HM0.460.305

POSITION INDICATOR HMC-3□

OPERATION INSTRUCTIONS

HMC-3C	On-load tap-changer
HMC-3W/WD	De-energized tap-changer

SHANGHAI HUAMING POWER EQUIPMENT CO.,LTD.

Contents

1. Features

This position indicator type HMC-3□ is designed for on-load tap-changers, and can display their actual position. It has remote control functions "1-N", "stop" and "N-1" and is equipped with an indication lamp. The input signal for position indication is decimal and BCD codes (Please refer to the sticker on the ordered product to check the input code type and display steps). Output is BCD code only.

(Note: HMC-3W is used together with WSL de-energized tap-changers, which does not have "1-N", "N-1" & "Stop" button/indicating light and no CX2 output BCD signal function.)

HMC-3□ adopts LED digital tube to display the positions, which characterizes as high stability and reliability. The plastic housing makes it light-weighted, small-sized, easy and safe to operate.

2.Technical data

(1) Power supply: 85V to 265V
(2) Power frequency: DC, 50 Hz or 60 Hz
(3) Maximum indication position:39, 59, 79, 107 steps
(4) Operating temperature: -10 to 40℃
(5) Weight: 0.85kg
(6) CX2 relay contact capacity: 125V AC 0.3A
110V DC 0.3A
30V DC 1.0A

3.How to use

(1) Insert the cable end into socket and screw tightly.
(2) Connect terminals on rear panel to X1 of MDU according to the following table.

Indicator terminals	X1 Terminal of MDU	Remarks
1	8	1-N
2	12	Stop
3	9	N-1
4	10	Common
5	23	"Remote Control"
6	24	"Remote Control"

(3) Connect power supply.
(4) Switch on the "Power" button and the actual position of tap-changer will be displayed. If the indication lamp of "Remote Control" is on, it means the "Remote/Local" selection is on the "Remote" mode. The display panel shows "1-N", "N-1" and "Stop" button. Press the "1-N" button and the position number is increasing, which means the MDU is operating in the direction of 1-N. Likewise, press the "N-1" button

and the position number is decreasing, which means the MDU is operating in the direction of N-1. During 1-N operation, press “Stop” button, then the operation stops, which means the MDU’s air circuit breaker is opening.

Note: the “Remote” on the panel is remote indication lamp, not a button. Please do not press it.

4.Connection diagram

HMC-3□ indicator’s input codes are decimal or BCD, but the output is BCD only.

HMC-3□ position signal input

CX1 socket connection

CX1 socket numbers for HMC-3□	Corresponding socket numbers for tap-changer	CX1 tap-changer position signal input			
		Decimal			BCD
		39 positions	59 positions	79 positions	39-107 positions
CX1-1	1	1	1	1	1
CX1-2	2	2	2	2	2
CX1-3	3	3	3	3	4
CX1-4	4	4	4	4	8
CX1-5	5	5	5	5	10
CX1-6	6	6	6	6	20
CX1-7	7	7	7	7	40 (valid when＞39 positions)
CX1-8	8	8	8	8	80 (valid when＞79 positions)
CX1-9	9	9	9	9	100 (valid when＞99 positions)
CX1-10	10		40		
CX1-11	11		50		
CX1-12	12	10	10	10	
CX1-13	13	20	20	20	
CX1-14	14	30	30	30	
CX1-15	15	Tap signal common terminal “L”		40	Tap signal common terminal “L”
CX1-16	16	Operation indicating lamp common terminal		50	Operation indicating lamp common terminal
CX1-17	17	“1-N” indication		60	“1-N” indication
CX1-18	18	“N-1” indication		70	“N-1” indication
CX1-19	19	“Stop” indication		Tap signal common terminal “L”	“Stop” indication

Note: Standard CX1 is connected to MDU CMA7’s CX socket. CX1 has two types: 19-core aviation plug and 20-core terminal bar. Both of their input cable sequence arrangements are the same.

