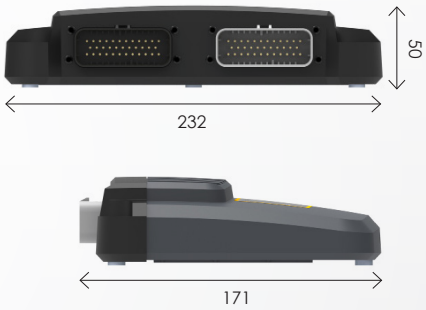
(mm)



CrossFire SX VERSATILE AND SAFE I/O CONTROLLER

CrossFire SX is a freely programmable 32-bit I/O controller, designed for use in both On- and Off- Highway industrial vehicles and equipment. It has 38 I/O channels which are completely versatile and fully configurable within software applications to provide all necessary functions, including hydraulic controls, electrical lights and brushless DC motor.

The device is exceptionally reliable and built to cope with the toughest environmental conditions to ensure critical safety controls. The components in the CrossFire SX have been individually qualified to ensure a high MTBF.

The base technical platform for CrossFire SX has inherent support for functional safety. The dual core CPU has a state of the art safety architecture, good for safety functions up to SIL3 per IEC61508 And the base design is prepared for running CODESYS Safety, enabling implementation of SIL2 safety functions. Safety-enabled versions of the CrossFire SX are offered on request.

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 137-40	CrossFire SX, CANopen Slave	CANopen slave according to CiA 401

*All current versions of the CrossFire SX feature identical hardware. All functions except the Encoder Inputs and H-bridges are certified for safety critical applications.

crosscontrol
making machines smart, safe and productive

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	0...2000 mA
CURRENT CONTROLLED OUTPUT (PWMI), ACCURACY	± (ca 2% + 25 mA)	± (ca 2% + 10 mA)

2 X H-BRIDGE	
MAX LOAD	15A continous
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

ENVIRONMENT & CERTIFICATIONS	
IP CLASS	Up to 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 2Ohm), 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 (g)	1.0

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