

CLC-81 MANUAL

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.

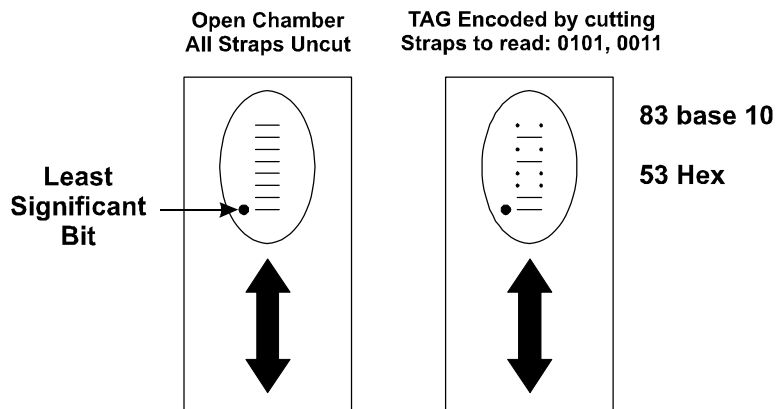
Applications:

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 Coding Read-Only Tags:

The OC Series TAGS carry an eight bit code and can be coded BY THE USER. To code the TAG, open the chamber that houses the 8 wire straps. Cutting or not cutting the straps assigns a binary value to the TAG. Cutting a strap will signify a "0", while leaving it uncut will signify a "1". The least significant bit will be indicated by a dot of paint. The values may be changed once they have been coded by re-soldering the cut straps.



3 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

ERO-80/QC

ERA-80 /QC

ERO-85/QC

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 Boards:

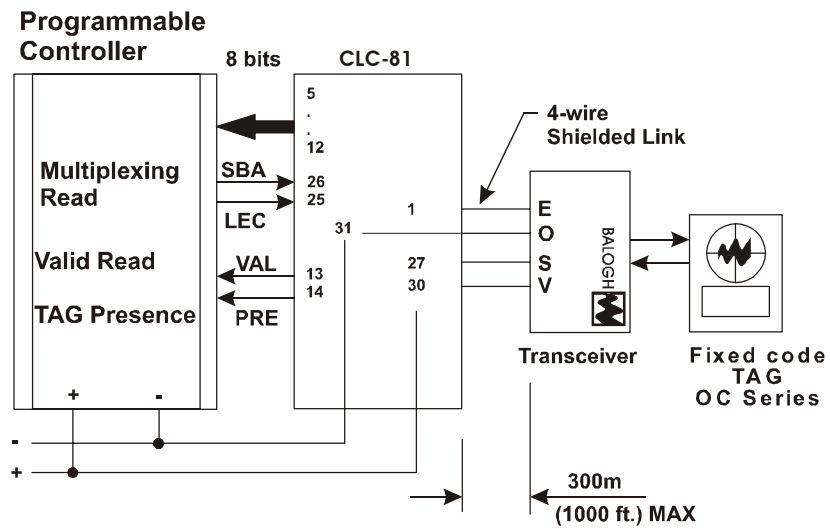
OC Series TAGS

CLC-81, CLC-83

CLC-81 OC Series Parallel Control Boards

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CLC-81 Connections

4 Operation of the CLC-81 Control Board

(OC Series) Input/Output command definitions:

The CLC-81 Control Board is connected to a host controller via 24 volt DC, parallel I/O and functions as a TAG interface. Reading of a TAG takes place in two stages.

Stage 1:

Board Programming: The CLC-81 receives, from the user's logic device, the read command (LEC). The presence of the TAG is not necessary at this stage.

Stage 2:

TAG Reading: The TAG is read as it enters the transmission zone of the Transceiver. Successful completion of the operation is verified at the Control Board.

4.1 SBA Input command:

SBA: This Input is used when multiplexing the Input and Output Buses of two or more CLC-81 Boards.

SBA = 1 The input and outputs are active and accessible.

SBA = 0 The data outputs are disabled, the status outputs remain active.

Note: Only one board at a time can show SBA at logic 1.

4.2 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 OC TAG

Switching LEC from logic 1 to logic 0 will:

- enable reading of OC/ TAG

4.3 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.

4.4 PRE status Output

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

PRE = 1 Presence of OC TAG.

PRE = 0 No TAG present.

4.5 Output BUS (BUS 0)

These outputs represent the code read from the OC Series TAG. This data is locked until LEC changes to logic 1 or a new TAG, with a different code, appears in the transmission zone.

