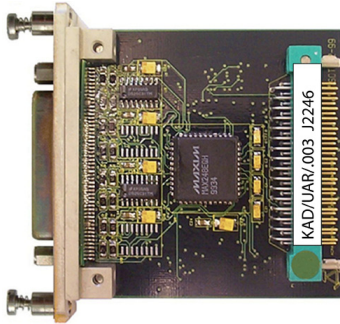


KAD/UAR/003

RS-422 bus monitor parser - 2ch



Overview

The KAD/UAR/003 is designed to accept the following protocol: A series of 16-bit words is preceded by a one byte address, which serves as an ID for the data bytes. The address byte is sent with its sync bit set to 1. Succeeding bytes are placed in coherent pairs at that address in RAM. The sync bit is 0 for data bytes.

Key Features

- Monitors up to two RS-422 busses
- Coherently parses up to 256 pairs of data bytes
- Bit-rate of 9600bps
- 8 bits per word with sync bit and stop
- Sync bit instead of parity implies address byte

Applications

- Interfacing with serial data links

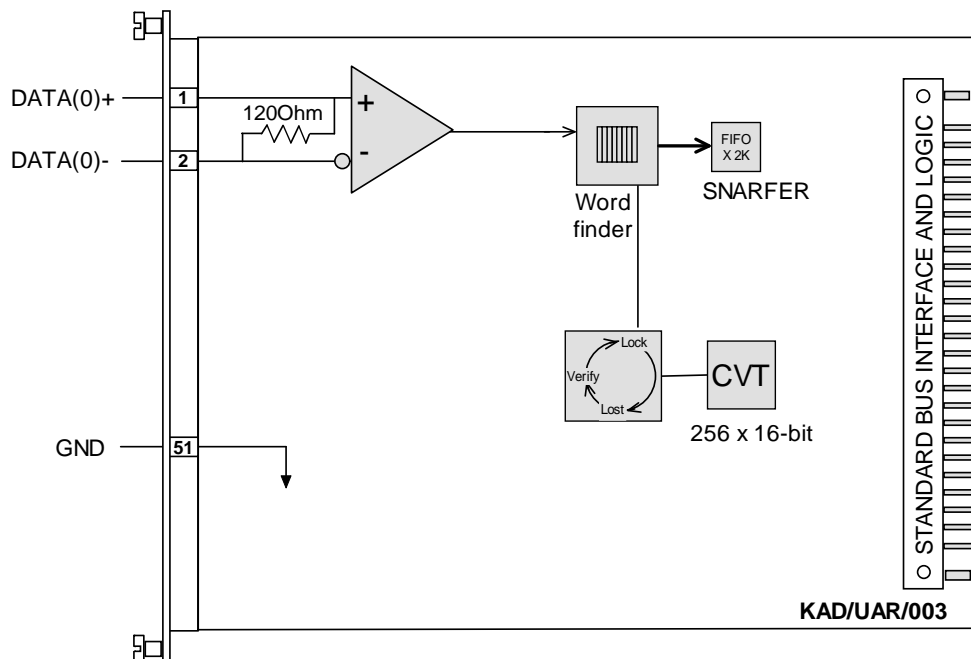


Figure 1: First of two independent channels of the KAD/UAR/003

Specifications

Busses:	2	
Inputs:	D/E	RS-422/485 (internal 120Ω termination)
Sampling restrictions:	The maximum sampling rate from the module is 500kHz	

Output registers

The following figure illustrates the 513 registers that can be read from the KAD/UAR/003.

