



AC370 • *Embedded Blue*®

DIN Rail ARM® v8 Microcomputer • Marvell® Armada® 3700 Family SoC

Preliminary

Technical Features

General

- ▶ Microcomputer box, for DIN rail mount or wall mount
- ▶ Marvell® ARMADA® 3700 SoC family
- ▶ 88F3710 single-core
- ▶ 88F3720 dual-core
- ▶ Low power consumption under different workloads
- ▶ Optimal performance-per-Watt in the embedded markets
- ▶ Box dimensions 30mm (W) x 140mm (H) x 90mm (D) w/o DIN rail brackets
- ▶ Option 45mm (W) as assembly with eight port GbE switch (AL210, AL230)
- ▶ Metal case, DIN rail bracket or wall mount plate
- ▶ M12 and/or terminal block power connector
- ▶ Wide input voltage range 9-57VDC

Front Panel I/O

- ▶ RJ45 Gigabit Ethernet connector 1000BASE-T, 100BASE-TX, 10BASE-T compliant
- ▶ Micro SDHC Card slot
- ▶ SMA antenna connectors Wi-Fi 6 & Bluetooth® 5
- ▶ USB 3.0 Type-A connector 5Gbps maximum speed
- ▶ USB 2.0 Type-B receptacle (diagnostic & programming I/F)
- ▶ M12-A 5-pin male connector DC power input
- ▶ Optional terminal block 3.5mm pitch 4-position screw lock (bottom of box) power input

Technical Features

CPU

- ▶ Marvell® Armada® 88F3720 dual-core or 88F3710 single-core SoC
- ▶ ARM® v8 Cortex-A53
- ▶ Up to 1GHz for industrial temperature range
- ▶ 32 KB-instruction / data (4-way) set associative L1 cache with parity/ECC protection
- ▶ Integrated power switches for dynamic shut down of CPU cores and unused functions
- ▶ Optimal performance-per-Watt
- ▶ High-performance security offload engine including IPSec, SSL, DTLS, and IKE
- ▶ Hardware compliance with ARM Trustzone® architecture for DRM
- ▶ Enhanced Secure-Boot flow using integrated one time programmable (OTP) memory
- ▶ FIPS-140 certified
- ▶ DDR4 2400 2GB, high-speed DRAM memory controller
- ▶ e•MMC 5.1 Flash 16GB (up to 64GB)
- ▶ SPI Flash 64Mb
- ▶ 1 x 2.5 Gigabit Ethernet (SERDES) in use for mezzanine connector (switch host management)
- ▶ 1 x 1 Gigabit Ethernet (RGMII) front panel I/O usage 1000BASE-T
- ▶ 1 x USB 3.0 front panel I/O
- ▶ 1 x PCIe Gen2 & USB 2.0 in use for M.2 socket (2230 Wi-Fi/BT)
- ▶ 1 x SDIO 3.0 for Micro SDHC card front I/O

Networking

Connectivity

- ▶ RJ45 front port w. integrated magnetics, triple speed 1000BASE-T, 100BASE-TX, 10BASE-T, Energy Efficient Ethernet (EEE)

Wireless

- ▶ Wi-Fi 6 IEEE 802.11ax up to 2.4Gbps dual band 2x2 160MHz (SMA antenna front connectors)
- ▶ Bluetooth® 5 (SMA antenna front connectors)

Switching

- ▶ 1 x 2.5 Gigabit Ethernet (SERDES) in use for mezzanine connector
- ▶ Switch host management for unmanaged Embedded Blue® GbE switch solutions
- ▶ AVB/TSN protocol stacks for real time networking (planned)
- ▶ Available as stacked assembly in a common box
- ▶ AL210 (8 port switch with AC370)
- ▶ AL230 (8 port PoE+ switch with AC370)

Technical Features

Ecosystem

- ▶ Complete SDK available including U-Boot, Mainline Linux BSP
- ▶ OpenWrt, Yocto, Linaro Open Data Plane (ODP) support
- ▶ KVM and Containers support
- ▶ AVB/TSN support (planned)

