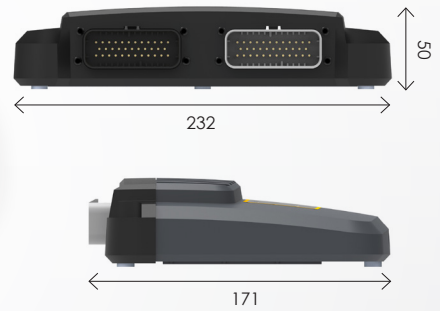




(mm)



CrossFire SX VERSATILE I/O CONTROLLER WITH LATEST SAFETY TECHNOLOGY

CrossFire SX is a freely programmable 32-bit I/O controller, designed for use in On- and Off-road industrial vehicles and equipment. It has 38 I/O channels, fully versatile and configurable in software.

Fieldbus network capabilities include J1939 and CANopen. It is available as I/O device, Smart I/O device with distributed logic and as a freely programmable controller programmed with CODESYS 3.5.X.

With latest CPU technology and a state-of-the-art safety architecture, CrossFire SX is a future proof platform for meeting increasing requirements on reliability and functional safety.

It is built for coping with harsh environmental conditions, enabling installation close to the loads and sensors it is serving. AMP connectors enable inexpensive and reliable wire harnesses and saves installation cost.

Turn for technical specifications »

Standard models

| PART NUMBER | PRODUCT VARIANT | COMMENT |
|------------------------------------|-----------------------------|---|
| C000 137-20 | CrossFire SX, CODESYS | Freely programmable through CODESYS with full support for CANopen Master, CANopen Slave and J1939 |
| C000 137-30 (ASK FOR AVAILABILITY) | CrossFire SX, Safety | SIL 2 certified, CODESYS SAFETY |
| C000 137-40 | CrossFire SX, CANopen Slave | CANopen slave according to CiA 401 |

CrossFire SX PRODUCT SPECIFICATIONS

| KERNEL | |
|------------------|--|
| PROCESSOR | 32-bit safety CPU, Texas Instruments TMS570 ARM Cortex R4, 180 MHz |
| MEMORY | Internal: 3 MB Flash, 256 kB RAM, 64 kB Emulated EEPROM External: Up to 2 MB (optional), 8 kB FRAM, 4 kb EEPROM |

| HMI | |
|-------------------|-----------------------------------|
| STATUS LED | Freely programmable Red/Green LED |

| COMMUNICATION INTERFACES | |
|--------------------------|---|
| CAN | 3 x ISO 11898 2.0B, Bit-rate configurable 20-1000kbps |
| COM | 1 x RS232, for debugging |
| PROTOCOLS | SAE J1939, CANopen |
| EASY CAN | Built in T-connection (CAN 1), to simplify cabling and termination. |
| SOFTWARE UPGRADE | CAN bootloader |

| CANOPEN SLAVE SPECIFICS | |
|-------------------------|---|
| TYPE | CANopen slave, CiA 401 profile |
| NODE ID | ID keying in 127 positions through SW. Position 1-16 can also be set by 4 pins in the connector. (If these pins are not used for Node ID, they can be used as 4 additional digital in.) |
| NODE STATES | Pre-operational, Operational and Stopped |
| SDO | All settings configurable by SDO's |
| PDO | Supports all transmission types, event timer and inhibit time. |
| NMT | Heartbeat producer and consumer |

| CONTROLLER SPECIFICS | |
|-------------------------|----------------------|
| TYPE | IEC 61131-3 soft PLC |
| RUNTIME SOFTWARE | CODESYS 3.5.X |

| 16 X INPUTS | |
|------------------------|--|
| CURRENT INPUT | 4..20 mA |
| VOLTAGE INPUT | 0..5 V |
| VOLTAGE INPUT | 0..10 V |
| VOLTAGE INPUT | 0..32 V |
| FREQUENCY INPUT | 20 kHz, trigger level 2.5-3.0 V |
| DIGITAL INPUT | Trigger level 2.5-3.0 V. Integrated pull up or down resistor. |
| ENCODER INPUT | Available by pairing two frequency inputs. |
| MISCELLANEOUS | All inputs have 12-bit resolution. Current and voltage inputs -3 db, 150 Hz. Protection from short circuit and overload (0..U _b). Individually configurable in software. |

