

CLF-81

BALOGH

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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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Introduction

BALOGH Read-Only systems are simple and economical solutions for your identification needs. With BALOGH Read-Only systems, the TAG is read without contact, up to 500mm, and is **100%** reliable, even under the harshest industrial conditions including oil, heat, grease, paint, metal chips, etc...BALOGH TAGS are passive. TAGS receive all necessary electrical power from the transceivers electromagnetic field.

Applications:

The BALOGH Read-Only systems are uniquely suited for many tracking applications because of their flexible and modular design. Some special abilities of the BALOGH Read-Only systems are:

- Tracking the direction of travel and reading pallet ID simultaneously.
- Identifying the carrier and its proximity to a station, i.e., left, right, or center.
- Marking locations for smart vehicles as they move through mines, factories or warehouses.

2 Hardware Requirements

Transceivers:

It is the Transceiver that provides the energy for data transmission and reception between the TAG and Transceiver. An electromagnetic field generated by the Transceiver determines the dimensions of the transmission zone. As a TAG enters the transmission zone data transfer takes place.

Transceivers:

ERO-71/QC	ERA-18
ERO-80/QC	ERA-80/QC
ERO-85/QC	TLEB-891/PUR

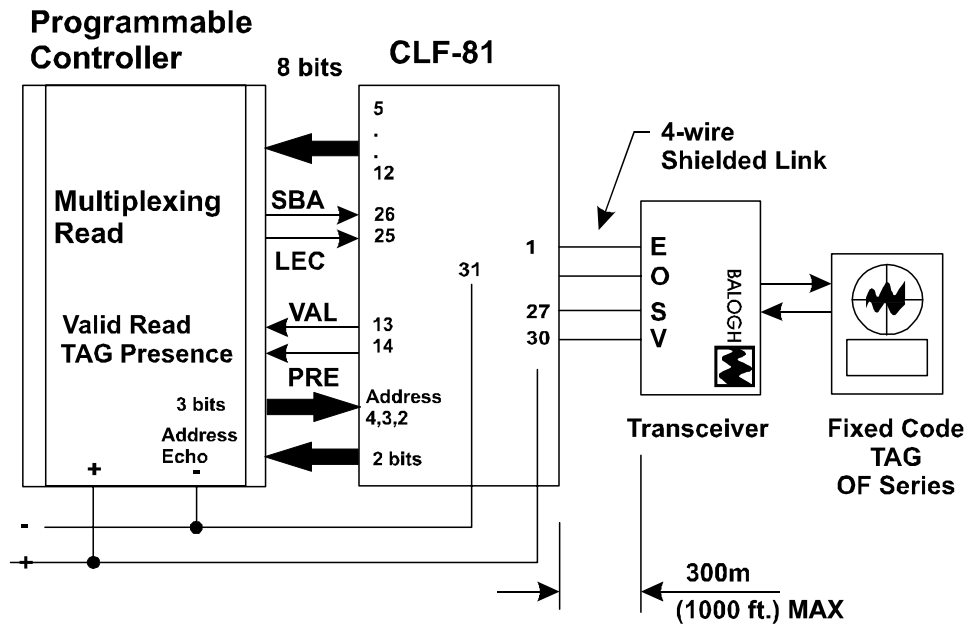
See Assembly Manual for more details.

Control Boards:

The link between the user's logic control device and the Transceiver/TAG communication is the BALOGH Control Board.

Parallel Control Board:

OF/OFR Series TAGS



CLF-81 Connections

3 Operation of the CLF-81

Input/Output Command Definitions ("OF/OFR" series):

The "OF/OFR" Series Read-Only TAGS have 7 bytes of fixed data. All 7 bytes of the "OF/OFR" TAGS are read completely each time a programmed read operation is executed by the CLF Board. The data is then held in a buffer in the CLF-81. The data becomes available to the Host only after a Read Complete and Verified signal appears; VAL switches from logic 0 to logic 1.

The Host Controller can access any of the 7 bytes by presenting the proper address, 0-6, on the Address Input Bus (Terminals 24, 23, and 22).

Note: If it is only necessary to read 1 byte of TAG data from the CLF-81, then the address of the byte chosen can be fixed on terminals 24, 23, and 22. This byte will automatically be presented to the Output Bus after a successful read operation occurs.

3.1 SBA Input command

SBA: This Input is used when multiplexing two or more CLF-81 Boards.

SBA = 1 The inputs and outputs are active and accessible.
SBA = 0 The data outputs and address inputs are disabled, the status outputs remain active.

3.2 LEC Input command

LEC: This input will initialize the board, setting all outputs to zero.

