

## BCD/mA Converter

### 1. Definition

The BCD/mA Converter is a device designed for converting BCD (8421) signals from a diode matrix into a DC current signal.

### 2. Operating Principle – see dwg. BCD/mA 0001 rev. 0

Typically, the BCD signal used in this application features positive voltage values. For instance, the high and low levels may be +24V and 0V, respectively.

An electronic circuit reads the binary BCD levels and generates a current output proportional to the decimal input, for instance 4-20 mA. The referred drawing shows this particular example.

The current generating circuit also isolates the output from the BCD inputs and from the power supply inputs, preventing transients from being transmitted through the BCD/mA converter. This awards great robustness to this product and to the system which will process the current signal.

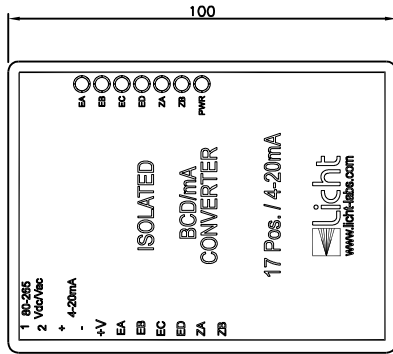
### 3. Electrical Characteristics

Power supply	80 – 265 V <sub>cc</sub> /V <sub>ca</sub>
Power supply / other terminals isolation	1500 V, 50/60 Hz, 1 min.
Input signals / other terminals isolation	1500 V, 50/60 Hz, 1 min.
Terminals / ground isolation	2000 V, 50/60 Hz, 1 min.
Power consumption	≤ 4 W
Operating temperature	-40 to 85 °C
Operating humidity	10 to 90% without condensation
Available current outputs	0-1, 0-5, 0-10, 0-20, 4-20 mA