| 16 X OUTPUTS | |
|---|--|
| OPERATING VOLTAGE RANGE | 8...30 VDC |
| PWM OUTPUT, FREQUENCY | 50...400 Hz |
| PWM OUTPUT, DUTY CYCLE | 0...100%, resolution 0.1% |
| PWMI OUTPUT, FREQUENCY | Fixed high frequency |
| CURRENT CONTROLLED OUTPUT (PWMI), DITHER FREQUENCY RANGE | 25...400 Hz, adjustable in fixed steps |
| DITHER CURRENT | Adjustable up to 400 mA. |

| CAPACITIVE LOADS | |
|--|-------------------|
| The 4 A outputs are designed to drive capacitive loads such as LED lamps. The 2 A outputs can be used to drive lighter capacitive loads. | |
| MISCELLANEOUS | |
| All outputs have 12-bit resolution. Protection from short circuit and overload (0..U _b). | |
| 4 X OUTPUT A | 12 X OUTPUT B |
| CURRENT PER OUTPUT | 0...4000 mA |
| CURRENT CONTROLLED OUTPUT (PWMI), ACCURACY | ± (ca 2% + 25 mA) |
| | 0...2000 mA |
| | ± (ca 2% + 10 mA) |

| 2 X H-BRIDGE | |
|-------------------------------|--|
| MAX LOAD | 15A continuous |
| OVERCURRENT LIMITATION | Configurable in the range 0-20A |
| CONTROL | Forward, Reverse, Brake, Coast |
| STATUS FEEDBACK | Protection from short circuit and overload (0..U _b). |

| POWER | |
|--------------------------|---|
| VOLTAGE | 8...30 VDC |
| PROTECTION | Load dump and reverse polarity protected. |
| POWER CONSUMPTION | ≤ 5 mA when not operational |
| SENSOR SUPPLY | 5 V, 300mA |

| SAFETY STANDARDS FOR AGRICULTURE AND CONSTRUCTION | |
|---|--|
| IEC 61508: 2010 | SIL CL 2, Functional safety of Electrical/Electronic/Programmable Electronic Safety-related Systems. |
| ISO 13849: 2008 | PL(d), Safety of machinery. |
| ISO 25119: 2010 | AgPL(d), Tractors and machinery for agriculture and forestry. |
| ISO 15998: 2008 | Earth-moving machinery. |

| ENVIRONMENT & CERTIFICATIONS | |
|-------------------------------|---|
| IP CLASS | IP65, IP66 and IP67 |
| TEMPERATURE RANGE (°C) | -40 to +85 |
| EMC EMISSIONS | ISO 13766: 2006, EN 55011: 2010, CISPR 25 |
| EMC IMMUNITY | ISO 13766: 2006, ISO 11452-2: 2004, ISO 11452-4: 2011, EN 61000-4-3:2006, EN 61000-4-6:2014 |
| EMC TRANSIENT | ISO 13766:2006, ISO 7637-2: 2011 (Pulse5: +123V 20hm), EN 61000-4-4: 2012, EN 61000-4-5: 2014 |
| VIBRATION | IEC 60068-2-64: 2008, IEC 60068-2-6: 2007 |
| SHOCK | IEC 60068-2-27: 2008 |
| CERTIFICATIONS | E-marking, CE Marking, FCC compliance |

| ENCLOSURE | |
|-------------------|--|
| HOUSING | Glass fibre reinforced nylon. Silicone filled. |
| CONNECTORS | 2 x AMP 35-pin |

| SIZE AND WEIGHT | |
|-----------------------|----------------|
| W x H x D (MM) | 232 x 50 x 171 |
| WEIGHT (KG) | 1.0 |

crosscontrol
AN ACTUANT COMPANY

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