



GL200 - GL220 • *Embedded Go*®

Industrial Gigabit Ethernet Switch



Technical Features

General

- ▶ 8-Port 1000BASE-T Ethernet switch, basically self-managed operation
- ▶ GL200 Version - non PoE
- ▶ GL220 Version - PoE+
- ▶ Intended for rugged industrial applications, ready-for-use (Embedded Go®)
- ▶ Industrial PCB assembly
- ▶ PCB Dimensions 133.0mm x 78.0mm
- ▶ 8 x RJ45 Gigabit Ethernet connectors
- ▶ GL220 Version 802.3at PoE+ (up to 30W/port)
- ▶ Terminal block power connector
- ▶ Wide DC power input operation 9-57V (GL200)
- ▶ Nominal DC power input 48V/54V as required for PoE+ (GL220)
- ▶ Option scalable 16/24 GbE ports (stacked construction up to three GL200/GL220 PCBs)
- ▶ Option CPU mezzanine board GC370 stacked (for AVB/TSN protocol software) - GL210/GL230

I/O Connectors

- ▶ RJ45 Ethernet connectors, with integrated magnetics
- ▶ 1000BASE-T, 100BASE-TX, 10BASE-T compliant data transfer rate
- ▶ Terminal Block 3.5mm pitch 4-position screw lock power input

Gigabit Ethernet Switch

- ▶ Marvell® 88E6390 (Peridot) based Gigabit Ethernet switch
- ▶ PCBs can be stacked for 16/24 ports (option)
- ▶ Switches connected via 2.5Gbps SERDES (mezzanine stacking connectors)
- ▶ Integrated GbE MAC/PHY 1000BASE-T
- ▶ RJ45 Connectors w. integrated magnetics
- ▶ High performance, non-blocking, Gigabit Ethernet
- ▶ Support for up to 16K MAC addresses, 10KByte Jumbo Frames
- ▶ Supports 802.1 Audio Video Bridging (AVB) Gen 2*
- ▶ Time Sensitive Networking (TSN) Standards*, IEEE 1588v2 one-step PTP
- ▶ Synchronous Ethernet*
- ▶ Quality of Service (QoS) support with 8 traffic classes
- ▶ Supports 4096 802.1Q VLANs, three levels of 802.1Q security
- ▶ Unmanaged solution (managed solution with additional mezzanine CPU card GC370)
- ▶ Up to two mezzanine stacking connectors for communication to adjacent switch PCB or CPU (option)
- ▶ Option GC370 management CPU ARM® v8 mezzanine card (GL210 - GL230)
- ▶ Stacked switch PCBs are virtually combined into a single switch with aggregated performance

Technical Features

Power over Ethernet

- ▶ PSE PoE+ according to IEEE 802.3at
- ▶ Maximum power delivered per port 30W
- ▶ Maximum power delivered in total 120W
- ▶ IEEE 802.3at PSE Type 2 mode A (power over RJ45 pins 1/2 & 3/6, 600mA)
- ▶ GL220 (unmanaged) or GL230 (with GC370 mezzanine CPU)

Power Requirements

- ▶ DC Input, 9 - 57V (12VDC, 24VDC, 48VDC) - GL200
- ▶ DC Input, 48VDC, 54VDC - GL220
- ▶ Rated power consumption 3W (GL200)
- ▶ Rated power consumption up to 125W (GL220 @ 120W external load via PoE+)
- ▶ Fast acting chip fuse
- ▶ Protected against reverse polarity
- ▶ TVS ESD Protection
- ▶ Common mode input filter
- ▶ 4-Position terminal block power connector, 3.50mm pitch, screw lock removable cable plug

Applications

- ▶ For easy system integration
- ▶ Industrial networks - IIoT - TSN/AVB*
- ▶ Transportation vehicles
- ▶ Construction and harvesting machinery
- ▶ Railway
- ▶ Rugged environments
- ▶ Customized connector loading
- ▶ Customized board design