Switching LEC from logic 0 to logic 1 will:

- change VAL to logic 0
- change Output Bus to logic 0

LEC at logic 1:

- holds VAL at logic 0
- holds Output Bus at logic 0
- restricts reading of "OF/OFR" TAG

Switching LEC from logic 1 to logic 0 will:

- enable reading of "OF/OFR" TAG

Note: This operation does not require the presence of a TAG.

3.3 Address selection command

Characteristics of the CLF-81 in addressing mode.

The address Input Bus consists of 3 sinking Inputs. These inputs are located at terminals 22, 23, and 24, with terminal 22 being the Most Significant Bit. The user may select the address of a specific byte stored in an "OF/OFR" Series TAG on the Input Bus.

Example: Terminals	22	23	24
Logic presented by Host	1	1	0
Address Requested		6	

3.4 VAL status Output

VAL: The VAL output indicates the status of a read operation:

VAL = 0 Reading has not yet occurred or not yet validated.
VAL = 1 Read operation valid.

3.5 PRE status Output

PRE: This output indicates the presence of a TAG in the transmission zone of the Transceiver.

PRE = 1 Presence of "OF/OFR" TAG.
PRE = 0 No TAG present.

3.6 Output BUS (BUS 0)

These outputs represent the codes read from the "OF/OFR" Series TAG. The data of the default address is latched on the data bus until another address is requested for data or the LEC is switched to logic 1.

3.7 Address Echo Output BUS

The address Output Bus on the CLF-81 consists of a 3 terminal sourcing Output Bus located at terminals 2, 3, and 4. Output terminal 2 is the Most Significant Bit. The CLF-81 address Output Bus will echo the address present on the Input Bus after a programmed read operation is complete.

Example: Terminals	2	3	4
Logic Echoed CLF-81 Board	1	1	0
Address Echoed		6	

4 Programming a Read Operation

“OF/OFR” series

LEC switched from logic 0 to logic 1:
- changes VAL to logic 0
- changes Output Bus to logic 0

LEC switched from logic 1 to logic 0:
- enables reading "OF/OFR" TAG

Note: This operation does not require the presence of a TAG.

4.1 Reading stage

As soon as a TAG enters the Transceiver's transmission zone, the Control Board will respond with the following signals:

PRE = 0	switches to logic 1.
BUS = 0	code appears on Bus 0.
VAL = 0	switches to logic 1 indicating valid data on Bus 0.

Address requested on the Input Bus is echoed on the Address Echo Output Bus and locked.

4.2 Board status after Execution of a Read Operation

- Data of the requested address is locked on the data Output Bus (BUS 0).
- All 7 bytes read are buffered in the CLF-81.

4.3 Accessing Buffered data

The buffered data can be retrieved from the CLF-81 after a successful read as follows:

Present the desired address (0-6) on the Address Input Bus.

The CLF-81 will automatically echo the requested address to the Address Echo Bus and lock it.

The data stored at the requested address will be locked on the Data Output Bus (BUS 0).

Note: This operation does not require the presence of a TAG.

5 Use of Multiplexing for all Boards

This function allows the user to connect several Control Boards to an output board in the logic unit. All I/O can be multiplexed except for the signals SBA, VAL and PRE. Only the selected Control Board will have its SBA at logic 1.

SBA = 1

When this condition is true, the user has access to the board selected. The position of SBA = 1 is necessary for the programming of a read operation. Once this step has been completed for a given board, the user can switch the SBA to logic 0 and work with another board. In this case, the arrival of another TAG in the Transceiver's transmission zone will reset the PRE output to logic 1 and then the VAL output to logic 1. The user can then access the TAG code by switching the SBA input to logic 1.

