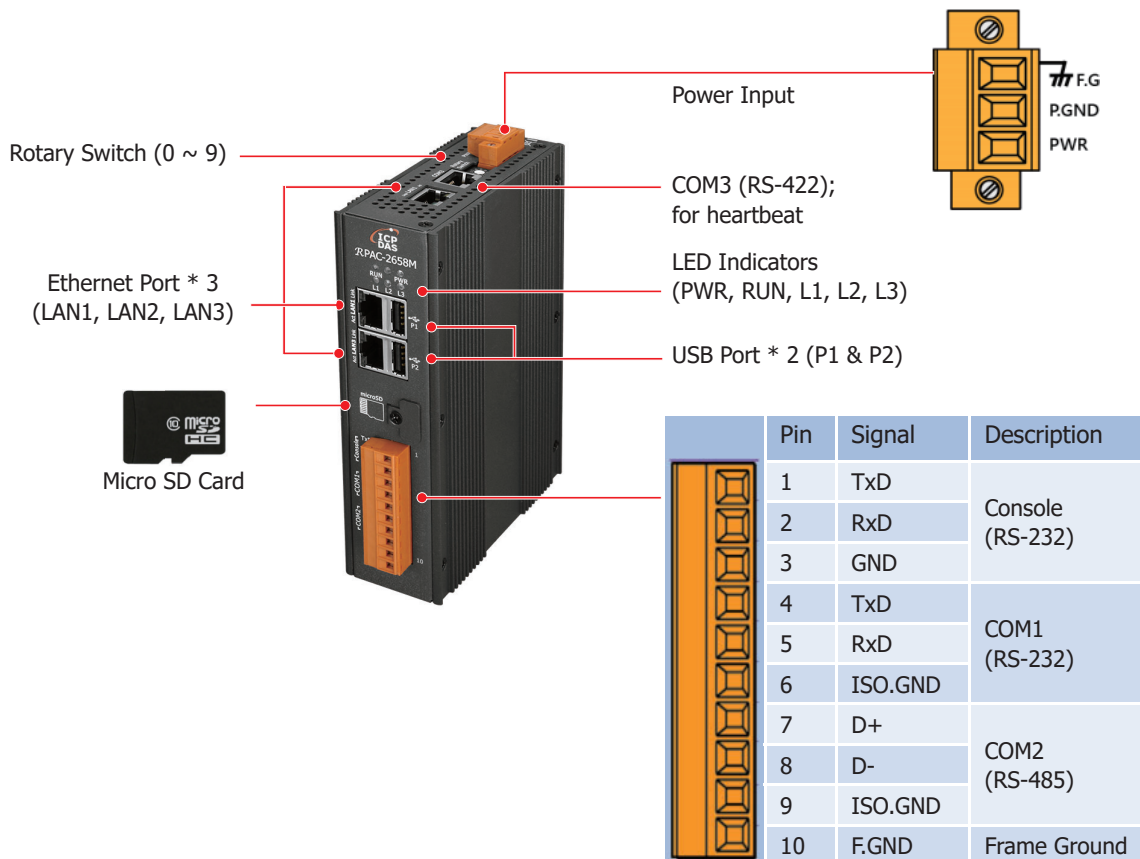
PAC Specifications

Models		RPAC-2858M
System Software		
OS		Linux Kernel 4.14.78 (Xenomai real-time framework)
Embedded Service		SSH Server, Web Server
Development Software		
Win-GRAF Software	Win-GRAF	IEC 61131-3 standard
	Languages	LD, ST, FBD, SFC, IL
	Scan Time	1 ~ 15 ms for normal program; 15 ~ 50 ms for complex or large program
	Protocols	OPC UA Server、Modbus TCP/IP (Master/Slave)、Modbus RTU/ASCII (Master/Slave)、DCON、User-defined Protocol
	Applications	Application Protection, File Read/Write, Data Log, Data Binding, Save Variables, Real-time Online Updates
Non Win-GRAF		GCC 11.4.0 (C / C++)
CPU Module		
CPU		Cortex-A53 CPU, 1.6 GHz, quad-core
LPDDR4 SDRAM		2 GB
Flash		8 GB eMMC
MRAM		128 KB
FRAM		64 KB
Storage		4 GB microSD card (up to 32 GB)
RTC (Real Time Clock)		Provide 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 ~ +70 °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)

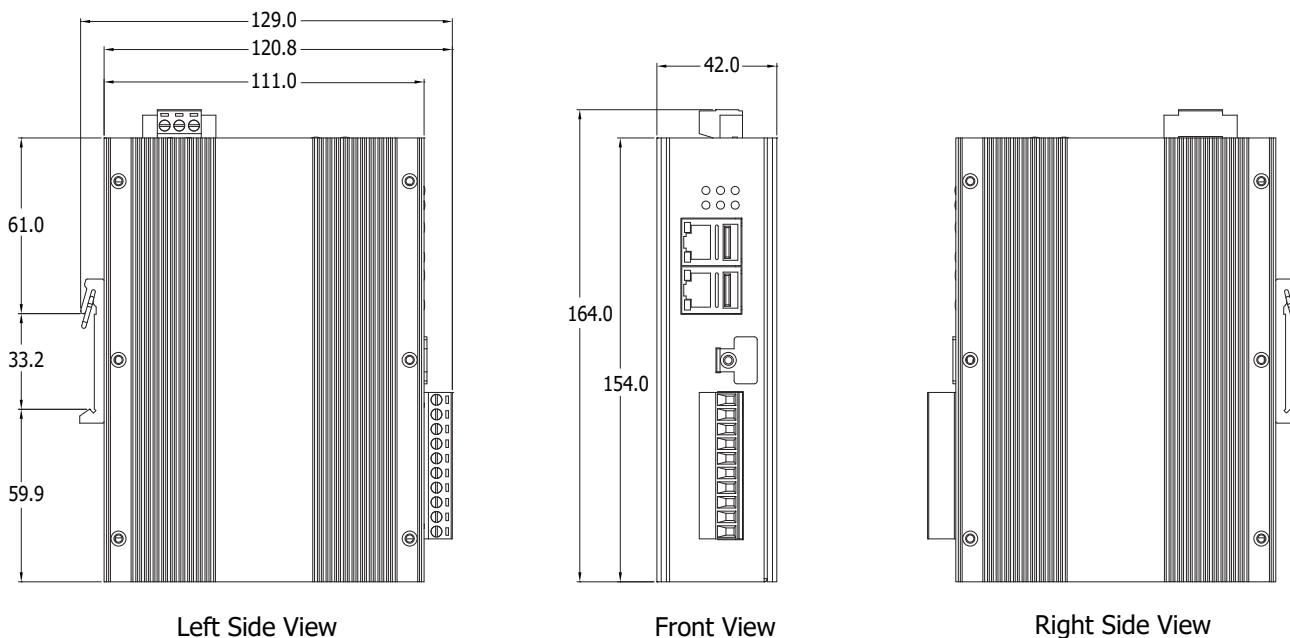
Win-GRAF Specifications

Models	RPAC-2858M
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-2858M 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.

Appearance



Dimensions



Ordering Information

RPAC-2858M CR

Win-GRAF based PAC with Quad-core Cortex-A53 CPU, Linux OS and three LAN port (RoHS)