CAN Newsletter Online

ETHERCAT-CAN BRIDGE

CAN on an Ethercat network

Isac’s Ethercat-to-CAN bridge is a gateway that supports CAN on an Ethercat network. It is an Ethercat slave device that supports 64-bit DC. Inside the device, process data is used to exchange incoming and outgoing packets.

CN5 provides 24-V power supply for devices that support power supply via the same connector as CAN; CN6 provides handwheel support in CoE (Photo: Isac)

UP TO 16 INCOMING PACKETS AND 16 outgoing packets can be exchanged, and a memory buffer inside doubles this value. CAN packets are sent to the CAN network as they are received from the Ethercat master/CAN master. Incoming CAN packets are received and transmitted again to the Ethercat master/CAN master as they are; for this reason synchronous (PDO) or asynchronous communication (EMCY, SDO) is supported. RTR is supported, too. All standard CAN bit-rates from 10 kbit/s to 1 Mbit/s are supported, except for 800 kbit/s.

In addition to these features, the device supports the possibility to send a Synch message automatically every 1, 2, 4, or 8 Ethercat scan time. In this way, the CAN network can exchange information with the Ethercat/CAN master in a synchronous way, provided that the CAN network can be accessed and is free by other devices. This means that at 1000 kbit/s a maximum of 80 µs delay can occur in case of EMCY occurring or SDO exchange, otherwise the delay is zero for a properly balanced network.

Software drivers for this device are available for several real time OS: IntervalZero RTX, Tenasys Intime, and Microsft Windows CE. These drivers support up to two devices at the same time, allowing the addition of two separate CAN networks to an Ethercat network. In addition there is a non-realtime software running on Windows that is able to run the device.

The gateway can be used together with an Ethercat master and a CAN master, for interpolation of axes conform to CiA 402, and I/O exchange, in a network with or without additional Ethercat slave devices. It can be also used for network scanning and monitoring with a PC. In both cases, additional hardware needs to be installed in the controlling PC. The used connection is always Ethernet.

Based on 40 years of experience in the field of CNC and automation applications, Isac was founded in 1994 in Italy. The company has been certified by a quality system in compliance with UNI EN ISO9001:2008 since 2004.