- ▶ JTAG port (on-board pin header) suitable for deep hardware/software debugging
- ▶ UART wired to USB Type-B front receptacle via FT234XD for diagnosis and programming
- ▶ USB UART drivers suite (FTDI website)

Applications

- ▶ Industrial networks - IIoT
- ▶ Industrial, factory and building automation
- ▶ Rugged environments
- ▶ Edge computing
- ▶ Transportation
- ▶ AP routers
- ▶ Multi-protocol gateways
- ▶ Host management for networking (AVB/TSN)
- ▶ AC370 can be combined with unmanaged Embedded Blue® switch solutions via 2.5GbE I/F

Power Requirements

- ▶ DC Input, 9V-57VDC (12/24/48VDC)
- ▶ Rated power consumption 15W
- ▶ Fast acting chip fuse (PCB soldered type - no replacement on-site)
- ▶ Protected against reverse polarity
- ▶ ESD protection (TVS)
- ▶ Common mode input filter
- ▶ M12 front power connector
- ▶ Option 4-position terminal block 3.50mm pitch screw locked for DC power input

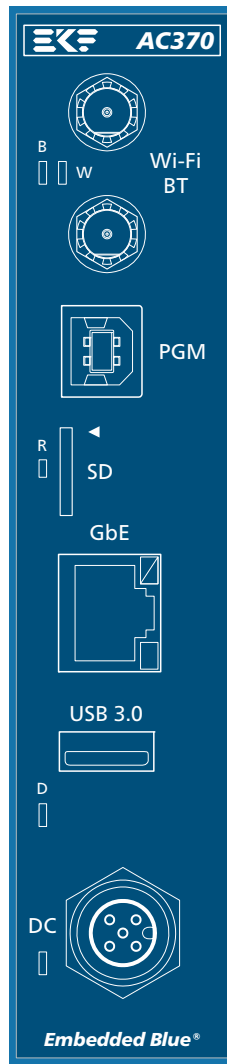
Technical Features

Environmental, Regulatory

- ▶ Designed & manufactured in Germany
- ▶ ISO 9001 certified quality management
- ▶ Long term availability
- ▶ Rugged solution
- ▶ RoHS compliant
- ▶ Operating temperature -40°C to +85°C (industrial temperature range)
- ▶ Storage temperature -40°C to +85°C, max. gradient 5°C/min
- ▶ Humidity 5% ... 95% RH non condensing
- ▶ Altitude -300m ... +3000m
- ▶ Shock 15g 0.33ms, 6g 6ms
- ▶ Vibration 1g 5-2000Hz
- ▶ EC Regulatory EN55024, EN55032, EN62368-1 (CE)
- ▶ International Protection EN60529 IP20
- ▶ MTBF tbd years

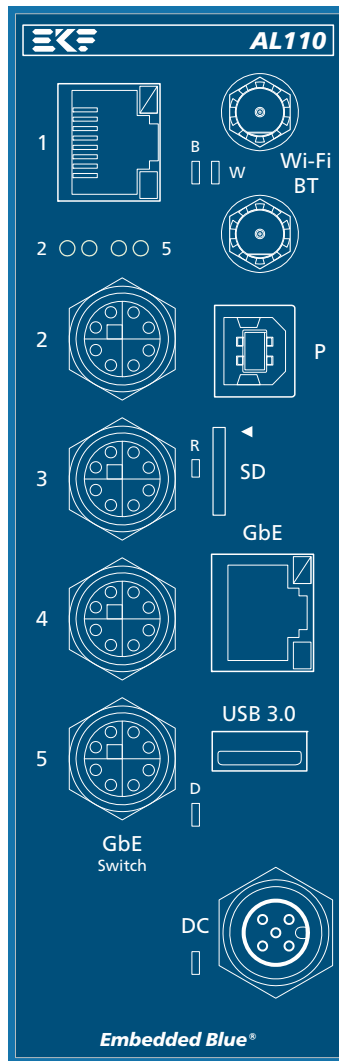
all items may be subject to technical changes w/o further notice

