MELS-30/*

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Notes are used to call attention to information that is significant to the understanding and operation of equipment.

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BALOGH 7699 Kensington Court-Brighton, MI 48116-8561 - (248) 486-RFID - Subject to Modifications

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INTRODUCTION TO THE MELS-30

The MELS-30/* Serial interface Control Board communicates between BALOGH'S electronic TAGS and Transceivers. The Control Board is DIN rail mountable and supports several Protocols.

MELS-30/*

Has one serial link configurable to: RS422, RS485, or RS232

Is single channel: Connects to a single BALOGH Transceiver

dip-switches to configure: communications protocol, slave number, baud rate (up to 19.2Kbaud), and parity (even or odd)

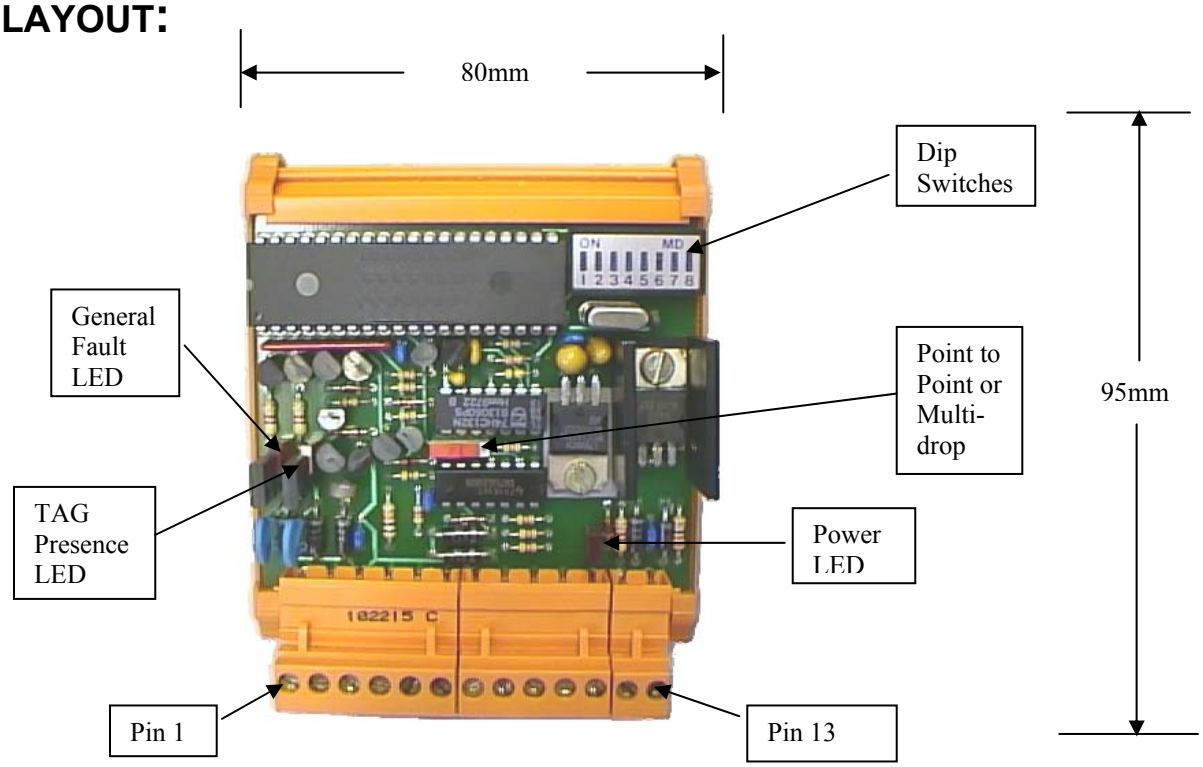
Has 2 parallel outputs One for TAG Presence
One for general fault

The MELS-30/* Allows Dialog on It's Single Channel with BALOGH TAG types

Model Number	TAG TYPE	Memory size	Usable Memory Addressing (In Bytes)
MELS-30/P	OP (read/write)	64 bytes	0 to 63 (Read) 12 to 75 (Write)
		96 bytes	0 to 95 (Read) 12 to 107 (Write)
MELS-30/A	OMA (read/write)	64 bytes	2048 to 2112
		2K bytes	0 to 2047
		8K bytes	0 to 8180
MELS-30/X	OMX (read/write)	8K bytes	0 to 8180
		32K bytes	0 to 32767
MELS-30/F	OF/OFR (read only)	7 bytes	0 to 6
MELS-30/E	GIE (read/write)	512 bytes	0 to 511
		2K	0 to 2047
		8K	0 to 8180

MELS-30/*

BOARD LAYOUT:



PHYSICAL CONNECTIONS:

