

ESRP-SCS-W5580

High-performance Compact Softlogic EtherCAT Controller, Empowered by CODESYS

Preliminary



Features

- 6th generation Intel® Core™ i7/i5/Celeron processors up to 2.6 GHz with 4GB/8GB DDR4 memory
- 2 x GbE, 4 x USB 3.0, 2 x RS-232 /422/485, 1 x VGA, 1 x HDMI
- Dual power input with alarm output
- Compact and fanless design for DIN-rail mount in Control cabinet
- Maximum 4 expansion capability on left side for WISE-5400 series module
- Wireless mPCIe module support for 3G/LTE/Wifi/GPS
- Chassis grounding protection
- Independent resource on Intel i210 GbE for better EtherCAT performance
- Upstream LAN redundancy (Intel Teaming Function)
- Downstream EtherCAT cable redundancy
- Optimized BIOS for CODESYS Real-time Control Kernel

Introduction

Advantech's WISE-5580 is a compact and powerful Control IPC with an Intel Core i7/i5/Celeron CPU. It is the ideal open control platform to be combined with WISE-5000 Series EtherCAT Slice IO modules, and features flexible I/O expansion, real-time I/O control, network capability through various interfaces, and support dual power input for robust power system. It also has a built-in standard mini PCI express interface for wireless communication. The WISE-5580 is the best solution for data gateway, concentrator and data server applications, its seamless integration with I/O can save costs and fulfill a diverse range of automation projects.

Specifications

General

- **Certification** CE, FCC, UL
- **Dimensions (W x H x D)** 139 x 100 x 80 mm
- **Form Factor** Passive Cooling and Front Accessible
- **Enclosure** Aluminum housing
- **Mounting** DIN-rail
- **Weight (Net)** 1.3 kg
- **Power Requirement** 24 V_{DC} ± 20%
- **Power Consumption** 15 W (Typical), 42 W (Max)
- **OS Support** Microsoft® Windows 7 32/64 bit

System Hardware

- **BIOS** AMI EFI 128Mbit Flash BIOS
- **Watchdog Timer** Programmable 256 levels timer interval, from 1 to 255 sec
- **Processor** Intel® Core™ i7-6600U 2.6GHz Skylake Dual Core, 4MB L2
Intel® Core™ i5-6300U 2.4GHz Skylake Dual Core, 3MB L2
Intel® Celeron 3955U 2.0GHz Skylake Dual Core, 2MB L2 Integrated PCH-LP
- **System Chip** Intel® Celeron 3955U 2.0GHz Skylake Dual Core, 2MB L2 Integrated PCH-LP
- **Memory** Build in 4G for Celeron and 8G for Core i5/i7
- **Graphics Engine** Intel® Gen 9 LP GT2
- **Ethernet** Intel® i210-IT GbE, 802.1Qav, IEEE1588/802.1AS, 802.3az
- **LED Indicators** LEDs for Power, Storage, Program and Abnormal status
- **Storage** 1 x M.2, 2280 M-Key
- **Expansion** 1x Full-size mPCIe Slot, for wireless module or NVRAM module
WISE-5400 function modules expansion from left side (max. 4)
WISE-5000 EtherCAT Slice IO from right side

I/O Interfaces

- **Serial Ports** 2 x RS-232/422/485, DB9, 50 ~ 115.2kbps
- **LAN Ports** 2 x RJ45, 10/100/1000 Mbps IEEE 802.3u 1000BASE-T Fast Ethernet
- **USB Ports** 4 x USB ports (4 x USB 3.0 compliant)
1 x internal USB

- **Display** 1 x VGA, support up to 1920 x 1200 @ 60 Hz 24 bpp
1 x HDMI, support up to 4096 x 2160 @ 24Hz 24bpp
- **Power Connector** Dual power input with alarm output
- **Grounding Protection** Chassis grounding

Environment

- **Operating Temperature** -10 ~ 60°C (-4 ~ 140°F) @ 5 ~ 85% RH with 0.7m/s airflow
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)
- **Relative Humidity** 10 ~ 95% RH @ 40°C, non-condensing
- **Shock Protection** Operating, IEC 60068-2-27, 30G, half sine, 11 ms
- **Vibration Protection** Operating, IEC 60068-2-64, 1 Grms, random, 5 ~ 500 Hz, 1hr/axis (M.2)

Application Software

IEC-61131-3 Control Software: CODESYS RTE V3

Performance Data (1000 IL-Lines)

- **BOOL** 2.736 μs
- **BYTE** 2.736 μs
- **INT** 3.054 μs
- **DINT** 2.736 μs
- **REAL** 4.472 μs

Upstream Communication Function

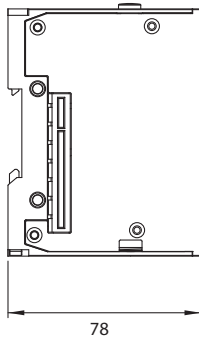
- **Advantech Direct Database connection (FBD)**
- **OPC/DA & OPC/UA Server (supported after SP13)**
- **PLCHandle Driver for WebAccess**