Front Panel



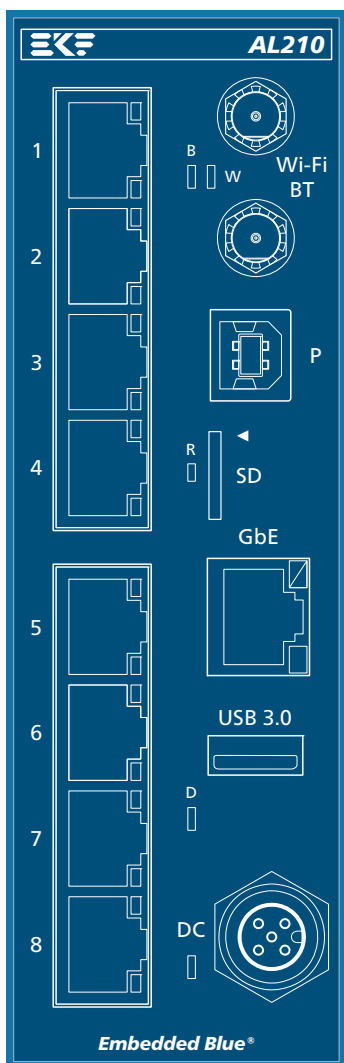
| Wireless LEDs | |
|--------------------|--|
| B green | Bluetooth active |
| W blue | Wi-Fi active |
| Push Button Switch | |
| R | CPU manual reset (pin tool required) |
| CPU LED | |
| D blue | CPU active |
| DC LED | |
| blue | DC input power present, internal power good |
| red | internal power not yet ready or external DC power out of range |
| off | DC input power faulty (reverse connection, wrong pins, external power supply off?) |

AC370 w. AL100 5-Port GbE Switch

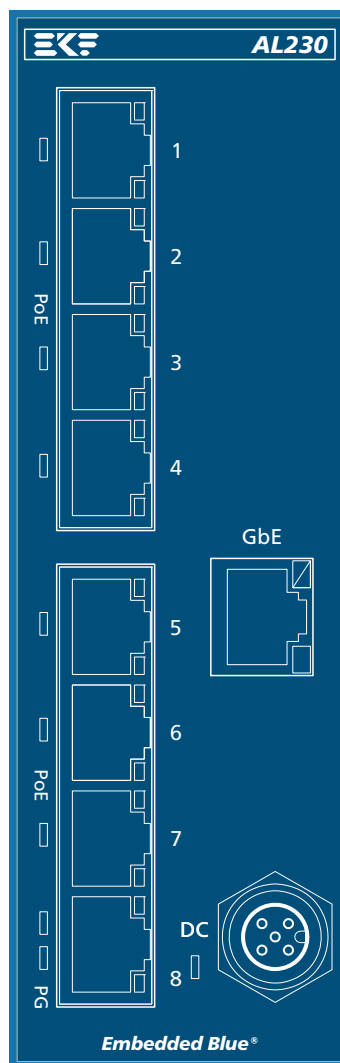


AL110 (Front)