PIN NUMBER	RS-422	RS-232
1	TAG PRESENCT	
2	GENERAL FAULT	
3	TRANSCEIVER GROUND (O) ⟶	Pin 4 (O) on Transceiver
4	TRANSCEIVER INPUT (E) ⟶	Pin 2 (S) on Transceiver
5	TRANSCEIVER OUTPUT (S) ⟶	Pin 3 (E) on Transceiver
6	TRANSCEIVER +VCC + 24VDC (V) ⟶	Pin 1 (V) on Transceiver
7	RS422 Common	RS232 0 VOLT
8	RS422 TX -	RS232 TX
9	RS422 TX+	NA
10	RS422 RX -	RS232 RX
11	RS422 RX+	NA
12	Ground	
13	+ 24 VDC	

Note: When Using BALOGH Transceiver cables; V is Brown, S is White, E is Blue and O is Black

POWER SUPPLY

24 VDC (±10%): (<2% ripple)*

***Power supply rating should include power for each transceiver or R/W head. Power supply should be of the type that is linear regulated**

CURRENT CONSUMPTION

-70mA for MELS-30/* Control Board
-Plus 150mA for the Transceiver
-Plus current consumption for the parallel outputs (up to 100mA)

PARALLEL OUTPUTS

-Maximum output current: 100mA
-Loss voltage (Usd): 2V
-Level"0": 50 μA
-Level"1": U –Usd
-Protected against load short circuits

SERIAL LINK RS-232

- Output not connected: U<-3 Volts
- Level "0" : +3 V<U<+12V
- Level "1" : -12V<U<-3V
- U max : +24Volts

SERIAL LINK RS-422

- If not connected: Output Y<Z

SERIAL LINK RS-485

- To Utilize RS-485, wire for RS-422 and you must jumper pins 8 to pin10 and pin 9 to pin 11

OPTO-ELECTRONIC ISOLATION

- Serial link
- Parallel Outputs
- Transceiver link

DIP SWITCH SETTINGS:

NODE ID	SWITCH 1	SWITCH 2	SWITCH 3
1	OFF	OFF	OFF
2	ON	OFF	OFF
3	OFF	ON	OFF
4	ON	ON	OFF
5	OFF	OFF	ON
6	ON	OFF	ON
7	OFF	ON	ON
8	ON	ON	ON

PROTOCOL	SWITCH 4	SWITCH 5
JBUS	OFF	OFF
UNITELWAY	ON	OFF
DF 1	OFF	ON
DF1 POINT TO POINT	ON	ON

BAUD RATE	SWITCH 6	SWITCH 7
19.2K	OFF	OFF
9.6 K	ON	OFF
4.8K	OFF	ON
2.4K	ON	ON

SWITCH 8, PARITY: ON =EVEN, OFF=ODD

Switch below bank of dip switches

SWITCH (RS232, RS422, RS485)

DOT VISIBLE----------MULTIPOINT

DOT NOT VISIBLE----------POINT TO POINT

JBUS® PROTOCOL

The Maximum length per message is 256 bytes (including service bytes)

The MELS-30 uses three basic commands within the JBUS® Protocol

Function 3 : Read (N) Words

Function 6 : Write Request of (One) Word

Function 16 : Write Request of (N) words

Read (N) Words

Request:

Slave # of MELS-30/*	Function #	TAG Address of first word to be read		# of words to be Read		CRC 16 Check word
1 byte	1 byte	2 byte		2 bytes		2 bytes
		High Byte	Low Byte	High Byte	Low byte	

Response:

Slave # of MELS-30/*	Function #	# of Read bytes	First word Read		Last word Read		CRC16
1 byte	1 byte	1byte	2 bytes		2 bytes		2 bytes
			High byte	Low byte	High byte	Low byte	

Write (N) Words

Request:

Slave #	Function #	TAG start address		# of words to write (N<120)		# of bytes to write (N<240)	First value to write	Last value to write	CRC16
1 byte	1byte	2 bytes		2 bytes		1 byte	2 bytes	2 bytes	2 bytes
		High byte	Low byte	High byte	Low byte				

Response:

Slave #	Function #	TAG start address	# of words written	CRC16
1 byte	1 byte	2 bytes	2 bytes	2 bytes

Write One Word

Request:

Slave #	Function #	TAG address to Write		Word to be Written		CRC16
1 byte	1 byte	2 bytes		2 bytes		2 bytes
		High byte	Low byte	High byte	Low byte	

Response:

Slave #	Function #	TAG address Written to	Word Written	CRC16
1 byte	1 byte	2 bytes	2 bytes	2 bytes

Fault Indications

Under MODBUS® protocol, when the MELS-30* finds a mistake, it gives back a fault message:

Slave #	Code of requested function	Fault code #	CRC16
1 byte	1 byte	1byte	2 bytes

NOTE: In the case of the wrong CRC16 the MELS-30 does not answer to the request.

