

# Synchronisation and marine applications equipment

2 EC / 2 HC / 2 HLC



## Description

- Does not need an auxiliary power supply
- DIN box with dimensions 96 and 144 mm
- Class 1.5
- Double scale

## Application

### 2 EC

#### Double moving iron voltmeter (AC)

For the measurement and comparison of alternating currents from two generators or a generator in the network, when connected in parallel.

### 2 HC

#### Double Pointer frequency-meter

For the measurement and easy comparison of frequencies in alternating current circuits coming from generators or between the network and generator, when connected in parallel.

### 2 HLC

#### Double reed frequency-meter

For the measurement and easy comparison of frequencies in alternating current circuits coming from generators or between the network and generator, when connected in parallel. The measurement is independent of the wave shape.

For applications in severe environmental and physical conditions.

## Features

	2 EC	2 HC	2 HLC
<b>Input circuit</b>			
<b>Consumption</b>	1 ... 4 V·A	2 ... 3 V·A	1 ... 3.6 V·A
<b>Working frequency</b>	20 ... 100 Hz	depending on the type (see table)	
<b>Overloads</b>		1.2 $U_n$ permanent 2 $U_n$ during 5 s	
<b>Measurement voltage</b>		Standard 230 Vac Optional 100-120 Vac380-440 Vac	
<b>Accuracy</b>	1.5 % FS	0.5 % FS	
<b>Ambient conditions</b>			
<b>Operating temperature</b>		+10 ... +30 °C	
<b>Limit temperature</b>		- 25 ... +40 °C	
<b>Altitude</b>		2000 m	
<b>Build features</b>			
<b>Dimensions</b>		See the following table	
<b>Weight</b>		See the following table	
<b>Type of box</b>		panel	
<b>Degree of protection:</b>			
<b>Front panel</b>		IP 52	IP 52
<b>Terminals</b>		IP 00	IP 00
<b>Insulation voltage</b>		2 kV, during 1 min, between the mechanism and the box	
<b>Standards</b>	BS 89, EN 60051, IEC 144, UL 94, DIN 43780, IEC 51, UNE 21318		

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### References

#### 2 EC: Double voltmeter




- Class 1.5

Type	2 EC 96	2 EC 144
Class	1,5	
Scale	90°	
Dimensions (mm)		
	a: 96 b: 96 c: 49,2	144 144 71,8
Weight (g)	220	430
V		
2 x .../100	M13831	M13841
2 x .../110	M13832	M13842
2 x 220	M13833	M13843
2 x 380	M13834	M13844
2 x 440	M13835	M13845

#### 2 HC: Double Pointer frequency meter




- Class 0.5
- Built-in electronic converter

Type	2 HC 96	2 HC 144
Class	0,5	
Scale	90°	
Dimensions (mm)		
	a: 96 b: 96 c: 62,9	144 144 71,8
Weight (g)	400	450
Hz		
45...55	M12732	M12742
57...63	M12732001	M12742001
55...65	M12732003	M12742003
45...65	M12732004	M12742004
47...63	M12732005	M12742005

#### 2 HLC: Double reed frequency meter



- Class 0.5
- Independent measurement of the wave shape

Type	2 HLC 96	2 HLC 144
Class	0,5	
Scale	-	
Dimensions (mm)		
	a: 96 b: 96 c: 62,9	144 144 71,8
Weight (g)	400	450
Hz		
47...53, 13 reeds	M12932	M12942
57..0.63, 13 reeds	M12932001	M12942001
45..0.55, 11 reeds	M12932002	M12942002
55..0.65, 11 reeds	M12932003	M12942003
57..0.63, 7 reeds	M12932004	M12942004
47...53, 7 reeds	M12932005	M12942005