AC370 w. AL200 8-Port GbE Switch

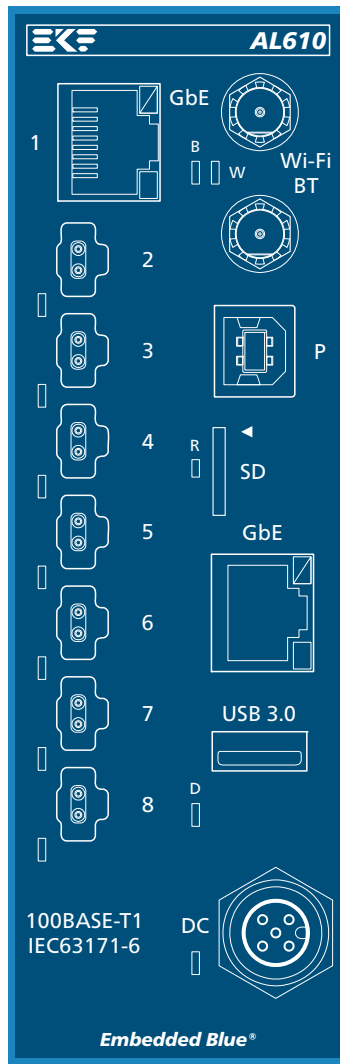


AL210 (Front)



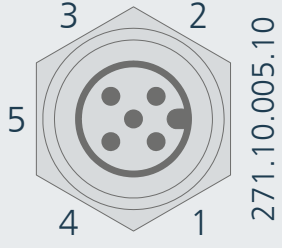
AL230 (Front)

AC370 w. AL600 Single Pair Ethernet Switch

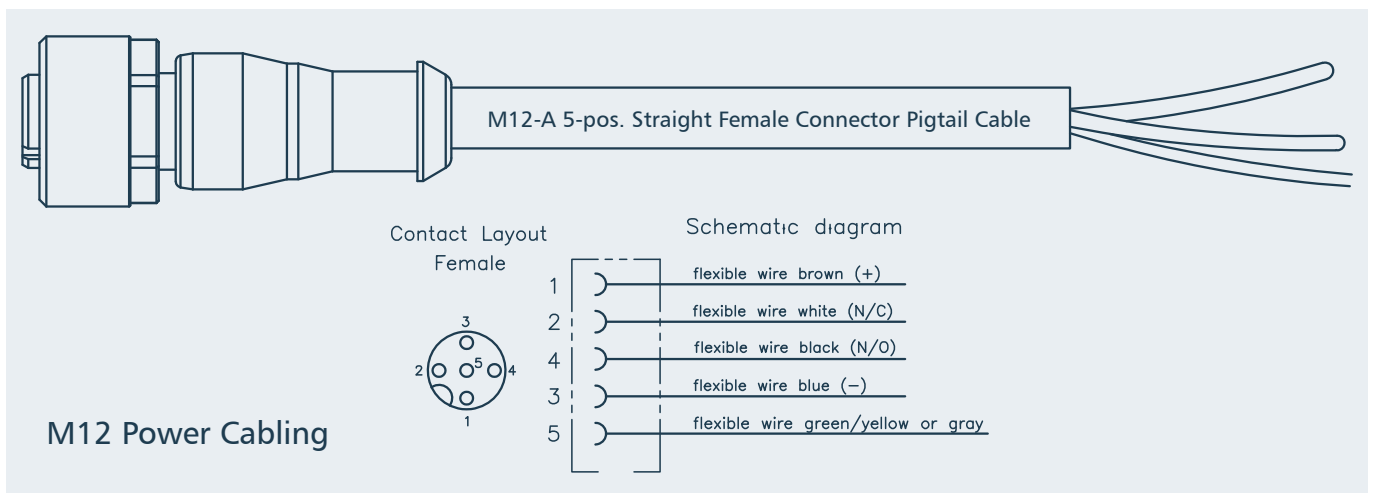


AL610 (Front)

M12 Power Connector Pin Assignment

| PCB Connector M12-A 5-Position Male 4A/Pin | | | |
|---|-------------------|---|-----|
|  <p>271.10.0005.10</p> | <p>+V=9-57VDC</p> | | |
| | | 1 | +V |
| | | 2 | RSV |
| | | 3 | GND |
| | | 4 | RSV |
| 5 | FE (Shield) | | |

| Mating Pigtail Cable Assemblies 1.5m w. Female Straight Plug | |
|--|-------------------|
| EKF | 271.10.505.22.015 |
| Phoenix Contact | 1669822 |
| Tyco (TE) | 2273035-1 |



pre-assembled standard pigtail cables - wires #2 and #4 not in use (reserved)