HMC-3□ BCD position signal output

BCD / CX2 / Position	9	8	7	6	5	4	3	2	1
01	0	0	0	0	0	0	0	0	1
02	0	0	0	0	0	0	0	1	0
03	0	0	0	0	0	0	0	1	1
04	0	0	0	0	0	0	1	0	0
05	0	0	0	0	0	0	1	0	1
06	0	0	0	0	0	0	1	1	0
07	0	0	0	0	0	0	1	1	1
08	0	0	0	0	0	1	0	0	0
09	0	0	0	0	0	1	0	0	1
10	0	0	0	0	1	0	0	0	0
11	0	0	0	0	1	0	0	0	1
12	0	0	0	0	1	0	0	1	0
13	0	0	0	0	1	0	0	1	1
14	0	0	0	0	1	0	1	0	0
15	0	0	0	0	1	0	1	0	1
16	0	0	0	0	1	0	1	1	0
17	0	0	0	0	1	0	1	1	1
18	0	0	0	0	1	1	0	0	0
19	0	0	0	0	1	1	0	0	1
20	0	0	0	1	0	0	0	0	0
21	0	0	0	1	0	0	0	0	1
22	0	0	0	1	0	0	0	1	0
23	0	0	0	1	0	0	0	1	1
24	0	0	0	1	0	0	1	0	0
25	0	0	0	1	0	0	1	0	1
26	0	0	0	1	0	0	1	1	0
27	0	0	0	1	0	0	1	1	1
28	0	0	0	1	0	1	0	0	0
29	0	0	0	1	0	1	0	0	1
30	0	0	0	1	1	0	0	0	0
31	0	0	0	1	1	0	0	0	1
32	0	0	0	1	1	0	0	1	0
33	0	0	0	1	1	0	0	1	1
34	0	0	0	1	1	0	1	0	0
35	0	0	0	1	1	0	1	0	1

36	0	0	0	1	1	0	1	1	0
37	0	0	0	1	1	0	1	1	1
38	0	0	0	1	1	1	0	0	0
39	0	0	0	1	1	1	0	0	1
40	0	0	1	0	0	0	0	0	0
41	0	0	1	0	0	0	0	0	1
42	0	0	1	0	0	0	0	1	0
43	0	0	1	0	0	0	0	1	1
44	0	0	1	0	0	0	1	0	0
45	0	0	1	0	0	0	1	0	1
46	0	0	1	0	0	0	1	1	0
47	0	0	1	0	0	0	1	1	1
48	0	0	1	0	0	1	0	0	0
49	0	0	1	0	0	1	0	0	1
50	0	0	1	0	1	0	0	0	0
51	0	0	1	0	1	0	0	0	1
52	0	0	1	0	1	0	0	1	0
53	0	0	1	0	1	0	0	1	1
54	0	0	1	0	1	0	1	0	0
55	0	0	1	0	1	0	1	0	1
56	0	0	1	0	1	0	1	1	0
57	0	0	1	0	1	0	1	1	1
58	0	0	1	0	1	1	0	0	0
59	0	0	1	0	1	1	0	0	1
60	0	0	1	1	0	0	0	0	0
61	0	0	1	1	0	0	0	0	1
62	0	0	1	1	0	0	0	1	0
63	0	0	1	1	0	0	0	1	1
64	0	0	1	1	0	0	1	0	0
65	0	0	1	1	0	0	1	0	1
66	0	0	1	1	0	0	1	1	0
67	0	0	1	1	0	0	1	1	1
68	0	0	1	1	0	1	0	0	0
69	0	0	1	1	0	1	0	0	1
70	0	0	1	1	1	0	0	0	0
71	0	0	1	1	1	0	0	0	1
72	0	0	1	1	1	0	0	1	0
73	0	0	1	1	1	0	0	1	1
74	0	0	1	1	1	0	1	0	0
75	0	0	1	1	1	0	1	0	1
76	0	0	1	1	1	0	1	1	0
77	0	0	1	1	1	0	1	1	1
78	0	0	1	1	1	1	0	0	0
79	0	0	1	1	1	1	0	0	1

Note: When the positions are ＜ 79, CX2 is 9-core D type socket or 10-core terminal bar. CX2's 8 pins are all common terminals and BCD's output cable sequence arrangement remains the same.