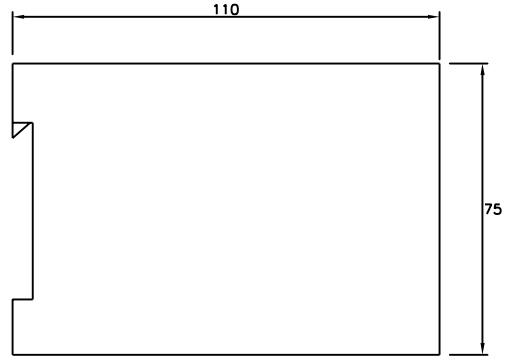
### 4. Product Photograph



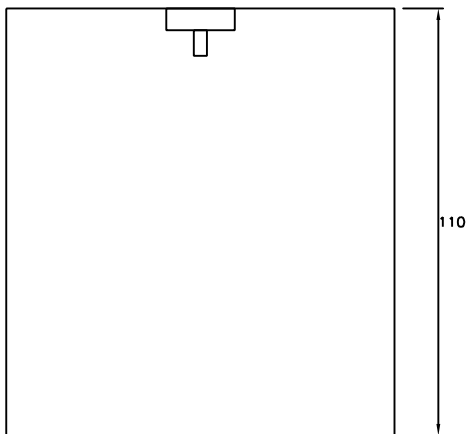
FRONT VIEW



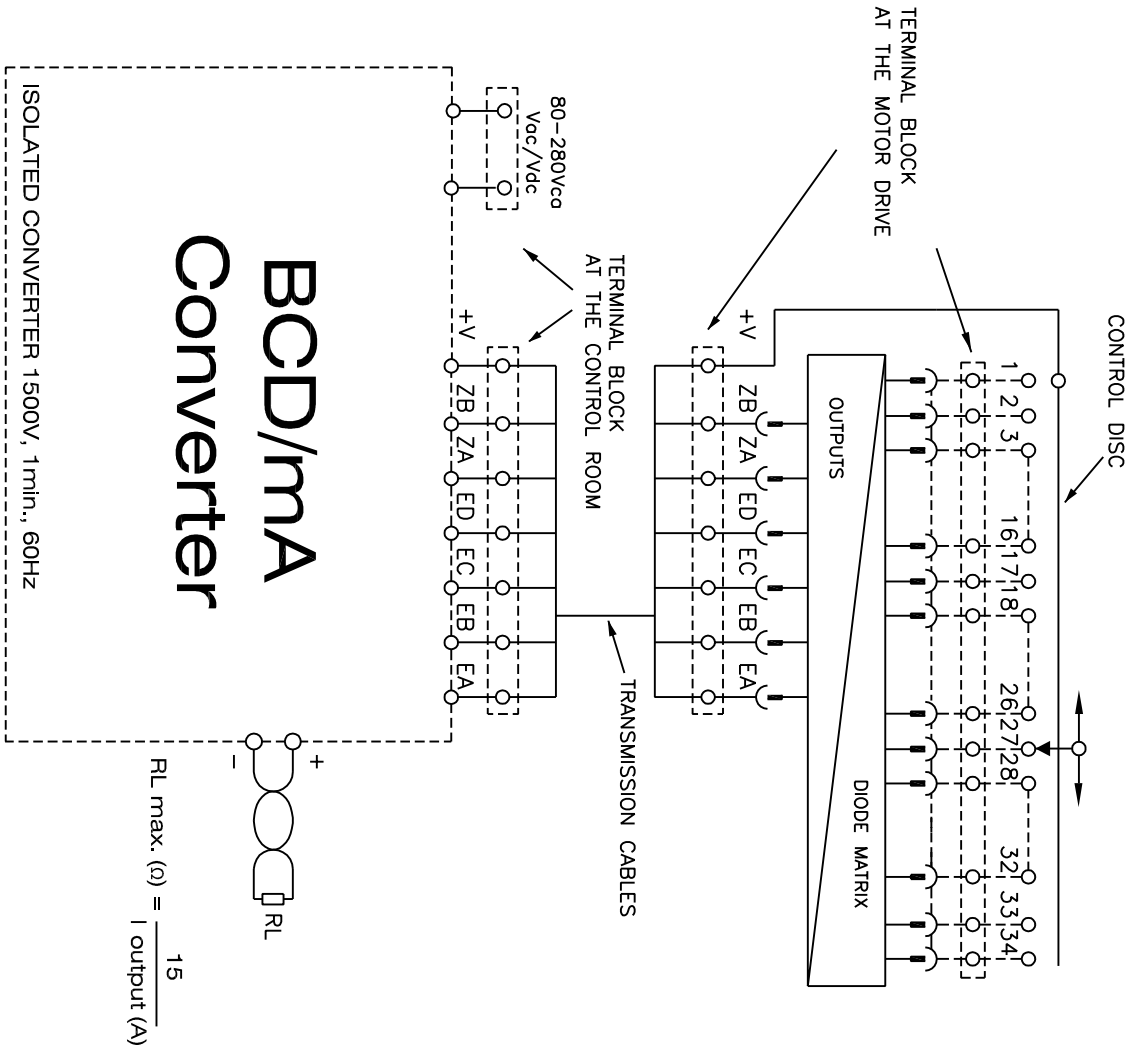
SIDE VIEW





TOP VIEW



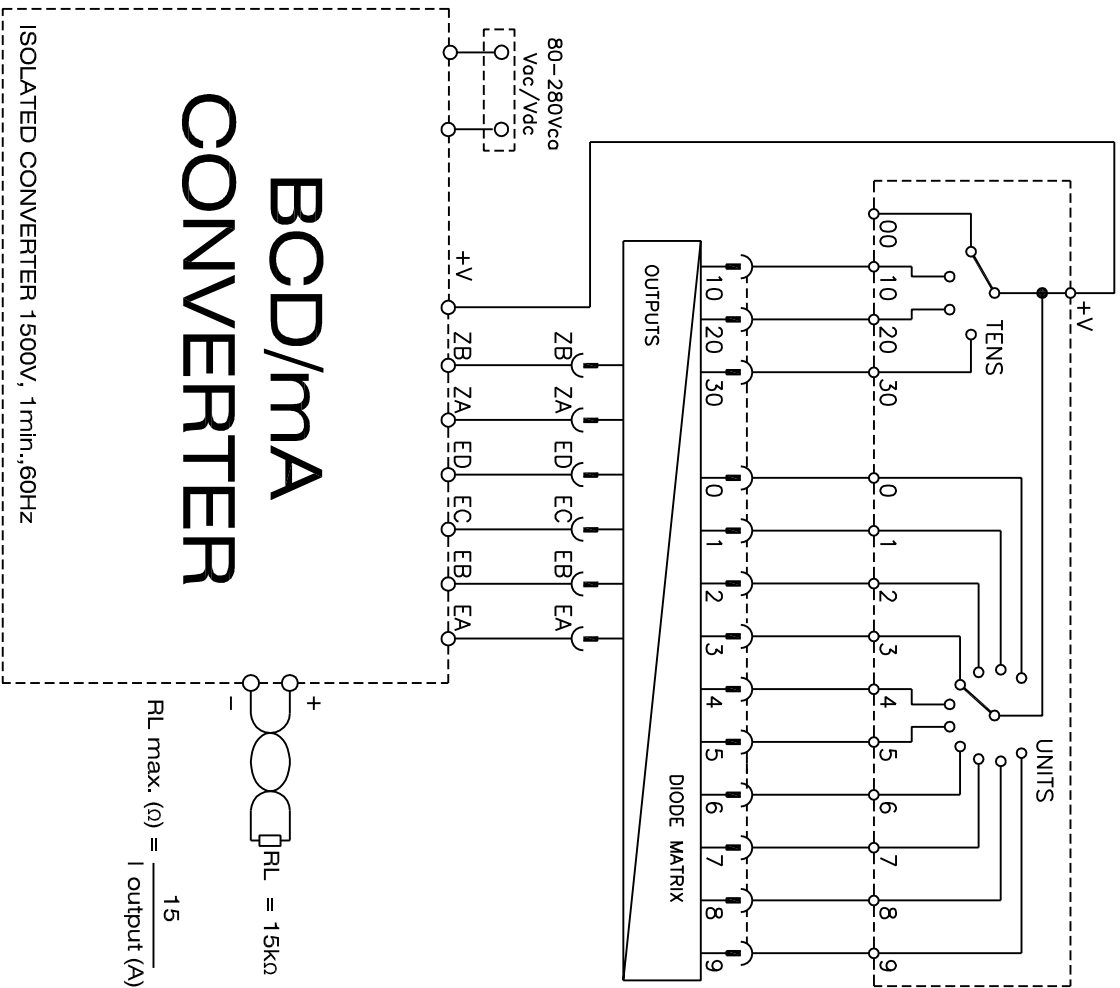
Aceito Cont. Qualid.	Aceito Produção:	BCD/MA CONVERTER HOUSING DIAGRAM	Escala Ref.	
Projeto Conf.	Des. Por.			
Des. Conf.	Emit. Depto Data.		Alt. Num.	Folha
LICHT E. ELETRÔNICA				1/1



Top Changer Position	Closed Relays Units								I out (mA)
	ZA	ZB	ZC	ZD	EA	EB	EC	ED	
1									4.000
2									4.500
3									5.000
4									5.500
5									6.000
6									6.500
7									7.000
8									7.500
9									8.000
10									8.500
11									9.000
12									9.500
13									10.000
14									10.500
15									11.000
16									11.500
17									12.000
18									12.500
19									13.000
20									13.500
21									14.000
22									14.500
23									15.000
24									15.500
25									16.000
26									16.500
27									17.000
28									17.500
29									18.000
30									18.500
31									19.000
32									19.500
33									20.000

 HIGH OUTPUT LEVEL  
 LOW OUTPUT LEVEL



Aceito Cont. Qualid.	Aceito Produção:	BCD/mA CONVERTER	Escala Ref.	
Projeto Conf.	Des. Por. FANCHIN		Alt. Num.	Folha 1/1
Des. Conf.	Emit. Depto Data.	BCD/mA 0001 rev. A		
Licht Eletro Eletrônica				