### Coding table

M	1	X	X	X	X	0	0	X	
Code								Internal Code ↑	
Double voltmeters	Nominal scale value (Scale base)								
	400 (640)							0	
	440 (700)							1	
	660 (1050)							2	
	1000 (1600)							3	
	1200 (1920)							4	
	2500 (4000)							5	
	3000 (4800)							6	
	3300 (5280)							7	
	4000 (6400)							8	
	5000 (8000)							9	
	5500 (8800)							A	
	6500 (10560)							B	
	7200(11520)							C	
	9000 (14400)							D	
	10000 (16000)							E	
	11000 (17600)							F	
12500 (20000)							G		
15000 (24000)							H		
20000 (32000)							J		
22000 (35200)							K		
24000 (38400)							L		
25000 (40000)							M		

M	1	X	X	X	X	0	0	X	X
Code								Internal Code ↑	↑
2HLC Frequency meters	Frequency / No. reeds								
	Standard (47...53 Hz / 13 reeds)							0	
	57...63 Hz / 13 reeds							1	
	45..0.55 Hz / 11 reeds							2	
55...65 Hz / 11 reeds							3		
Voltage	Standard (400 V)							0	
	100 ... 120 V							1	
	440 V							4	

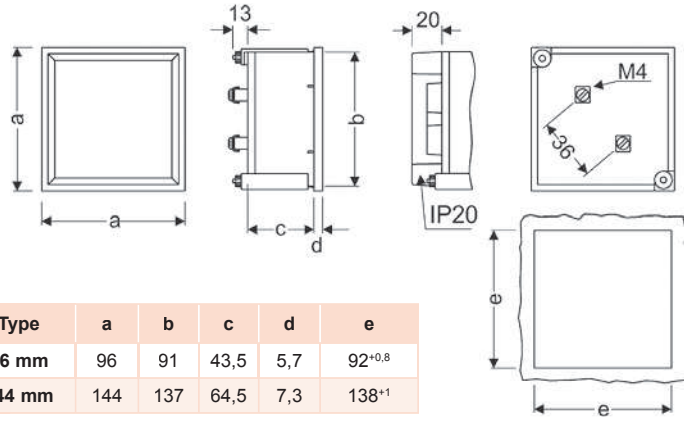
M	1	X	X	X	X	0	0	X	X
Code								Internal Code ↑	↑
2HC Frequency meters	Frequency								
	Standard (45...55 Hz)							0	
	57..0.63 Hz							1	
	55..0.65 Hz							3	
	45..0.65 Hz							4	
47...53 Hz							5		
Voltage	Standard (230 V)							0	
	100 ... 120 V							1	
	380 ... 400 V							3	
	440 V							4	

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**Dimensions**

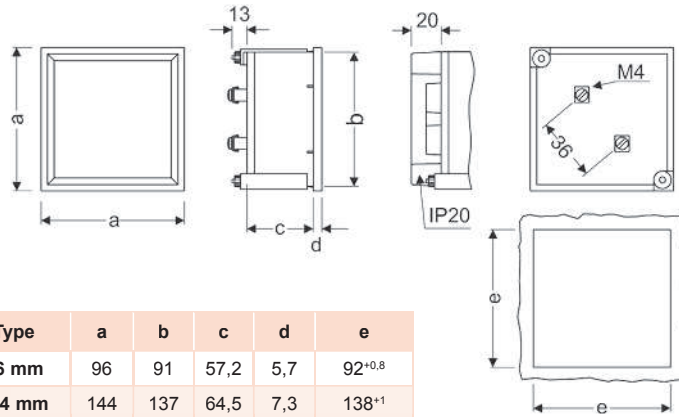
2 EC



Type	a	b	c	d	e
96 mm	96	91	43,5	5,7	92 <sup>+0,8</sup>
144 mm	144	137	64,5	7,3	138 <sup>+1</sup>

Dimensions (mm)

2 HC / 2 HLC



Type	a	b	c	d	e
96 mm	96	91	57,2	5,7	92 <sup>+0,8</sup>
144 mm	144	137	64,5	7,3	138 <sup>+1</sup>

Dimensions (mm)

**Connections**

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