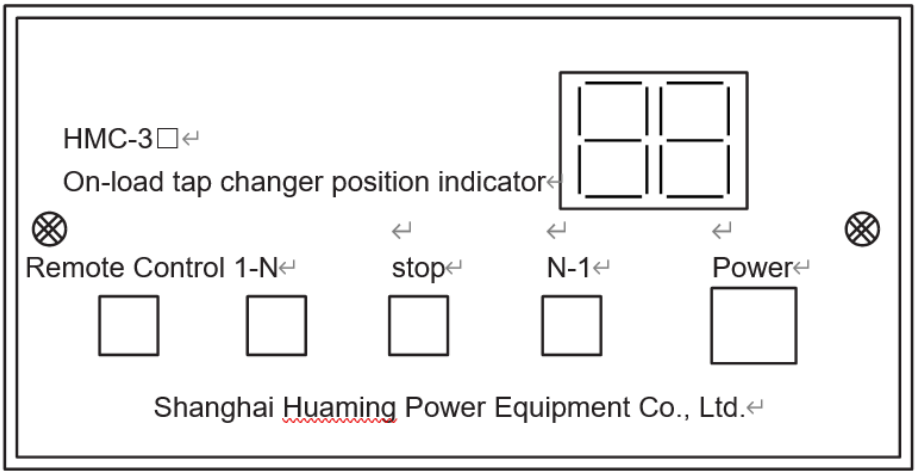
80	0	1	0	0	0	0	0	0	0
81	0	1	0	0	0	0	0	0	1
82	0	1	0	0	0	0	0	1	0
83	0	1	0	0	0	0	0	1	1
84	0	1	0	0	0	0	1	0	0
85	0	1	0	0	0	0	1	0	1
86	0	1	0	0	0	0	1	1	0
87	0	1	0	0	0	0	1	1	1
88	0	1	0	0	0	1	0	0	0
89	0	1	0	0	0	1	0	0	1
90	0	1	0	0	1	0	0	0	0
91	0	1	0	0	1	0	0	0	1
92	0	1	0	0	1	0	0	1	0
93	0	1	0	0	1	0	0	1	1
94	0	1	0	0	1	0	1	0	0
95	0	1	0	0	1	0	1	0	1
96	0	1	0	0	1	0	1	1	0
97	0	1	0	0	1	0	1	1	1
98	0	1	0	0	1	1	0	0	0
99	0	1	0	0	1	1	0	0	1
100	1	0	0	0	0	0	0	0	0
101	1	0	0	0	0	0	0	0	1
102	1	0	0	0	0	0	0	1	0
103	1	0	0	0	0	0	0	1	1
104	1	0	0	0	0	0	1	0	0
105	1	0	0	0	0	0	1	0	1
106	1	0	0	0	0	0	1	1	0
107	1	0	0	0	0	0	1	1	1

Note: When the positions are ＞ 79, CX2 is 15-core D type socket. CX2's 11 is BCD code common terminal.