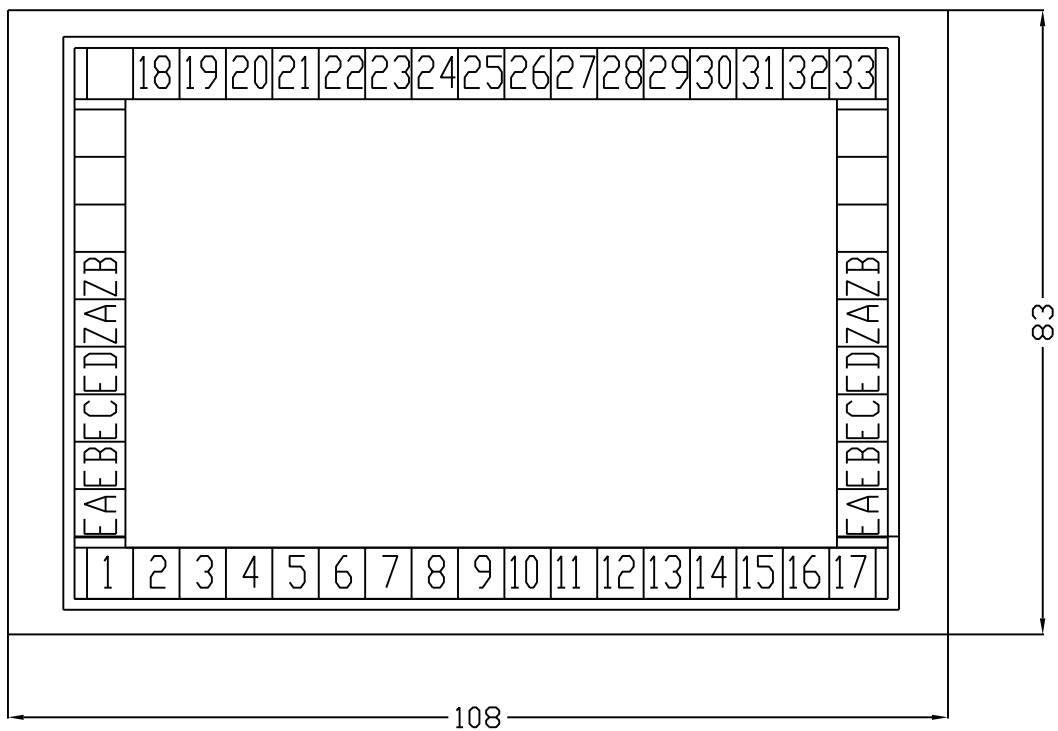
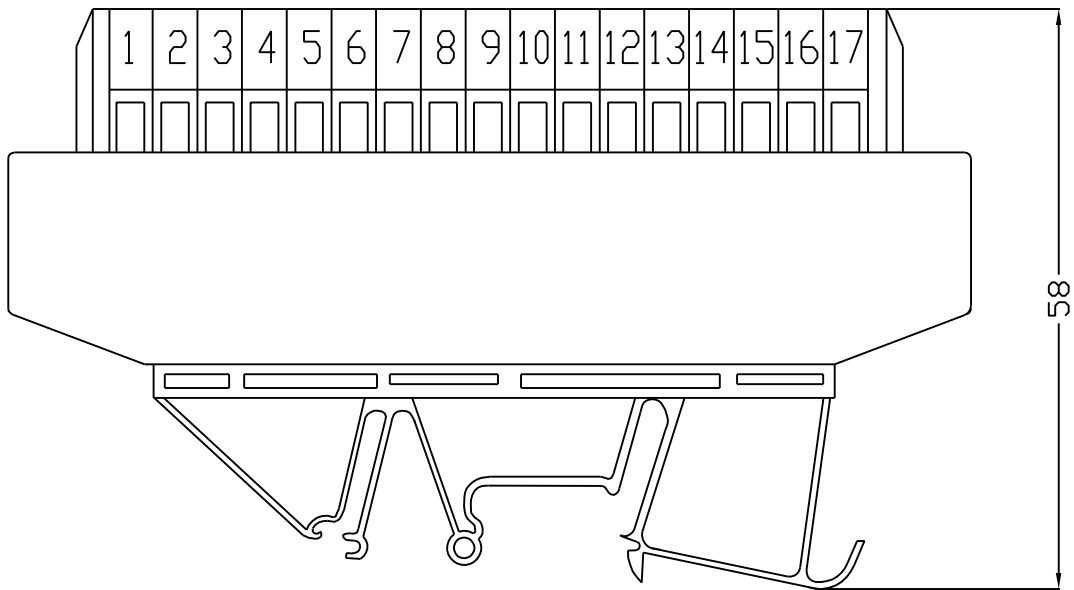
# BCD/mA CONVERTER