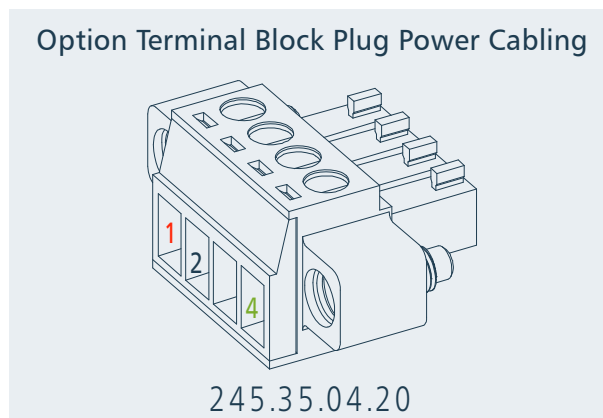


M12 Pigtail Cable

Option Terminal Block Power Connector Pin Assignment

| 3.5mm 4-Position Terminal Block 8A/Contact | | | |
|--|---|---|----------------------|
| <p>245.35.04.00</p> <p>1 2 3 4</p> | <p>+V=9-57VDC</p> <p>pin assignment valid from PCB Rev. 1 off</p> | 1 | +V |
| | | 2 | GND |
| | | 3 | RSV (GND PCB Rev. 0) |
| | | 4 | FE (Shield) |

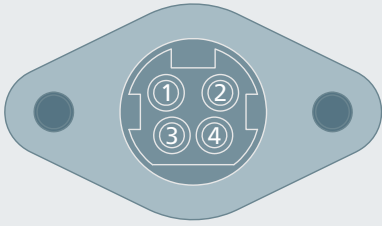
| Mating Plugs w. Screw Lock | |
|----------------------------|--------------------|
| EKF | 245.35.04.20 |
| FCI Amphenol | 20020000-C041B01LF |
| Molex | 39504-0004 |
| Phoenix Contact | 1847071 |
| Tyco | 284510-4 |



pin assignment valid from PCB Rev. 1 off

| Mating DIN Rail Power Supply | |
|------------------------------|---------------------------|
| EKF | 352.1.075.24.1 |
| Meanwell | NDR-75-24, 75W 24VDC/3.2A |