Technical Features

Environmental, Regulatory

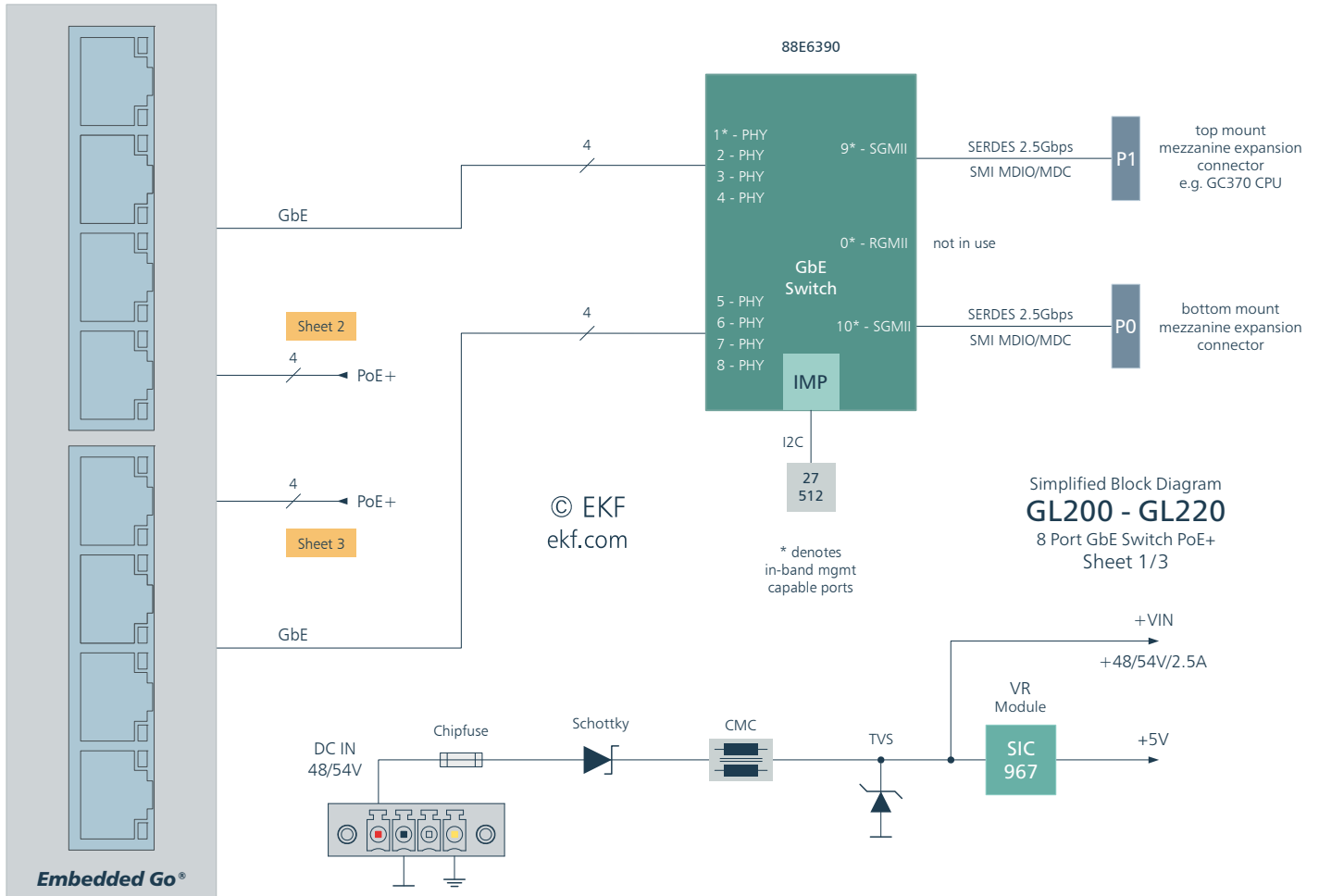
- ▶ Designed & manufactured in Germany
- ▶ ISO 9001 certified quality management
- ▶ Long term availability
- ▶ Rugged solution
- ▶ Conformal coating, sealing, underfilling on request
- ▶ RoHS compliant
- ▶ Operating temperature -40°C to +85°C (industrial temperature range)
- ▶ Storage temperature -40°C 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
- ▶ MTBF tbd years