SBA = 0

LEC input = not recognized

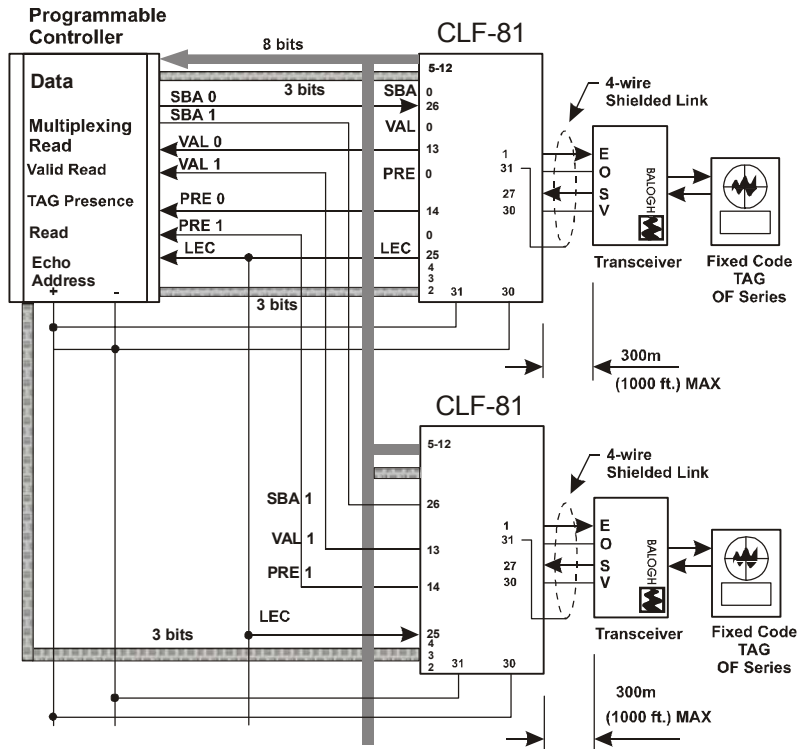
BUS 0 = TAG cannot be read

5.1 On-the-fly Reading

This operation poses no particular problem when multiplexing since the board's memory allows retention of the code read without requiring the presence of the TAG.

Once the read function has been performed, the board switches its VAL output to logic 1. The code is stored in memory and the user can access it upon demand.

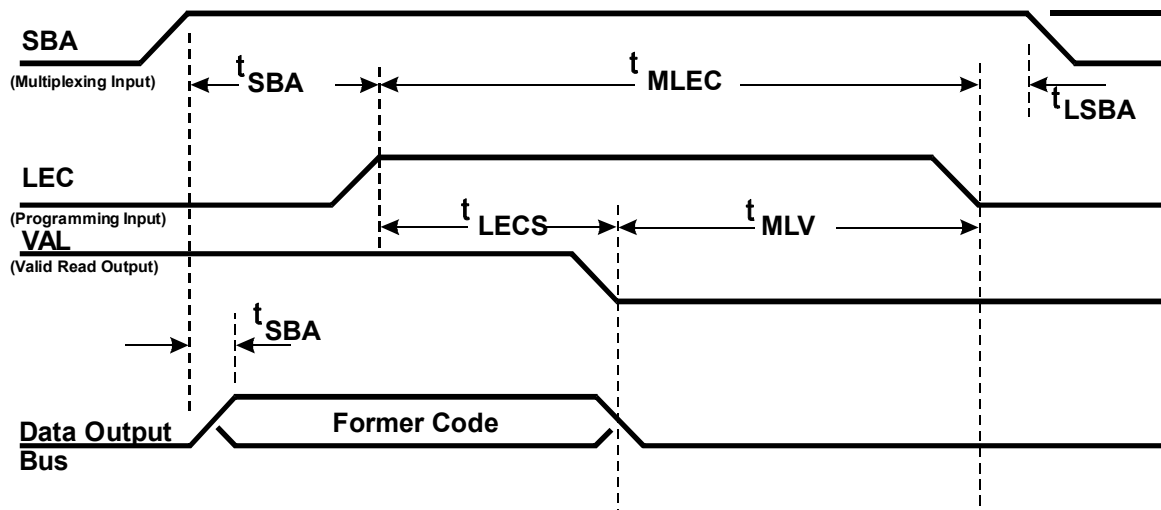
6 Multiplexing Connection of CLF- 81 Control Boards