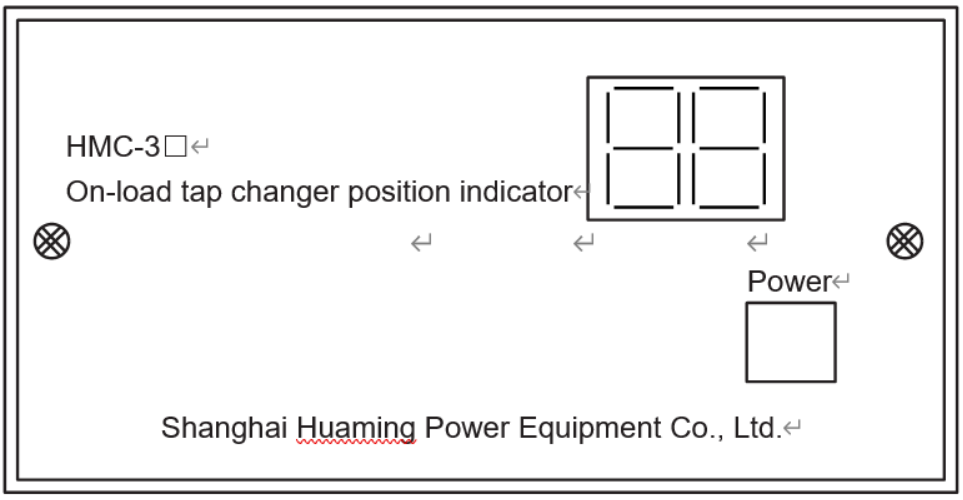
5. Appendix

HMC-3 tap-changer position indicator

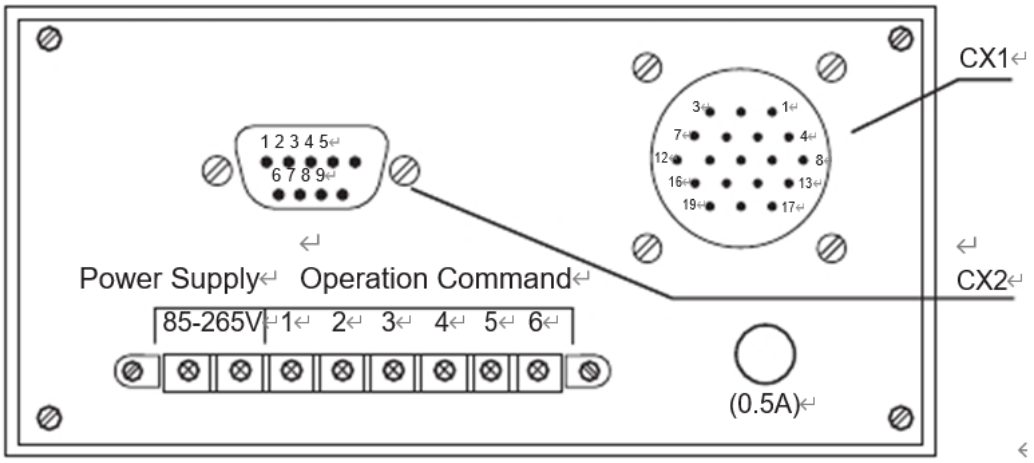
(Note: This indicator has D/BCD conversion function. CX2 shown below is BCD output)



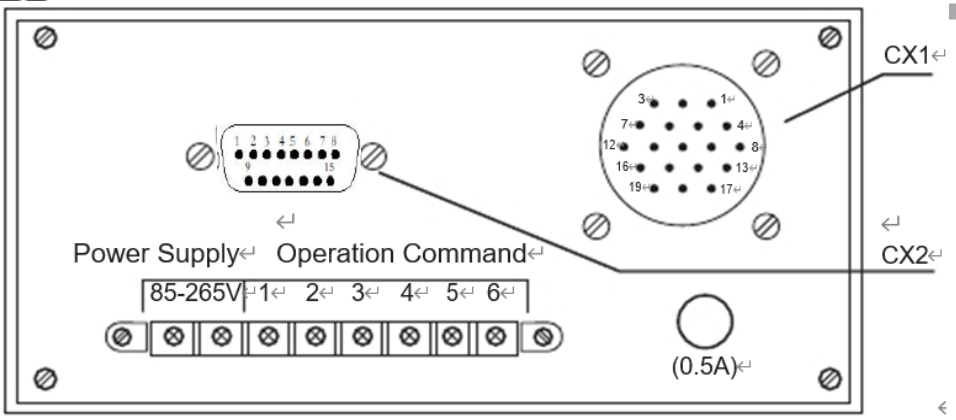
Front panel (with indicating lamp)