5 Programming a Read Operation

OC Series:

LEC switched from logic 0 to logic 1:

- changes VAL to logic 0
- changes Output Bus to logic 0
- restricts reading of OC TAG

LEC switched from logic 1 to logic 0:

- enables reading of OC TAG

The CLC-81 will automatically read the next OC TAG that appears in the transmission zone and update its outputs. The new data is latched on the Output Bus until a new TAG appears; if the LEC input is not used.

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

5.1 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 is on Bus 0. |

5.2 Board status after execution of a Read operation

- The data read from an OC Series TAG is stored in memory and present at BUS 0.
- Toggling the LEC Input can make a new read request.

6 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

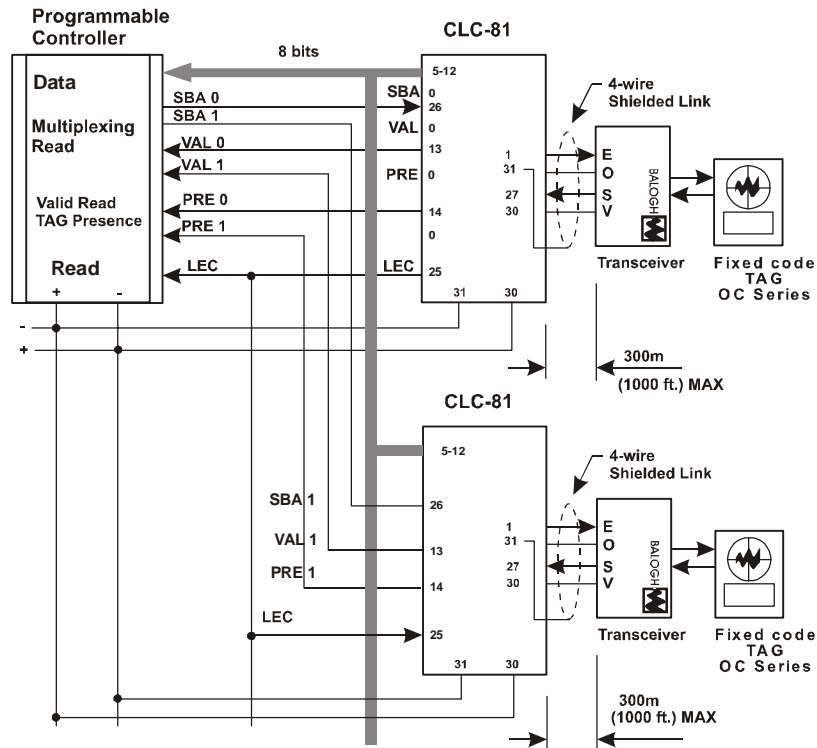
BUS 0 = TAG cannot be read

6.1 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.

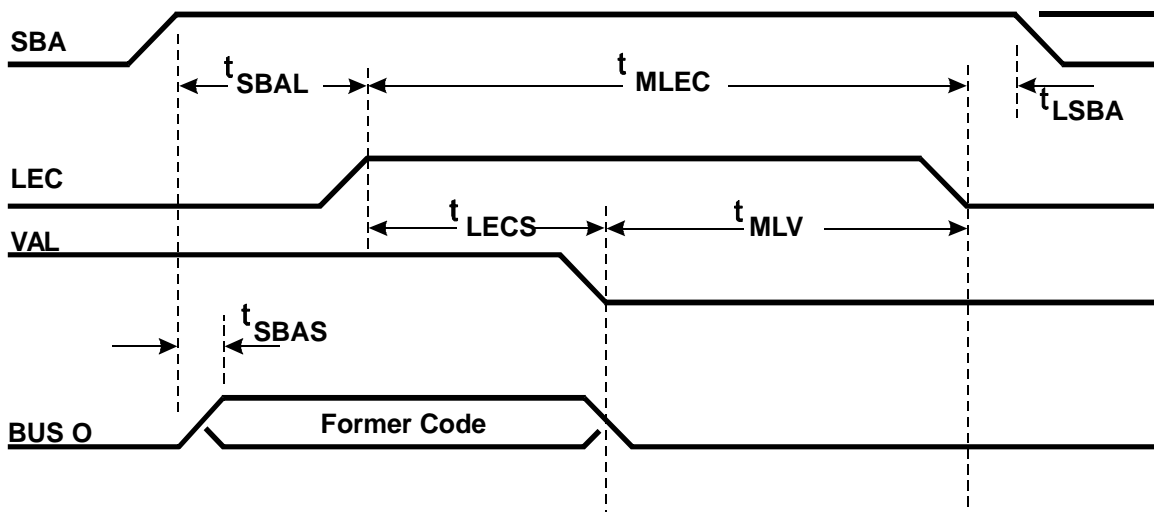
7 Multiplexing Connection of CLC- 81 Control Boards