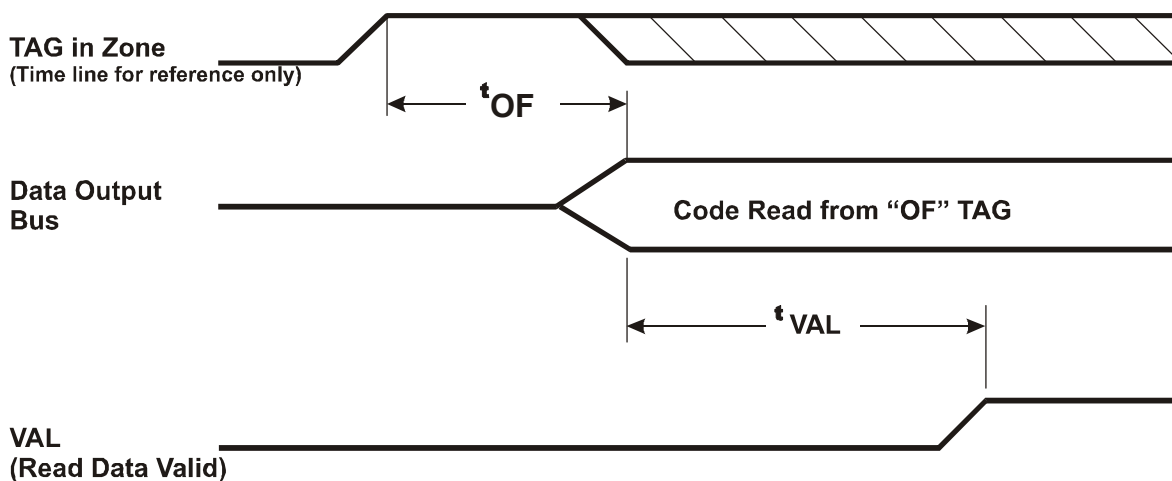
7 Timing Table for CLF-81

Symbol	Min (ms)	Max. (ms)	Definitions
tSBAL	0		Delay in appearance of LEC/SBA
tLECS		100	BUS 0/LEC response time
tSBAS		100	BUS 0/SBA response time
tMLV	0		LEC hold time after VAL
tLSBA	0		Delay at fall of SBA/LEC
tMLEC	100		LEC hold time
tOF		60	"OF/OFR" TAG dialogue time. BUS 0/PRE delay
tVAL	25		Delay at appearance of VAL/BUS 0

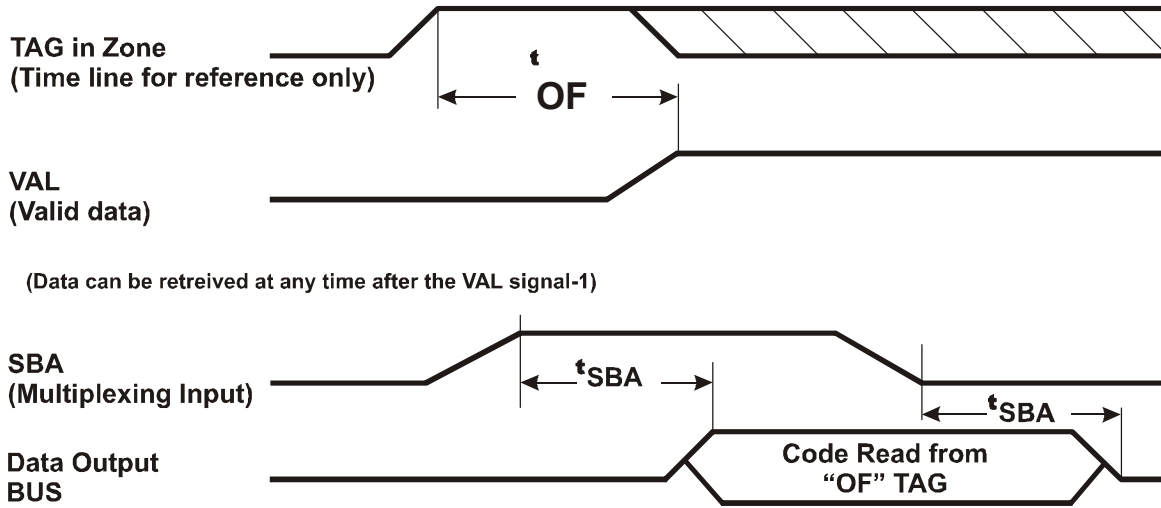
8-A Timing Diagram for CLF-81 Programming



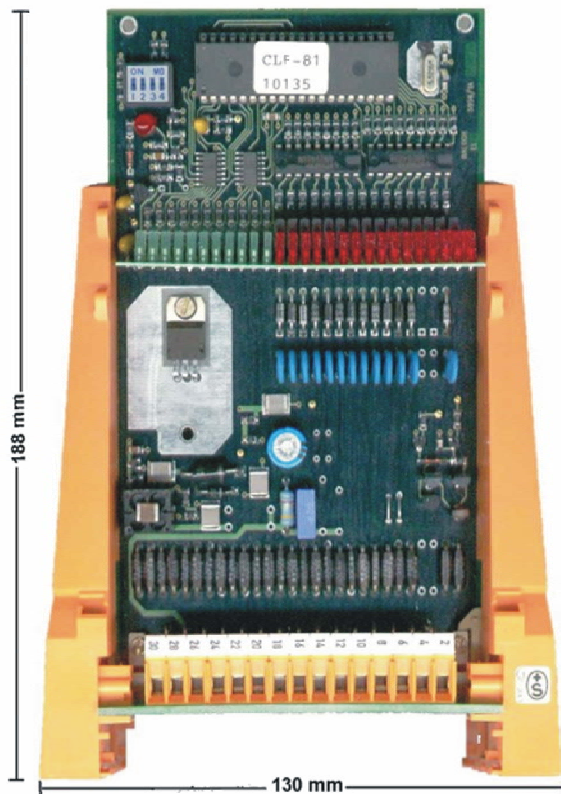
8-B Timing Diagram for CLF-81 Query (SBA=1)