FAULT CODES

- 1: unknown function
- 2: Inadequate address or fault in the message
- 3: Inadequate data
- 4: device not ready (or TAG not Present)
- 8: Fault in the write operation

IF YOU RECEIVE A FAULT CODE “8” IN THE JBUS® STRING, INDICATING A GENERAL FAULT. ISSUE A READ OF MEMORY LOCATON (4000H) FOR THE SPECFIC FAULT CODE

SPECFIC FAULT CODE	**DESCRIPTION**
9F (H)	Dialogue impossible to complete
9C (H)	Transceiver fault
9E (H)	TAG memory fault
9B (H)	Addressing Error
92 (H)	MELS-30 Address Error

Control Board

MELS-30/*

Identification Systems

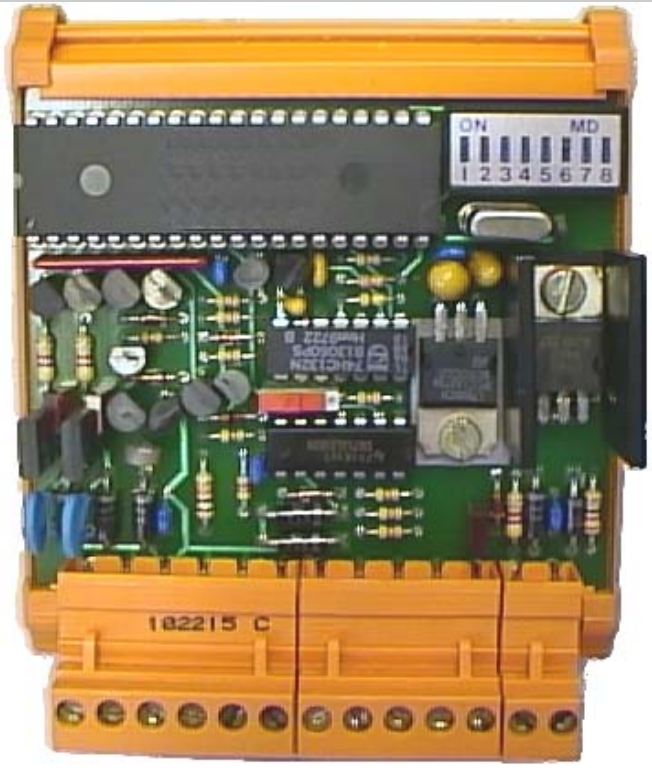
Reference: MELS-30/*	A=	OMA	64, 2K, or 8K bytes Read/Write TAG
Each module supports one transceiver.	P=	OP	64 byte & 96 byte Read/Write
	X=	OMX	High Speed 8K & 32K byte Read/Write TAG
	E=	GIE	512, 2K, 8K byte Read/Write
	F=	OF or OFR	7 bytes Read-Only TAG

Reference

Depending on the TAG to be read or written to different firmware can be implemented. An extra letter determines the software: e.g. MELS-30/ A is meant for OMA TAG Read.

Description

The MELS-30 Control Board is a slave interface with an RS 422/ RS 485 Serial Link supporting the following protocols:
JBUS®, JBUS/ASCII®, JBUS N®, Unitelway®, DF1® half duplex, DF1® Full duplex, RS-232,
Switches enable the link settings.
Two parallel outputs S1 and S2 are available.
The MELS-30 Control Board controls one BALOGH Transceiver and supplies its power.



Revised: Nov 4, 2002

Characteristics at 25° C	Symbol	Unit	Value
Power Supply (<10% ripple)	Ual	VDC	24
Voltage Tolerance		VDC	+ / - 10%
Current Consumption	Io	mA	70 (not including Transceiver)
Serial Connection			1
No. Transceivers			1
No. of Parallel outputs			2
Inverse Polarity Protected			Yes
Ambient Temperature			-20 C to +70 C
Weight	Grams	G	153
Baud Rate		KBds	Up to 19.2K
RS-232 Serial line			Point to point Multi-protocol
RS-422/RS485* Serial Line			Multi-Drop/Point to Point Multi-Protocol
Protection Degree		IP	00
No. Slaves with multi-drop			Up to 8

Connection	RS-422	RS-232
1	TAG Presence	
2	General Fault	
3	Transceiver Ground (O) →	Pin 4 (O) on Transceiver
4	Transceiver Input (E) →	Pin 2 (S) on Transceiver
5	Transceiver Output (S) →	Pin 3 (E) on Transceiver
6	Transceiver + VCC + 24VDC (V) →	Pin 1 (V) on Transceiver
7	RS422 Common	RS232 0 Volt
8	RS422 TX -	RS232 TX
9	RS422 TX+	N/A
10	RS422 RX-	RS232 RX
11	RS422 RX+	N/A
12	Ground	
13	+24 VDC	

Note: 1) When using BALOGH Transceiver Cables: V is Brown, S is White, E is Blue, and O is Black.

*(For RS485, wire for RS-422 and Jumper pin 8 to pin 10, Jumper pin 9 to pin 11)

BALOGH RF Interface via Serial RS-232, or RS-422 Connection