

ARINC 717/429 Interface to Gigabit Ethernet



Features

- ARINC 717 dual mode transmission (biphase or bipolar)
- ARINC 717 independent biphase and bipolar receive channels
- ARINC 429 transmit and 3 receive channels
- Eight ARINC 717 speeds (64 to 8192 words/sec)
- Variable transmit amplitude
- Variable signal rise and fall times
- Discrete IO
- Error Detect and Time Stamping of ARINC 429 data
- Hardware and Software independent interface

Description

mbs' ÆsyBus product range provides Full Duplex Gigabit Ethernet/IP interfacing to various Avionics and Industrial data buses. ÆsyBus 717 provides this convenient high speed distributed interfacing capability for accessing both ARINC 717 and ARINC 429 channels with support for discrete I/O.

A separate document provides more detail on the ÆsyBus concept and how its unique architecture can be exploited to provide a cost effective, distributed interface and processing system with outstanding performance. Many new products are planned to expand this flexible, easy to program family.

ARINC 717

ARINC 717 transmitter provides software configurable biphase or bipolar operational modes with signal amplitude and rise/fall time control. ARINC 717 channels are capable of operating at 64, 128, 256, 512, 1024, 2048, 4096, and 8192 words per second.

The scheduling of data formatted into four sub-frames is provided under full hardware control. Transmit data is automatically drawn from an on-module data buffer and receive data captured into cyclic buffers for automatic transfer to the host computer.

Two ARINC 717 receive channels are provided: one for capturing biphase communication and the other for bipolar.

ARINC 429

In addition to ARINC 717, one ARINC 429 transmit and 3 receive channels are also provided. These ARINC 429 channels support Error Insertion, Detection and time-stamping with one microsecond resolution. Data for transmission is queued in a FIFO and receive data captured in cyclic data buffers for automatic transfer to the host computer.

Discrete I/O

Four optically isolated discrete pull-down Inputs and four pull-down Outputs are provided for communicating status information.

Software

The choice of Ethernet data bus with UDP/IP protocol provides the user with a freedom unimaginable in the past. No longer is it necessary for a single program to control all of the communication with the interface card. With ÆsyBus 717, the user can divide the system into logical parts and implement them in separate applications, on the same computer or on separate computers attached to the network and these connections can be broken and re-connected while the system is working. No need to switch the system down when connecting a new host to the network.

And how about software drivers for my operating system? This is not a problem. Almost all serious operating systems and software development environments provide support for the TCP/IP protocol stack, to which UDP belongs. You can take advantage of all the special tools and classes provided by these systems, to easily connect to the (UDP) user ports on the card, or sending and receiving messages etc.

In addition to the support of readily available software development tools, the ÆsyBus 717 comes with example software and support classes written in Visual C# and provided with source code. You don't have to waste time struggling with an unfamiliar programming language and environment. You just continue with your favourite tools, they are almost certain to provide the support you need to access the Ethernet/IP and consequently the ÆsyBus devices. In addition, the ÆsyBus 717 is provided with full documentation and various Windows based utility programs to help you configure IP addresses and check out your network connection.



Functional Specifications

General Features

- Support for up to 10 simultaneous applications
- On-board system Timer
- Scheduled data transfer to host computer

ARINC 717 Transmit Features

- One ARINC 717 transmit channel
- Software configured biphas/bipolar operation
- Software configured signal amplitude and slope
- 8 speeds scheduling 64 to 8192 words/second

ARINC 429 Transmit Features

- Transmit speed select 12.5 Kb/s or 100 Kb/s
- Transmit Error insertion
- FIFO queued transmission

ARINC 717 Receive Features

- One biphas and one bipolar receive channel
- Cyclic data buffers

ARINC 429 Receive Features

- Receive Error detection
- Time Stamping on all Receive Arinc-429 words with 1 microsecond resolution
- Cyclic buffers for receive data and Time Stamps

Discrete I/O Features

- 4 Optically Isolated Discrete Outputs (pull-down)
- 4 Optically Isolated Discrete Inputs (pull-down)

ÆsyBus 717 Ordering Information

Part Number	Description
Æ -717-2T5-EC	ARINC-717 / ARINC-429 Ethernet Interface card in Eurocard Format
Æ -717-2T5-EP	ARINC-717 / ARINC-429 Ethernet Interface Module for External Power Input
Æ -717-2T5-PoE	ARINC-717 / ARINC-429 Ethernet Interface Module with Power over Ethernet (PoE)

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