$R_L = 15k\Omega$   
 $R_L \text{ max. } (\Omega) = \frac{15}{I \text{ output (A)}}$

Top Changer Position	Closed Relays				I out (mA)
	ZB	ZC	ZD	EA	
1					0
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					1

 HIGH OUTPUT LEVEL  
 LOW OUTPUT LEVEL

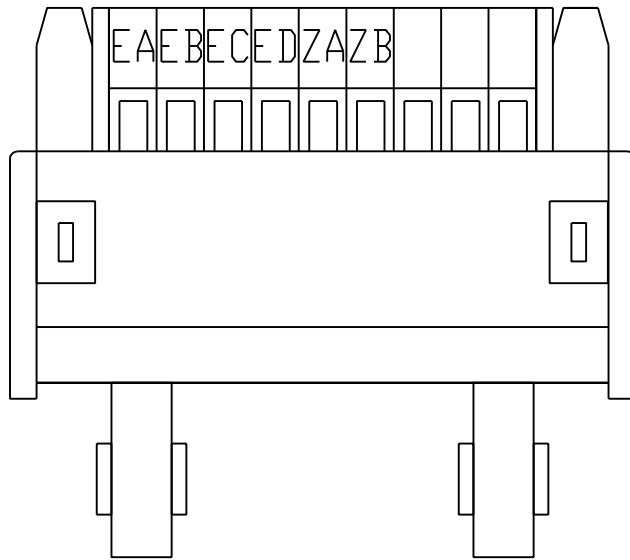
Aceito Cont. Qualid.	Aceito Produção:	BCD/0-1 mA CONVERTER	Escala Ref.	
Projeto Conf.	Des. Por.		Alt. Num.	Folha 1/1
Des. Conf.	Emit. Depto Data.	BCD/mA 0002 rev. A		
Licht Eletro Eletrônica				



DIMENSIONS IN MM

CABLE CROSS SECTION  $\leq 2,5 \text{ MM}^2$

Acceito Cont. Qualid.	Aceito producao	DIODE MATRIX EXTERNAL DIMENSIONS DIAGRAM	Escala Ref.	
Projeto conf.	Des. por. N.A.			
Des. conf.	Emit. Depto Data	T0002 REV.03	Alt. num.	Folha num.
LICHT E. ELETRONICA				1/2



TAP CHANGER POSITION	OUTPUT STATES								DISPLAY
	TENS				UNITS				
	ZA	ZB	ZC	ZD	EA	EB	EC	ED	
1					▨				1
2						▨			2
3					▨				3
4							▨		4
5					▨		▨		5
6						▨	▨		6
7					▨		▨		7
8								▨	8
9					▨			▨	9
10	▨				▨				10
11	▨				▨				11
12	▨					▨			12
13	▨				▨				13
14	▨						▨		14
15	▨				▨		▨		15
16	▨					▨	▨		16
17	▨				▨		▨		17
18	▨							▨	18
19	▨				▨			▨	19
20		▨			▨				20
21		▨				▨			21
22		▨			▨				22
23		▨				▨			23
24		▨			▨		▨		24
25		▨				▨	▨		25
26		▨			▨		▨		26
27		▨				▨	▨		27
28		▨			▨			▨	28
29		▨						▨	29
30	▨	▨			▨				30
31	▨	▨				▨			31
32	▨	▨			▨				32
33	▨	▨				▨			33

▨ OUTPUT HIGH  
 □ OUTPUT LOW

DIODE MATRIX MOD. 8421 1kV/1A – REVERSE VOLTAGE: 1 kV  
 MAX. DIRECT CURRENT: 1 A

Acceito Cont. Qualid.	Aceito producao	DIODE MATRIX EXTERNAL DIMENSIONS DIAGRAM	Escala Ref.	
Projeto conf.	Des. por. N.A.			
Des. conf.	Emit. Depto Data	T0002 REV.03	Alt. num.	Folha
LICHT E. ELETRONICA				2/2