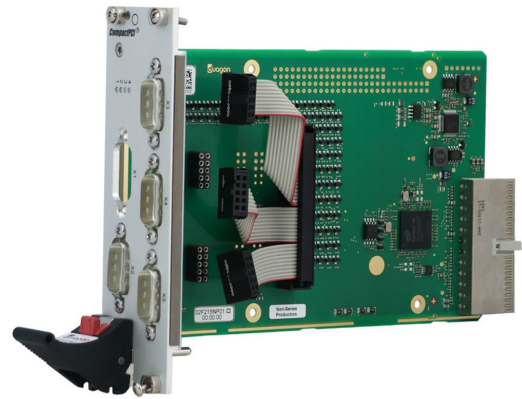


UNIVERSAL INTERFACE BOARD WITH CAN BUS, UART & DIGITAL I/O PORTS FOR SEAMLESS CONNECTIVITY

- 5 interfaces at 8 HP front: 2 UARTs, 2 CAN bus, 1 digital I/O port
- For protocols/physical layers like RS232/RS422/RS485, CAN bus, digital I/O
- Physical layers via SA-Adapters
- -40 °C to +85 °C



ALL-IN-ONE CUSTOMIZABLE INTERFACE SOLUTION

The F215N is a 3U CompactPCI universal interface board offering individual customization of each physical layer channel via SA-Adapters.

FEATURING SA-ADAPTER FLEXIBILITY

SA-Adapters are small universal boards providing the line drivers for legacy serial I/O, fieldbus interfaces and other I/O functions. The SA concept allows to add additional I/O interfaces to the F215N, enhancing flexibility for line transceivers and isolation requirements.

TAILORED EXTENSIBILITY

The F215N comes in a standard FPGA configuration with five preconfigured functions on 8 HP: two CAN interfaces, two UARTs and one 8-bit Digital I/O interface. duagon offers the required SA-Adapters separately which can be connected directly to the board or via ribbon cable.

MULTIPURPOSE FPGA

The board's I/O functions are provided via an FPGA, making it a very flexible and cost-effective solution for dedicated serial I/O. The card can serve as a customized I/O combination or a specialized multi-port CAN card, on 4 or 8 HP. The FPGA is loaded automatically from a 4 MB serial Flash after power-up, which can be updated from the CompactPCI bus.

RUGGEDIZED BOARD

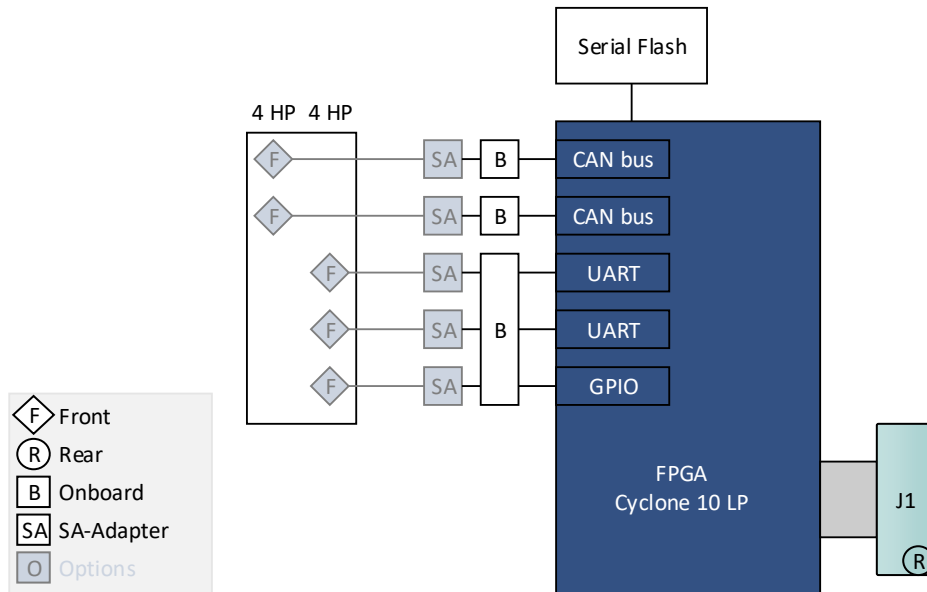
The F215N is designed for use in rugged environments. All components are soldered-on and specified for an operating temperature of -40 °C to +85 °C.