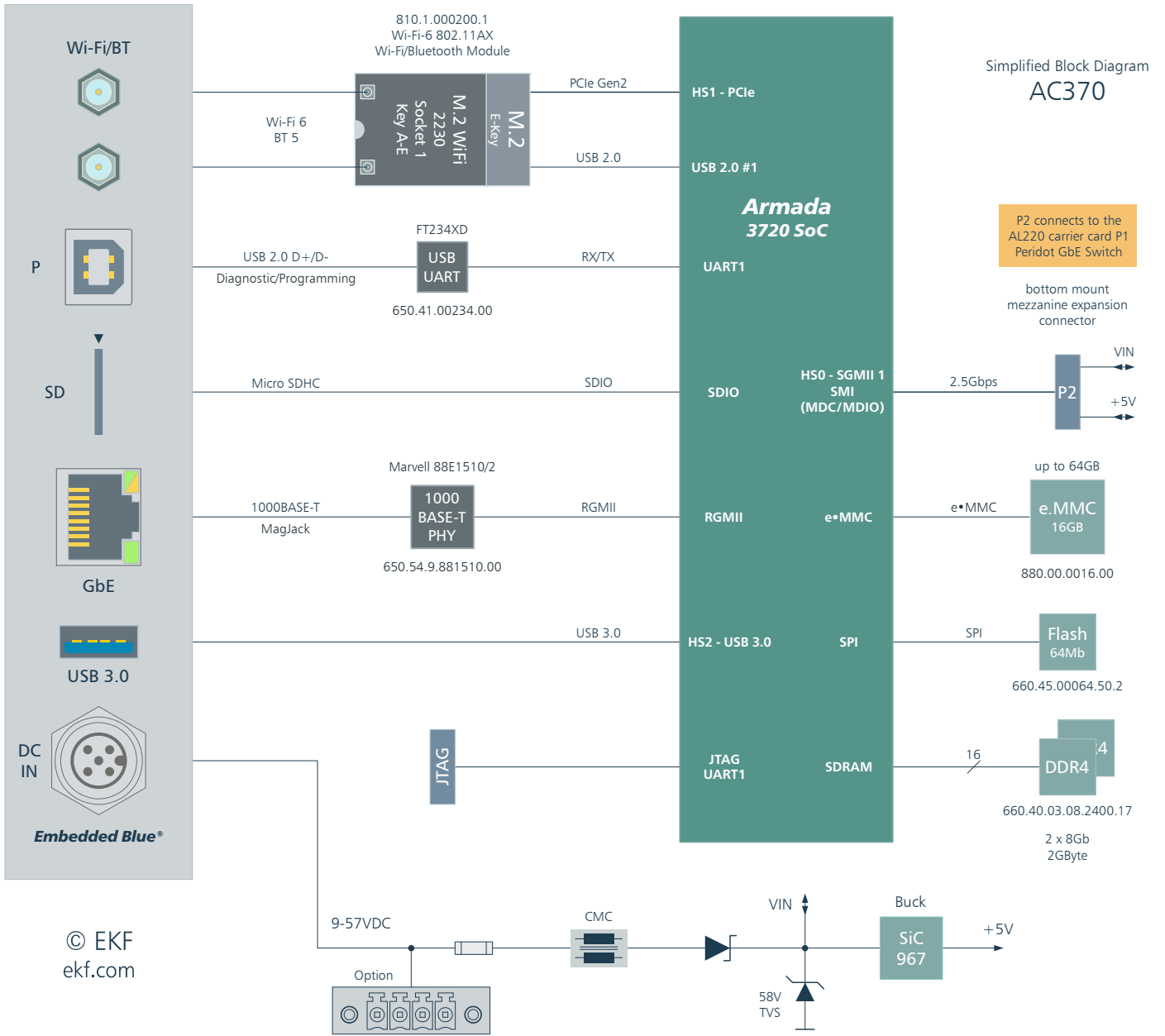
Option Rear Power Connector

| Circular 4-Position Power Receptacle (7.5A/Pin) | | | |
|--|-------------------|--------|------------|
|  <p>271.04.004.10</p> | <p>+V=9-57VDC</p> | 1 | +V |
| | | 2 | +V |
| | | 3 | -V (GND) |
| | | 4 | -V (GND) |
| | | Shield | Reserved * |