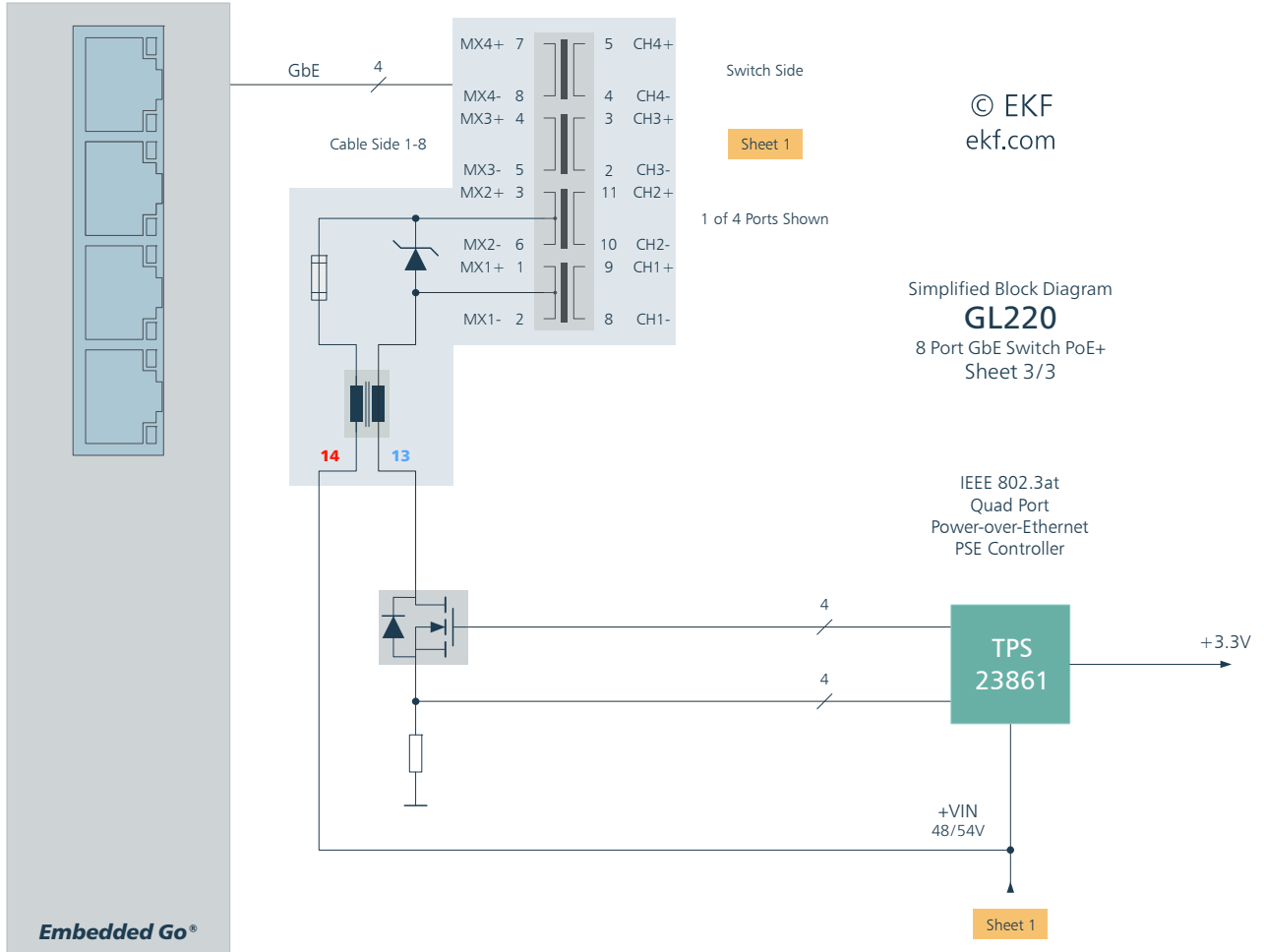
* AVB/TSN protocols with additional mezzanine CPU card support (GL210 - GL230)