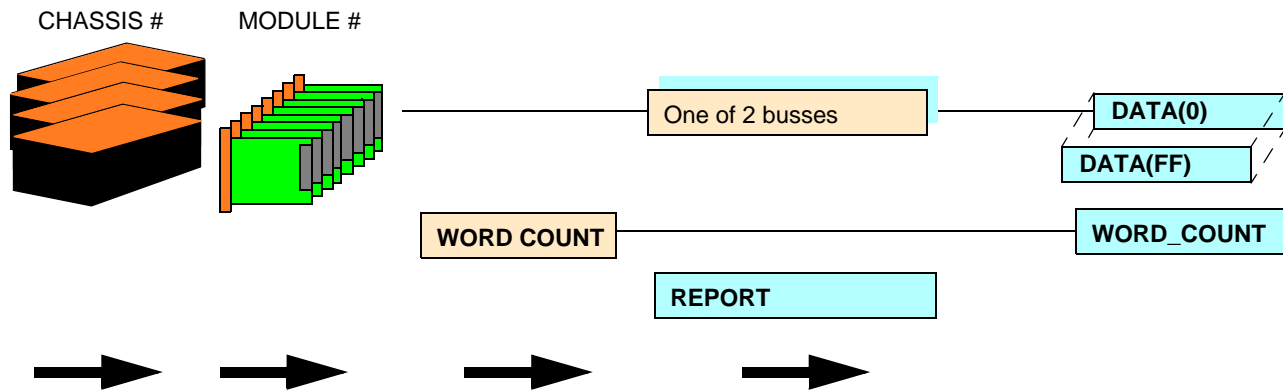


Figure 2: Choosing a parameter to be read from the KAD/UAR/003

REGISTER	BITS	DESCRIPTION	MSB
DATA		Last bytes received at this address	
	D[15:8]	First byte after address D(15) is the LTB ¹	R(15)
	D[7:0]	Second byte after address D(15) is the LTB	R(7)
WORD_COUNT		Number of words read.	
	R[15:0]	BINARY 0000-FFFF, resets at FFFF	R(15)
REPORT		Bus status	
	D(15)	Error on bus 1	
	D(14)	Error on bus 0	
	D[13:3]	Reserved for future use.	R(13)
	D(2)	Stop bit not correct on bus 1	
	D(1)	Bad bit on bus 1	
	D(1)	Stop bit not correct on bus 0	
	D(0)	Bad bit on bus 0	

1. LTB = Last Transmitted Bit

Getting the most from the KAD/UAR/003

This page outlines the assumptions made by the KAD/UAR/003 designers. The following figure is used to illustrate some of the assumptions made.