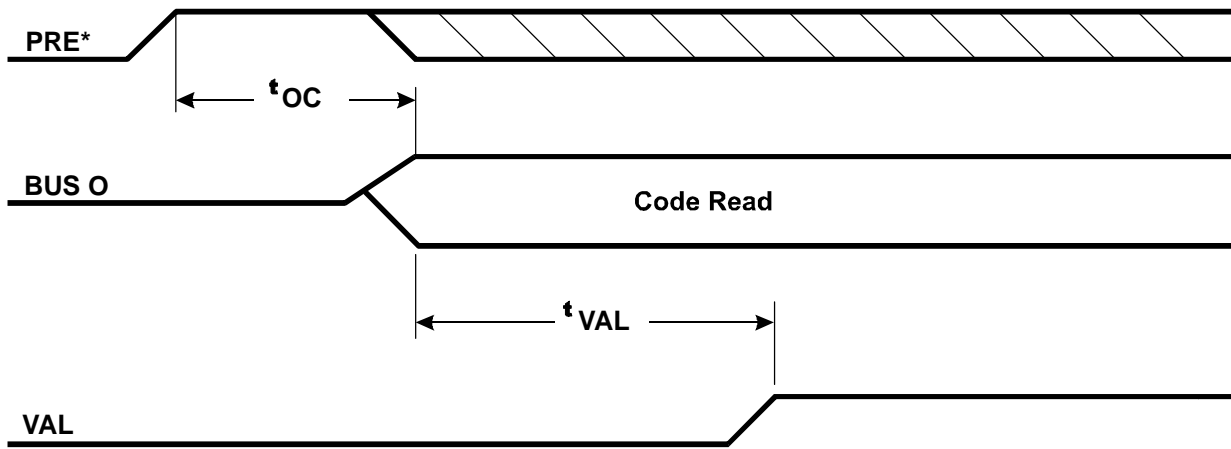
8-Timing Table for CLC-81

| Symbol | Min (ms) | Max (ms) | Definitions |
|-------------------|----------|----------|---------------------------------------|
| t _{SBAL} | 0 | | Delay in appearance of LEC/SBA |
| t _{LECS} | | 100 | BUS 0/LEC response time |
| t _{SBAS} | | 100 | BUS 0/SBA response time |
| t _{MLV} | 0 | | LEC hold time after VAL |
| t _{LSBA} | 0 | | Delay at fall of SBA/LEC |
| t _{MLEC} | 100 | | LEC hold time |
| t _{OC} | 50 | | OC TAG dialogue time. BUS 0/PRE delay |
| t _{OD} | 75 | | OD TAG dialogue time. BUS 0/PRE delay |
| t _{VAL} | 25 | | Delay at appearance of VAL/BUS 0 |

9-A Timing Diagram for CLC-81 Programming

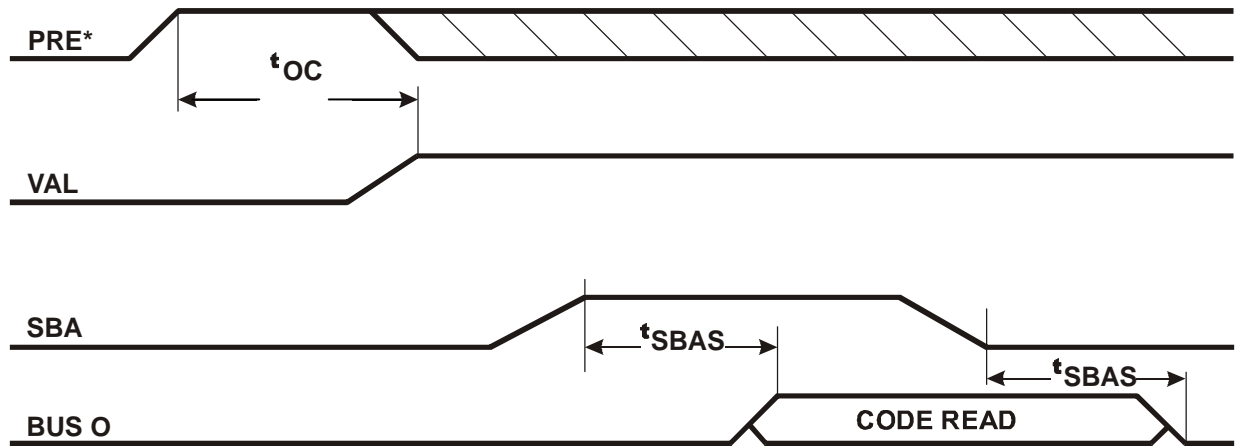


9-B Timing Diagram for CLC-81 Query (SBA =1)