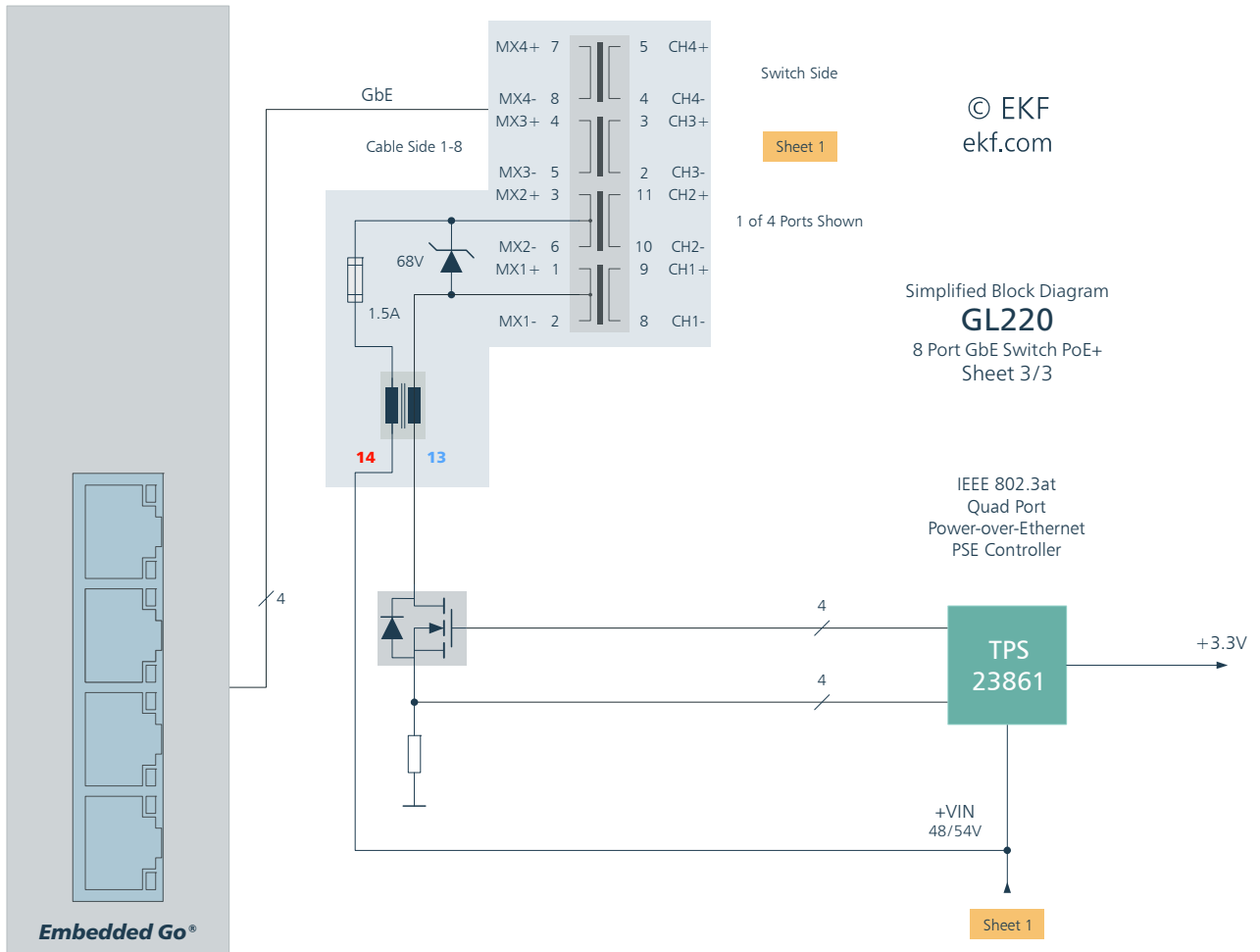
items may be subject to changes



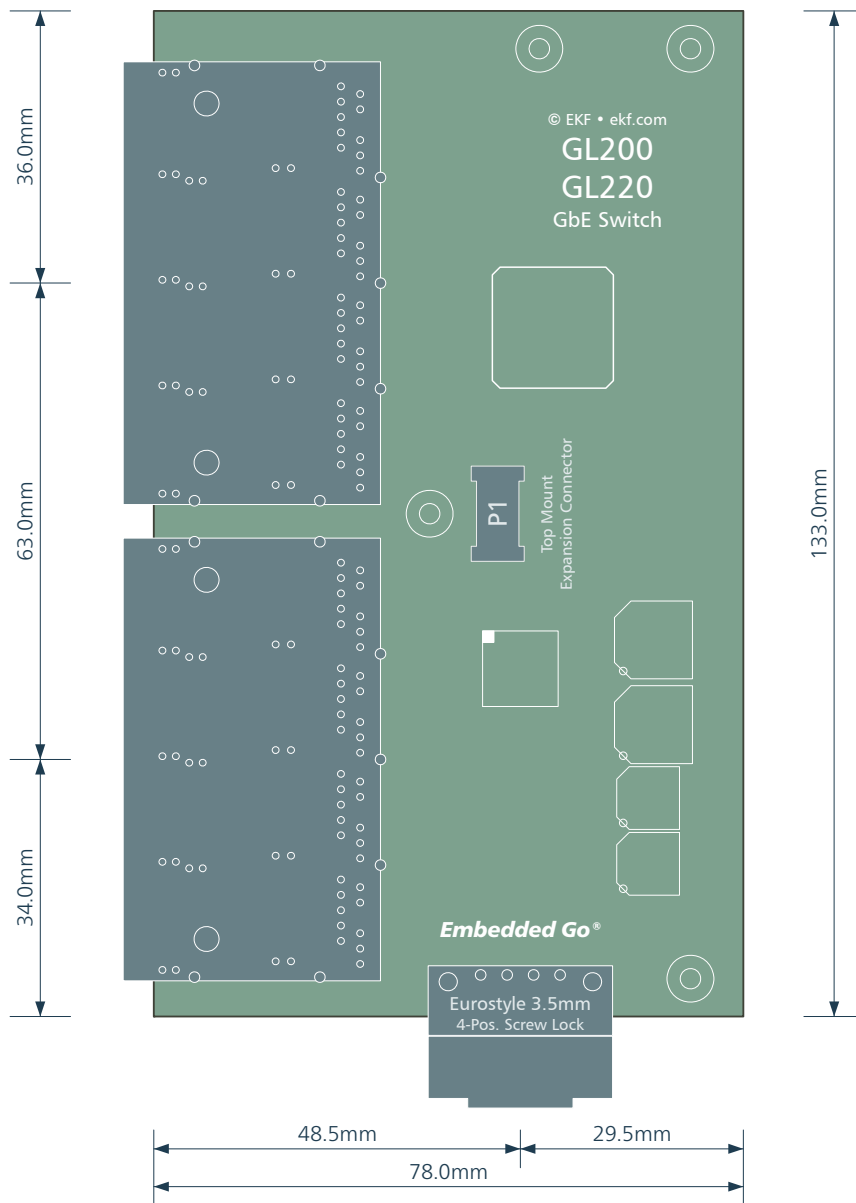
Block Diagram

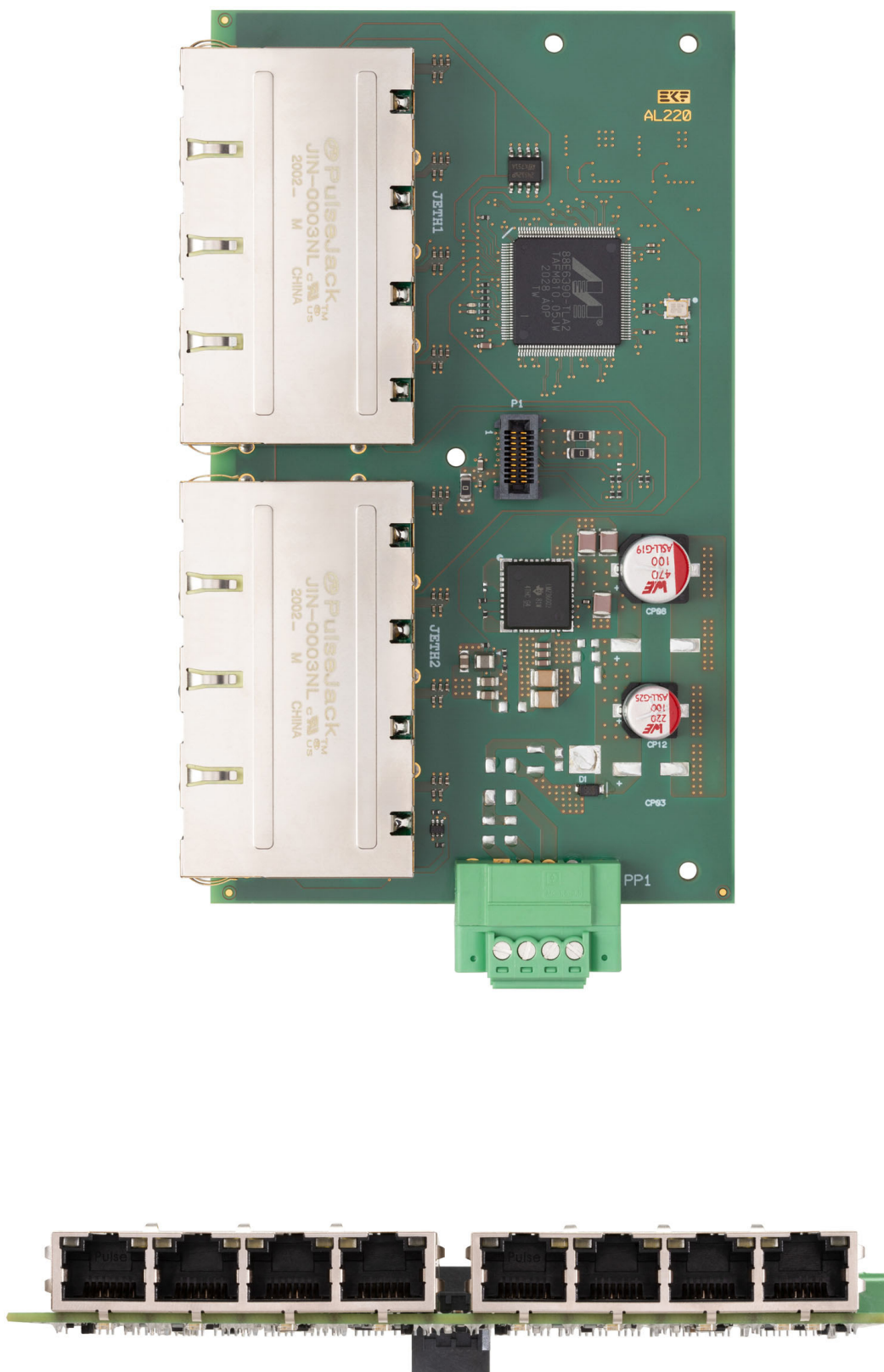


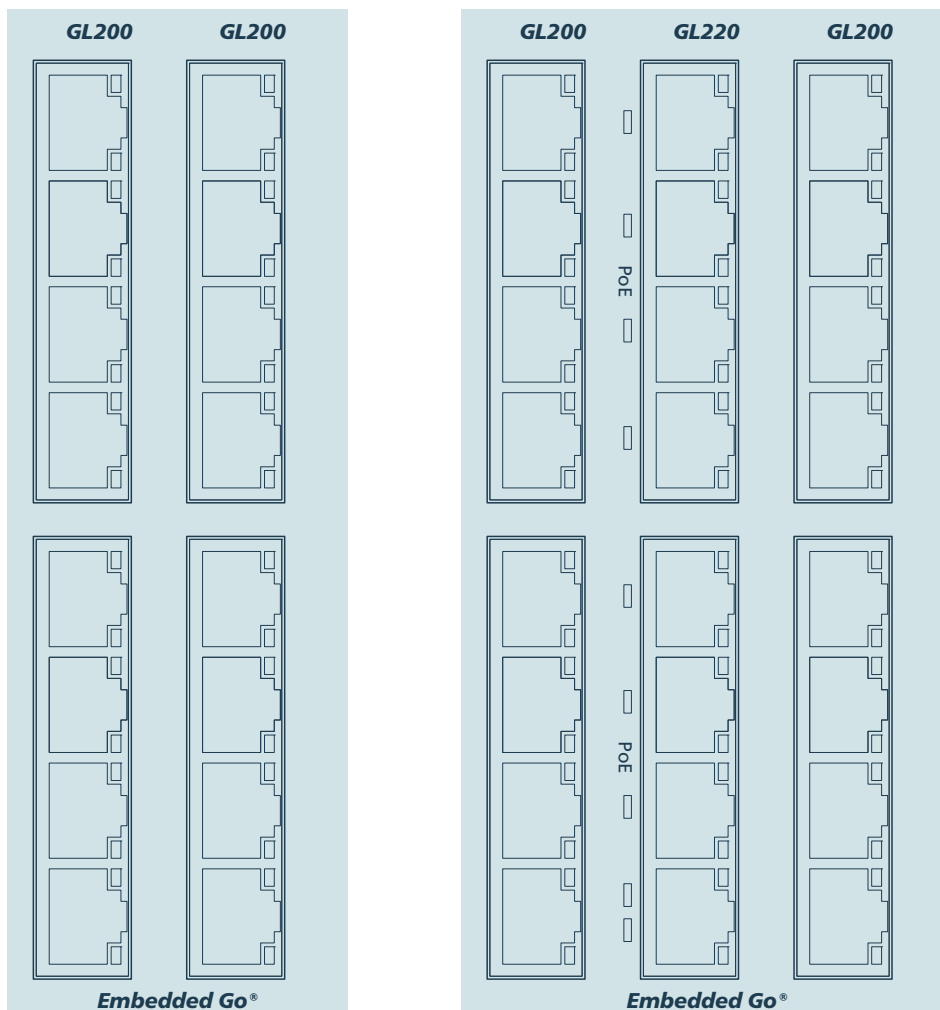




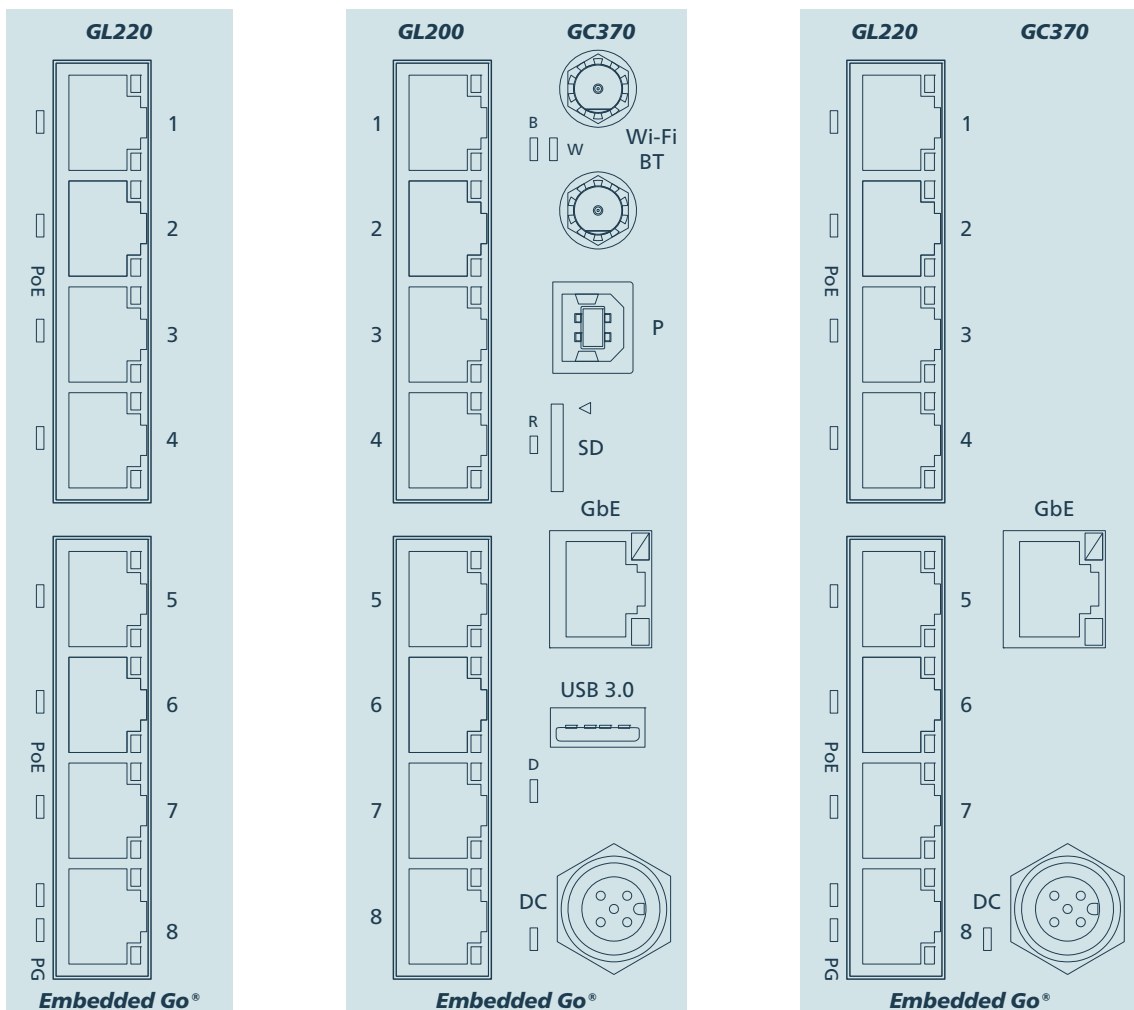
Dimensions







Sample GL200 - GL220 F/P 16-24 Port Stack



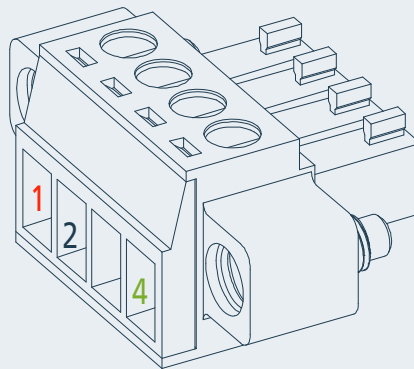
Sample GL200 - GL220 F/P with & w/o Management CPU

Terminal Block Power Connector Pin Assignment