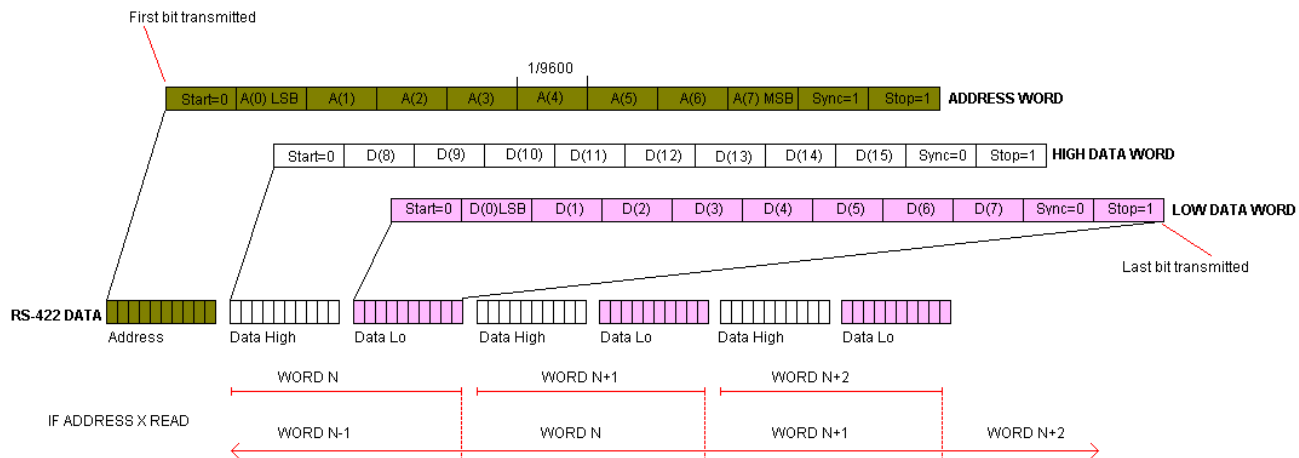


Figure 3: KAD/UAR/003 timing

Assumptions made

1. There are two separate busses.
2. The baud rate is 9600.
3. Address and data are transmitted Least Significant Bit (LSB) first.
4. The sync bit takes the place of a parity bit and is 1 for the address byte.
5. The KAD/UAR/003 stores a 16-bit data word associated with each address made up of two consecutive data bytes.
6. Because there are 8 bits in the address, up to 256×16 -bit words can be read from the KAD/UAR/003 for each bus.
7. If an address is received instead of a data low, then data low will be set to zero.
8. No time tagging is required.
9. No stale, skipped, or empty tags are required.

Some observations (for clarity)

1. The previous figure illustrates that if address X is read after word N is received then word N will be returned until N+1 has been received.
2. The data high and data low are updated at the same time. In other words High from word N can not be read with low from N-1.
3. In order to guarantee never missing any value of address X, it should be read faster than 437 samples per second.

Connector pinout of the KAD/UAR/003

PIN	NAME	I/O	DESCRIPTION	COMMENT
1	DATA(0)+	RS-422 In	Data in	
2	DATA(0)-	RS-422 In	Data in	Internally terminated with 120Ω
3	DNC			Do not connect
4	DNC			Do not connect
5	DATA(1)+	RS-422 In	Data in	
6	DATA(1)-	RS-422 In	Data in	Internally terminated with 120Ω
7	DNC			Do not connect
8	DNC			Do not connect
9	DNC			Do not connect
10	DNC			Do not connect
11	DNC			Do not connect
12	DNC			Do not connect
13	DNC			Do not connect
14	DNC			Do not connect
15	DNC			Do not connect
16	DNC			Do not connect
17	DNC			Do not connect
18	DNC			Do not connect
19	DNC			Do not connect
20	DNC			Do not connect
21	DNC			Do not connect
22	DNC			Do not connect
23	DNC			Do not connect
24	DNC			Do not connect
25	DNC			Do not connect
26	DNC			Do not connect
27	DNC			Do not connect
28	DNC			Do not connect
29	DNC			Do not connect
30	DNC			Do not connect
31	DNC			Do not connect
32	DNC			Do not connect
33	DNC			Do not connect
34	DNC			Do not connect
35	DNC			Do not connect
36	DNC			Do not connect
37	DNC			Do not connect
38	DNC			Do not connect
39	DNC			Do not connect
40	DNC			Do not connect
41	DNC			Do not connect
42	DNC			Do not connect
43	DNC			Do not connect
44	DNC			Do not connect
45	DNC			Do not connect
46	DNC			Do not connect
47	DNC			Do not connect
48	DNC			Do not connect
49	GND		Internal ground	
50	GND		Internal ground	
51	GND		Internal ground	
52	CHASSIS		Chassis	DD connector only

Ordering information

PART NUMBER	DESCRIPTION
KAD/UAR/003	RS-422 bus monitor parser - 2ch

By default, the standard mating connector, CON/KAD/002/CP, is included with each module in the shipment. Its part number will be added to the Confirmation of Order unless an alternative option is specified (see the *Cables* data sheet).

Revision history

REVISION	DIFFERENCES	STATUS
KAD/UAR/003	First release	Recommended for new programs

Supporting software

SOFTWARE	DETAILS
DAS Studio 3	User interface for setup and management of data acquisition, network switches, recorders and ground stations in an integrated environment
KSM-500	This module is supported by the KSM-500 suite of software tools

Related documentation

DOCUMENT	DETAILS
DOC/DBK/001	Acra KAM-500 Databook
DOC/HBK/002	Environmental Qualification Handbook
DOC/MAN/018	KSM-500 Databook
DOC/MAN/030	DAS Studio 3 User Manual

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