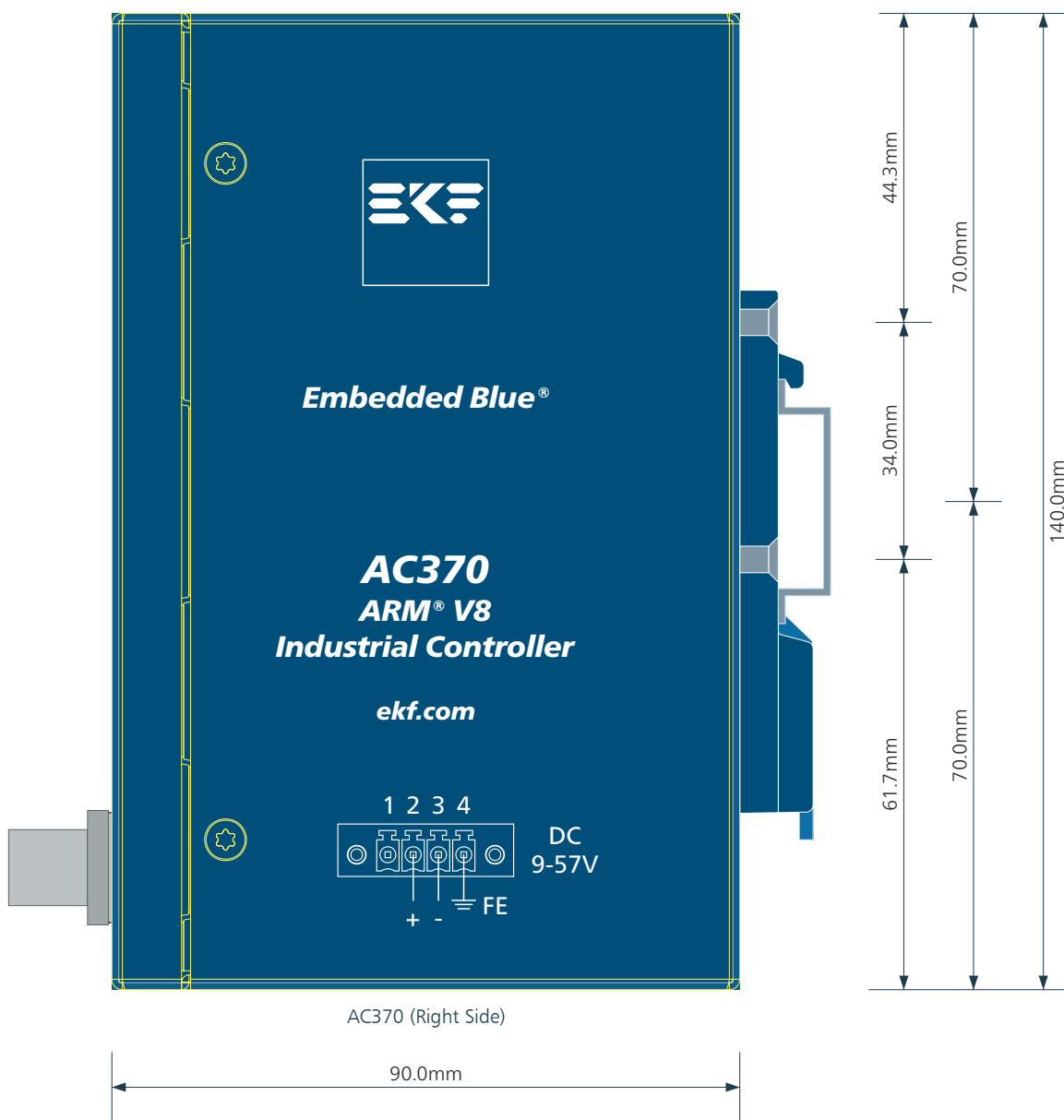
* power supply cable harness may connect GND to Shield