3.50mm 4-Position Terminal Block 8A/Contact		
<p>245.35.04.00</p> <p>1 2 3 4</p>	<p>V=48/54VDC</p>	1 +V
		2 GND
		3 RSV
		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

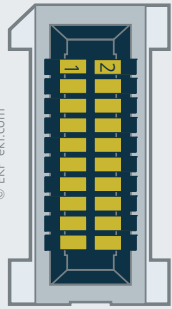
Option Terminal Block Plug Power Cabling

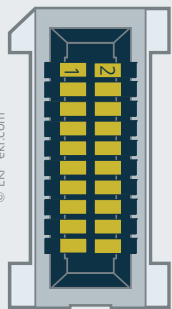


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Mating DIN Rail Power Supply	
EKF	352.1.120.48.1
Meanwell	NDR-120-48, 120W 48VDC/2.5A

Stacking Connectors

P1 (Top) 290.1.020.080				
 <p>290.1.020.080 © EKF ekf.com</p> <p>High-Speed Socket Connector</p>	GND	1	2	GND
	SERDES (P9) RXN	3	4	+5V
	SERDES (P9) RXP	5	6	+5V
	GND	7	8	GND
	SERDES (P9) TXN	9	10	RSV
	SERDES (P9) TXP	11	12	RSV
	GND	13	14	GND
	+5V	15	16	MDC
	+5V	17	18	MDIO
	GND	19	20	GND

P0 (Bottom) 290.1.020.080				
 <p>290.1.020.080 © EKF ekf.com</p> <p>High-Speed Socket Connector</p>	GND	1	2	GND
	SERDES (P10) TXN	3	4	+5V
	SERDES (P10) TXP	5	6	+5V