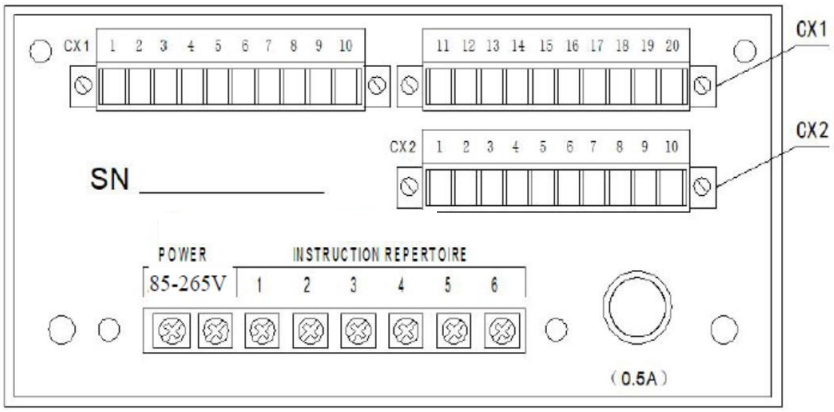
Front panel (without indicating lamp)



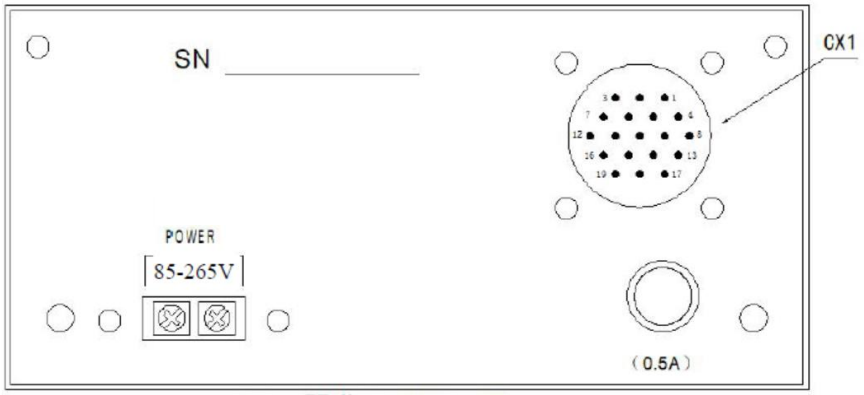
Back panel (＜79 positions)



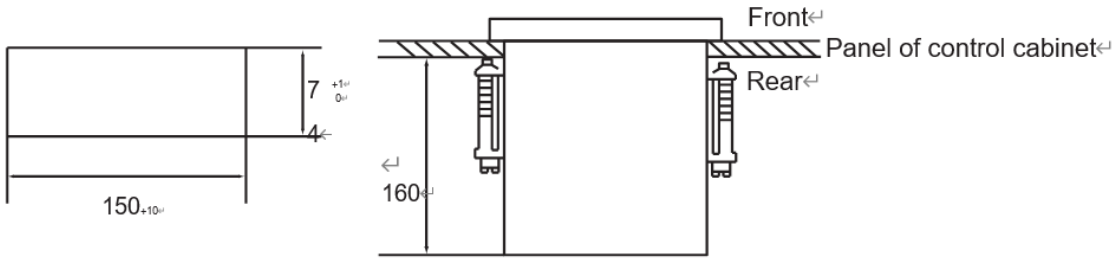
Back panel (＞79 positions)



Back panel (all terminals)



Back panel (HMC-3W)



Dimension of hole (mm)

Installation diagram of HMC-3□

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Printed: 2021.04