8-C Timing Diagram for CLF-81 while Multiplexing



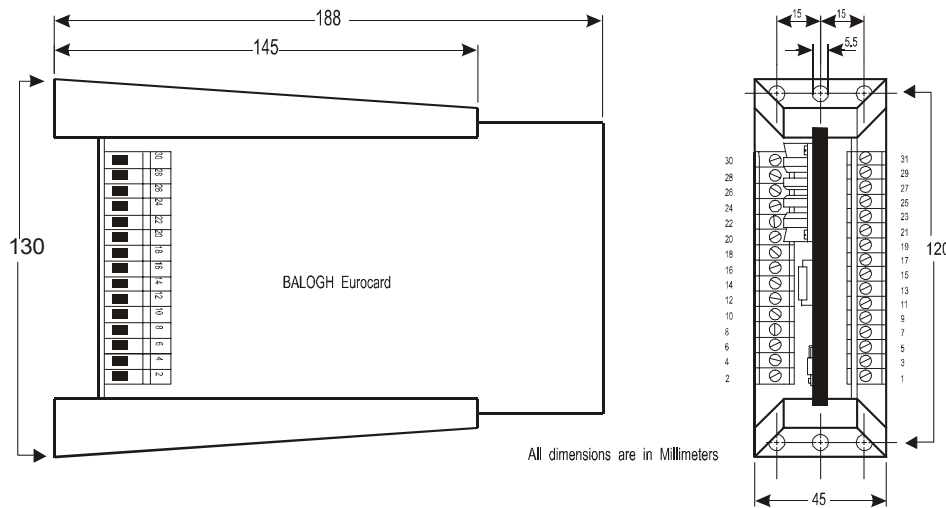
CLF-81 Control Board



- Parallel Control Card, Eurocard format 100mm X 160mm.
- Multiplexable parallel connection.
- Allows Reading of type OF/OFR Read Only TAGS. Reads and Buffers entire "OF" TAG of 7 bytes.
- Echoes each byte read according to the selected address.
- Each Control Board must be connected to BALOGH Transceiver in order to Read data from the TAGS.

Characteristics at 25° C	Symbol	Unit	CLF-81
V Supply (< 2% Ripple)	Vcc	V DC	24
Voltage tolerance			-10% To +10%
Current consumption	Im	mA	150
Serial connection			NO
Number of parallel inputs			5
Input impedance	Ze	kohm	10
Input logic "0"		V	Ø to 10
Input logic "1"		V	15 to Vcc
Number of parallel outputs			13
MAX. continuous current (per output)	Is	mA	100
MAX. voltage drop across an output	Vdrop	V	1.5
Output logic "0"		V	Ø
Output logic "1"		V	Vcc - 1.5
MIN. Ambient Temp	Tmin	°C	Ø
MAX. ambient temp	Tmax	°C	+70
Protection degree	IP		Ø
Weight	M	g	300
MAX. cable length between Control Board and Transceiver			1000 ft
Protected against Inverse Polarity			Yes

CLF-81 Control Board



(Locations on Transceivers*)

Terminal	CLF-81 Location	ER*71/85	BALOGH Transceiver Cable
1	Transceiver output connected to	E	Blue
2	Bit 2 Output (MSB)		
3	Bit 1 Output - Echo of the 3 bit		
4	Bit 0 Output (LSB)		
5	Bit 7 Output (MSB)		
6	Bit 6 Output		
7	Bit 5 Output		
8	Bit 4 Output		
9	Bit 3 Output		
10	Bit 2 Output		
11	Bit 1 Output		
12	Bit 0 Output (LSB)		
13	Val Output		
14	Pre Output		
15			
16			
17			
18			
19			
20			
21			
22	Input Bit 2		
23	Input Bit 1 - address selection		
24	Input Bit 0 - 0 to 6		
25	LEC Input		
26	SBA Input (multiplex line)		
27	Transceiver input connected to	S	White
28			
29			
30	+24 V DC To Board & Transceiver	V	Brown
31	Ground	O	Black

The letters Indicating "EOSV" Are located inside the transceiver's connection chamber or on the chamber's cap