Downstream Communication Protocols

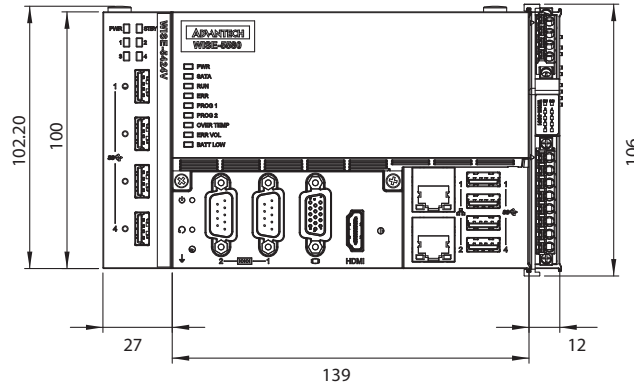
- **MODBUS/RTU Master (Client)**
- **MODBUS/TCP Master (Client) and Slave**
- **PROFINET Master**
- **ETHERNET/IP Master**

Dimensions

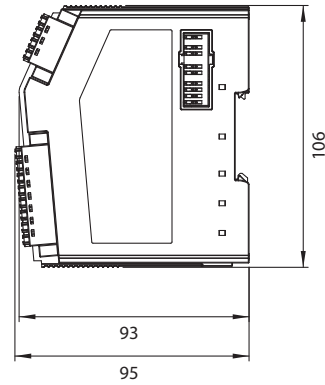
Unit: mm



WISE-5400 Series Expansion



WISE-5580 CPU Module



WISE-5000 EtherCAT Slice IO

Ordering Information

WISE-5580 is an open-based controller and there are many combinations for different CPU/RAM/OS/Applications. To provide better user experience, those diverse configurations are converged into below part numbers in different product category. With these well integrated SRP offering, user can also enjoy better L/T and price.

Category	Part Number	CPU	RAM	OS	NVRAM	Application
CODESYS ready PAC	ESRP-SCS-W5580-C3R	Celeron	4G	WIN7 32-bit	2M	CODESYS V3 Pure Control
	ESRP-SCS-W5580-54M	i5	8G	WIN7 64-bit	2M	CODESYS V3 P2P Motion w/ HMI
	ESRP-SCS-W5580-74C	i7	8G	WIN7 64-bit	2M	CODESYS V3 Advanced Motion w/ HMI

Accessories

M.2 Storage Module

- **SQF-SM8U2-32G-SBE** SQF M.2 2280 640 32G UMLC (-40~85°C)
- **SQF-SM8U4-64G-SBE** SQF M.2 2280 640 64G UMLC (-40~85°C)
- **SQF-SM8U4-128G-SBE** SQF M.2 2280 640 128G UMLC (-40~85°C)
- **SQF-SM8U4-256G-SBE** SQF M.2 2280 640 256G UMLC (-40~85°C)

NVRAM Module

- **PCM-2300MR-AE** 2MB MRAM, mPCIe interface

DIN-Rail Type Power Supply Module

- **PSD-A60W24** DIN Rail AC to DC 100-240V 60W 24V
- **PSD-A120W24** DIN Rail AC to DC 100-240V 120W 24V
- **96PSD-A240W24-MN** DIN Rail AC to DC 100-240V 240W 24V

Accessory for Mounting

- **WISE-5580-USBK** USB/HDMI fix kit for WISE-5580
- **WISE-5580-WMK** Wall Mount Kit for WISE-5580
- **WISE-54XX-WMK** Wall Mount Kit for WISE-54XX

Embedded OS

- **20703WE7PS0023** WES7P X64 MUI for WISE-5580
- **20703WE7PS0026** WES7P X86 MUI for WISE-5580

Expansion Modules

WISE-5400 Series Expansion Module (left side)

- **WISE-5400E** PCIe-mini card with SIM card slot
- **WISE-5400M** M.2 E-Key expansion module
- **WISE-5410** 2 x GigE expansion module
- **WISE-5410P** 2 x PoE expansion module
- **WISE-5424V** 4 x USB 3.0 with full bandwidth
- **WISE-5490** 2 x isolated RS-232/422/485

WISE-5000 EtherCAT Slice IO Module (right side)

- **WISE-5001** Smart Power Input module with 4-Ch DI
- **WISE-5015** 4-Ch RTD (2/3 wire)
- **WISE-5017V** 6-Ch Voltage AI, multi-gain 16-bit
- **WISE-5017C** 6-Ch Current AI, 0-20/4-20mA 16-bit
- **WISE-5018** 6-Ch T/C, J,K,T,E,R,S,B, mV, Open detect
- **WISE-5024** 4-Ch AO multi-gain, 16-bit
- **WISE-5051** 8-Ch Iso. DI
- **WISE-5052** 16-Ch Iso. DI
- **WISE-5056** 8-Ch Iso. DO sink type
- **WISE-5056SO** 8-Ch Iso. DO source type
- **WISE-5057** 16-Ch Iso. DO sink type
- **WISE-5057SO** 16-Ch Iso. DO source type
- **WISE-5080** 2-Ch Counter/Encoder 32-bit
- **WISE-5074** EtherCAT Coupler
- **WISE-5079** EtherCAT extension