

UFC100-F1

Unified Fieldbus Controller

Product Information

The Complete Solution for Your Device

The UFC100-F1 (Unified Fieldbus Controller) is a RoHS compliant peripheral that can be used in a fieldbus device or host to provide a complete solution for implementing Fieldbus equipment. The UFC100-F1 includes all of time-critical functions in the hardware including address recognition, filtering of received frames, timer management and data link state machine. It implements part of physical and data link layers for the FOUNDATION fieldbus H1 and PROFIBUS PA. The state-of-the-art production process guarantees a longtime availability.

Basic Features

- Fully pin compatible to 'FIND-1+'
- Fully software compatible to 'FIND-1+' and FRONTIER-1+'
- Compliant to IEC 61158-2 physical layer at 31.25 kbit/s
- Compliant to IEC 61158-4 data link layer
- RoHS compatible industry standard 44-pin PQFP package
- Operating voltage – 2.7 to 3.6 V
- Low current consumption suitable for field devices
- Flexible 8-bit CPU bus interface suitable for all types of processors
- 128 byte FIFO can store one frame of most types

Applications

- FOUNDATION fieldbus H1 device
- PROFIBUS PA fieldbus device
- H1 Host interface
- HSE Linking device

Enhanced Features

In addition the UFC100-F1 offers an Enhanced Mode with several new features. Upgraded stack software can make use of performance enhancement features as follows:

Transmit Machine

- It can generate early interrupt to reduce the gap between two frames.
- Test pattern and fault generator can be used for test purposes.

Receive Machine

- Filters the received frames and automatically rejects unwanted frames.
- The FC is decoded, so that it takes less time to process the received frame.
- For most frames, only one interrupt per frame is generated. If the frame is automatically rejected then interrupt is not generated.
- Counts the number of frames that were in error and total number of frames that were good.

Data Link Timers

- Timer control is in the chip. The software has to only set the values of timer parameters.
- Node timer frequency can be automatically adjusted to track LAS time.
- Node timer can be used as jitter free Function Block and CD scheduler.
- Token timer is automatically loaded from the received token.

Data Link State Machine

- Many of the state machine transitions are done in hardware.
- Can be used as LAS.

Interrupt Encoder

- Support for fast interrupt response.

Clock Generator

- Input clock can be 1 to 40 MHz.
- Two clock output pins can be programmed for one of several frequencies.

MAU and Bus Fault Detection

- It can be used to detect missing terminator or too many terminators on the Bus.
- It can be used to detect open or short circuit faults in the external MAU (Medium Attachment Unit) circuit.

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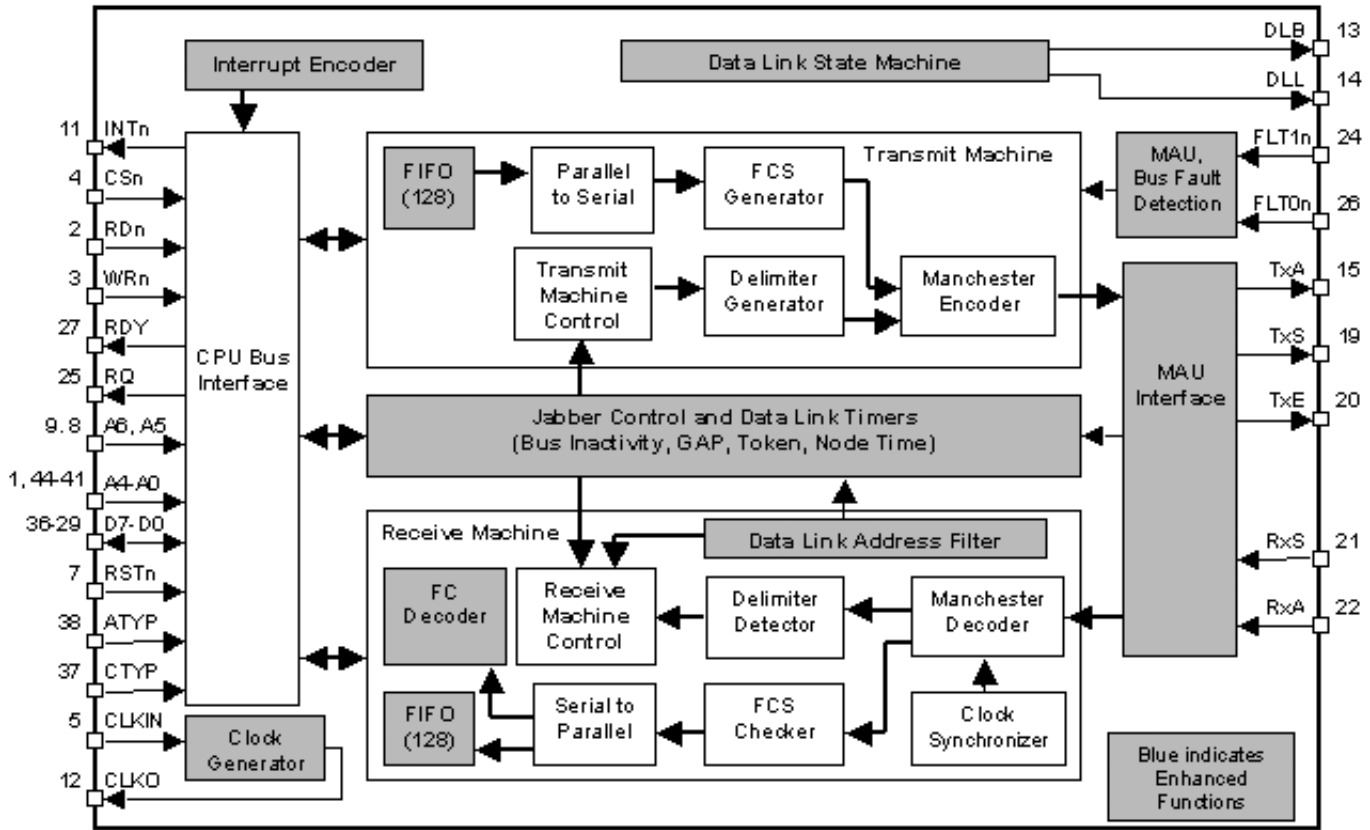
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Product Information

UFC100-F1: Unified Fieldbus Controller



UFC100-F1 Block Diagram

Technical Data

Symbol	Parameter and condition	Min	Typical	Max	Units
V _{DD}	Supply voltage	2.7		3.6	V
T _{opr}	Operating temperature	-40		85	°C
I _{DD}	Operating current consumption @ 3 V				
	@ CLKIN frequency = 1 Mhz		0.3		mA
	@ CLKIN frequency = 4 Mhz		0.5		mA
	@ CLKIN frequency = 40 Mhz		3.0		mA
	All inputs connected to CMOS outputs				
	All outputs driving CMOS inputs.				

Order Number

UFC100-F1	Unified Fieldbus Controller F1
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