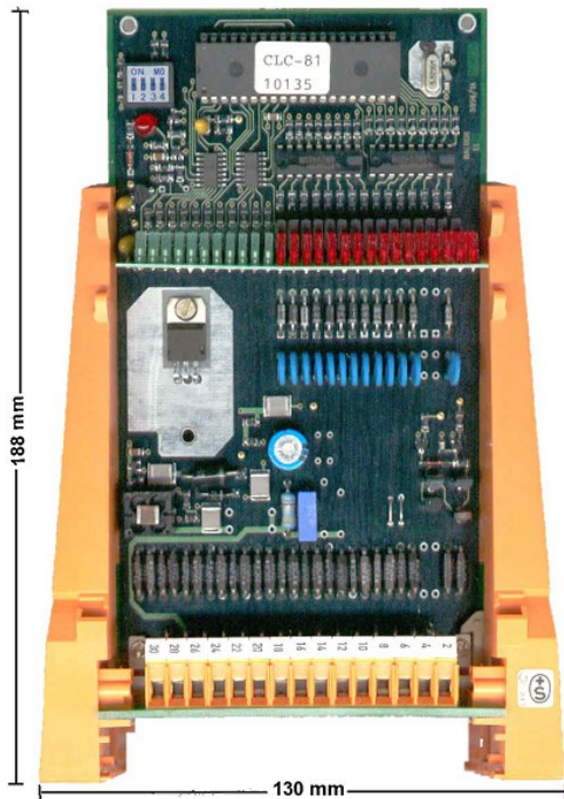
*PRE: Only with CLC-81

9-C Timing Diagram for CLC-81 in Multiplexing Mode



*PRE: Only with CLC-81

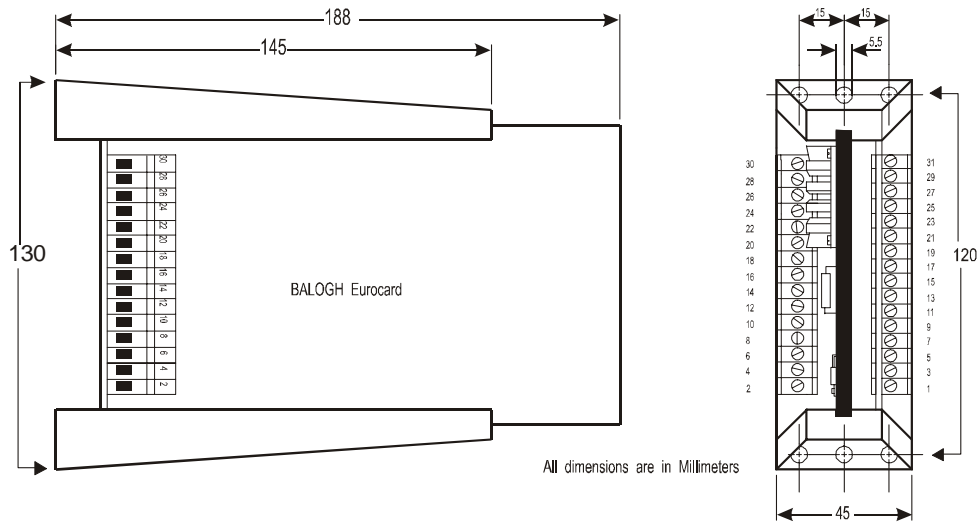
CLC-81 Control Board



- Parallel Control Card, Eurocard format 100mm X 160mm.
- Multiplexable parallel connection.
- Allows Reading of type "OC" Read Only TAGS.
- Each Control Board must be connected to BALOGH Transceiver in order to Read data from the TAGS.

| Characteristics at 25° C | Symbol | Unit | CLC-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 | | | 2 |
| Input impedance | Ze | kohm | 10 |
| Input logic "0" | | V | Ø to 10 |
| Input logic "1" | | V | 15 to Vcc |
| Number of parallel outputs | | | 10 |
| 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 |

CLC-81 Control Board



(Locations on Transceivers*)

| Terminal | CLC-81 Location | ERO-71/85 | BALOGH Cable Color |
|----------|---------------------------------|-----------|--------------------|
| 1 | Transceiver output connected to | E | Blue |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 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 | | | |
| 23 | | | |
| 24 | | | |
| 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 th