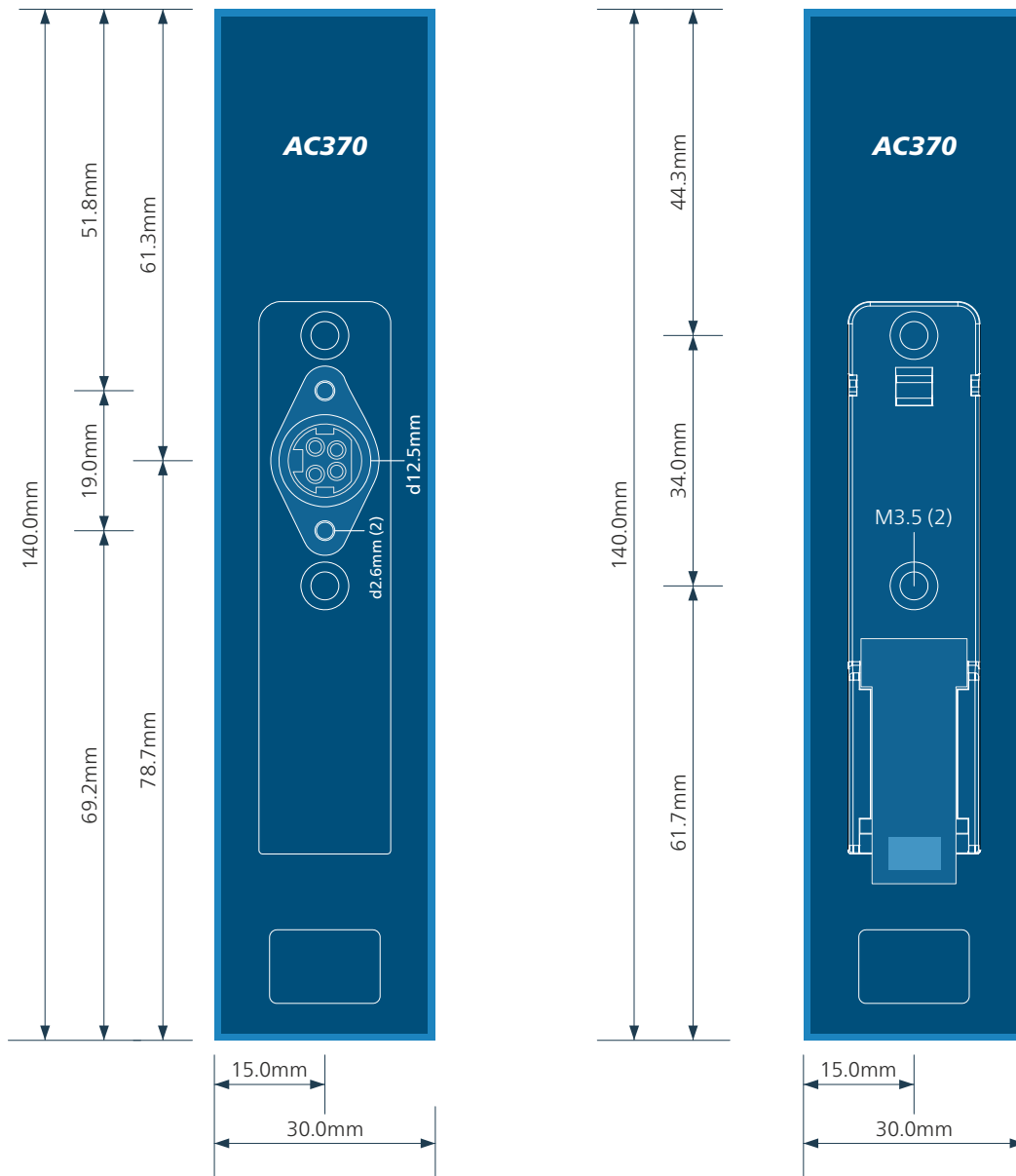
| Mating Desktop Power Adapter w. Cable Assy | |
|--|-----------------------------|
| EKF | 353.1.120.24.1 |
| FSP Technology | FSP120-AAAN3, 120W 24VDC/5A |

Block Diagram



Dimensions







DIN Rail Mounting Option (Picture Similar)



Wall Mount Plate Option (Picture Similar)

Ordering Information

For popular AC370 SKUs please contact sales@ekf.de

Related Products

| | |
|-------|---|
| AC370 | ARM® V8 Industrial Microcontroller |
| AL100 | 5 port M12-X unmanaged GbE switch |
| AL110 | 5 port M12-X GbE switch w. AC370 ARM® V8 CPU |
| AL200 | 8 port RJ45 unmanaged GbE switch |
| AL210 | 8 port RJ45 GbE switch w. AC370 ARM® V8 CPU |
| AL220 | 8 port RJ45 unmanaged PoE+ GbE switch |
| AL230 | 8 port RJ45 PoE+ GbE switch w. AC370 ARM® V8 CPU |
| AL600 | 7 port Single Pair Ethernet switch 100BASE-T1 |
| AL610 | 7 port SPE switch 100BASE-T1 w. AC370 ARM® V8 CPU |



https://www.ekf.com/a/DIN_Rail_on_off_500x280.mp4

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Document No. 9474 • © EKF • 27 June 2022

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