	GND	7	8	GND
	SERDES (P10) RXN	9	10	RSV
	SERDES (P10) RXP	11	12	RSV
	GND	13	14	GND
	+5V	15	16	MDC
	+5V	17	18	MDIO
	GND	19	20	GND

Associated Mezzanine Interposer Card

A21	30mm PCB pitch
C21	20.32mm (4HP) PCB pitch

Ordering Information

For popular GL200 - GL230 SKUs please contact sales@ekf.de

GL200	8-Port switch, 9V-57VDC
GL210	8-Port switch, 9V-57VDC, with GC370 management CPU (full I/O e.g. USB & Wi-Fi)
GL220	8-Port switch, 4-Port PoE+, 48V/54VDC
GL230	8-Port switch, 4-Port PoE+, 48V/54VDC, with GC370 management CPU (isolated I/O only i.e. RJ45 GbE)

Product Homepage

<https://www.ekf.com/g/gl220/gl220.html>

Embedded Go®

Ready-for-Use Industrial PCB Assemblies

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EKF Elektronik GmbH
Philipp-Reis-Str. 4 (Haus 1)
Lilienthalstr. 2 (Haus 2)
59065 HAMM
Germany



Phone +49 (0)2381/6890-0
Fax +49 (0)2381/6890-90
Internet www.ekf.com
E-Mail sales@ekf.com