www.duagon.com/products/f215n/

DATA SHEET

F215N | DIAGRAM



F215N | TECHNICAL DATA

INTERFACES

- This product includes interface options
 - Variable I/O in cutouts
 - I/O expansion using SA-Adapter plugged via board-to-board connector
 - SA-Adapters sold separately
- Serial
 - 2 × RS232, non-isolated, D-Sub, 9-pin, plug
 - 2 × RS232, isolated, D-Sub, 9-pin, plug
 - 2 × RS422/RS485, isolated, D-Sub, 9-pin, receptacle
- CAN bus
 - 2 × CAN isolated, D-Sub, 9-pin, receptacle
- Digital I/O
 - 1 × HD-Sub, 15-pin, receptacle
- LED
 - Status: FPGA Load indicator
 - User configurable: 3 ×
- Cutout
 - D-Sub options: RS232, RS422, RS485, CAN bus, digital I/O

PRODUCT STANDARD

- CompactPCI: CompactPCI Core Specification PICMG 2.0 R3.0
- Peripheral slot
- V(I/O): +3.3 V

ELECTRICAL SPECIFICATIONS

- Supply voltage
 - +3.3 V (-3 % / +5 %)
 - +5 V (-3 % / +5 %)
- Power consumption: 4 W max. with all supported functions active

MECHANICAL SPECIFICATIONS

- Dimensions: 3U, 8 HP
- Weight: 182 g
- Cooling: Air cooling, natural convection, airflow 0.4 m/s



PRODUCT COMPLIANCE: RAIL - ROLLING STOCK

- Compliance level: This product is prepared for use in EN 50155 systems. Some parameters are system-dependent and are specified on system level.
- Operating temperature: -40 °C to +85 °C (EN 50155:2017, Tmax/PCB = +85 °C; designed for use in OT4+ST1 systems)
- Equipment location
 - EN 50155:2017, location 1, closed electrical operating area
 - EN 50155:2017, location 2, cabin and interiors
- Rapid temperature variations: EN 50155:2017, class H1, no requirements
- Storage temperature: -40 °C (EN 50155:2017) to +85 °C (EN 60068-2-2, Bb)
- Altitude: +3000 m max. (EN 50125-1:2014, class AX)
- Pollution degree: EN 50124-1:2017, class PD2
- Humidity: +55 °C and +25 °C, 100 % RH max. (EN 50155:2017)
- Shock: 30 ms @ 50 m/s² (EN 61373:2010/AC:2017-09, vehicle body, cat. 1, class B)
- Vibration: 10 min @ 2.02 m/s² (functional) and 5 h @ 11.44 m/s² (long-life) (EN 61373:2010/AC:2017-09, vehicle body, cat. 1, class B, double acceleration)
- Electrical safety
 - EN 50124-1:2017
 - EN 50153:2014 + A1:2017
 - EN 50155:2017
 - EN ISO 13732-1:2008
- Fire protection: EN 45545-2:2020, EL9, HL3
- EMC emission
 - EN 50121-3-2:2016 + A1:2019
 - Regelung Nr. EMV 06 :2019-05-09 (2.0), Anhang E: Messung an Geräten
 - Regelwerk 50.02.01 :2016-12-01, 12.3.1. EMV - Funk
- EMC immunity: EN 50121-3-2:2016 + A1:2019
- Protective coatings: EN 50155:2017, class PC2 (Any PCB protected on both sides)
- Useful life: 20 years (EN 50155:2017, class L4)
- Programmable component: EN 50155:2017, class M0

PRODUCT COMPLIANCE: RAIL - WAYSIDE NON-SAFETY RELATED

- Operating temperature: -40 °C to +70 °C (EN 50125-3:2003, class T2, cubicle, with class T2 maximum extended by 5 °C)
- Storage temperature: -40 °C (EN 60068-2-1:2007, Ab) to +85 °C (EN 60068-2-2:2007, Bb)
- Altitude: +3000 m max. (EN 50125-3:2003, class AX)
- Pollution degree: EN 50124-1:2017, class PD2
- Humidity: 95 % RH max. (EN 50125-2:2002, building N.C.C., class T1/T2/TX)
- Humidity - Condensation: Non-condensing
- Shock: 11 ms @ 20 m/s² (EN 50125-3:2003, in a switch cabinet 1 m to 3 m from the track)
- Vibration: 2.3 m/s² (EN 50125-3:2003, in a switch cabinet 1 m to 3 m from the track)
- Electrical safety
 - EN 50124-1:2017
 - EN 62368-1:2014 + AC:2015
- EMC emission: EN 50121-4:2016
- EMC immunity: EN 50121-4:2016
- Restrictions: Interfaces may only be used with a maximum cable length of 3 m for installations 10 m or less away from the track.

PRODUCT COMPLIANCE: INFORMATION TECHNOLOGY EQUIPMENT

- Operating temperature: -40 °C (EN 60068-2-1:2007, Ae) to +85 °C (EN 60068-2-2:2007, Be)
- Storage temperature: -40 °C (EN 60068-2-1:2007, Ab) to +85 °C (EN 60068-2-2:2007, Bb)
- Altitude: +3000 m max. (EN 62368-1:2014 + AC:2015)
- Humidity: N/A
- Humidity - Condensation: Non-condensing
- Electrical safety: EN 62368-1:2014 + AC:2015
- Flammability (PCBs): UL 94 V-0
- EMC emission: EN 55032:2015 (multimedia equipment), class A (industrial environments)
- EMC immunity: EN 55035:2017 (multimedia equipment)



RELIABILITY

- MTBF: predicted @ 40 °C according to IEC/TR 62380 (RDF 2000)
 - 1 659 295 h (02F215N00, 02F215N01)
 - 1 343 042 h (02F215N02)
 - 1 109 823 h (02F215N03)

SOFTWARE SUPPORT

- Linux

F215N | ORDERING INFORMATION

STANDARD MODELS

- | | |
|------------------|---|
| 02F215N00 | 3U CPCI, 8 HP, FPGA-based universal interface for direct connection of 2x CAN, 2x UART and 1x 8-bit Digital I/O on front, SA-Adapters not included, -40 °C to +85 °C |
| 02F215N01 | 3U CPCI, 8 HP, FPGA-based universal interface for direct connection of 2x CAN, 2x UART and 1x 8-bit Digital I/O on front, SA-Adapters not included, -40 °C to +85 °C, conformal coating |
| 02F215N02 | 3U CPCI, 4 HP, FPGA-based UART interface for direct connection of 2x UART on front, SA-Adapters not included, -40 °C to +85 °C |
| 02F215N03 | 3U CPCI, 4 HP, FPGA-based UART interface for direct connection of 2x UART on front, SA-Adapters not included, -40 °C to +85 °C, conformal coating |

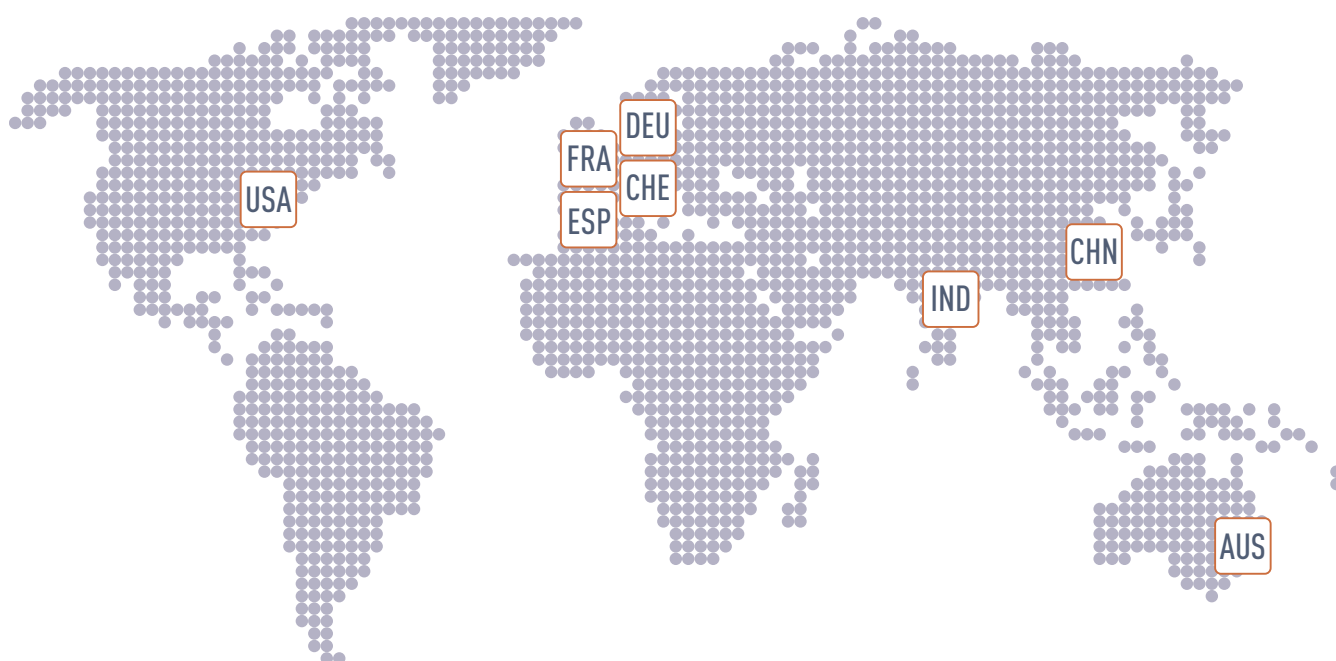
- **Contact duagon** for availability and lead times for product models not listed above.



LEADING THE EMBEDDED FUTURE

duagon WORLDWIDE

duagon has a global presence with support and sales representatives across eight countries. With three decentralized engineering and production sites, our customers take advantage of the added competence and flexibility.



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