

Instruction Manual for
No. 7802-00
Digital Wind Speed & Wind Direction Indicator

SATO KEIRYOKI MFG. CO., LTD.

M2050223

Instruction Manual for No. 7802-00 Digital Wind Speed & Direction Indicator

I. General

Digital Wind Speed & Direction Indicator (No. 7802) is a device to indicate simultaneously the wind direction and the wind speed receiving signals (0 to 5V) from the wind speed & direction sensor (No. 7980-S-11).

Wind direction (instantaneous or mean value) is displayed on the LED scale with 16 divisions by dotting and input signals are converted and output (0 to 1V and 0 to 10mV) at the same time.

Wind speed (instantaneous and mean value) is displayed in digital at the same time and input signals are converted and output (0 to 1V and 0 to 10mV).

II Specifications

1. Input voltage : Wind direction : 0 to 5VDC
Wind speed : 0 to 5VDC
2. Measuring range : Wind direction : 0 to 540°
540° : N - E - S - W - N - E - S
. : Wind speed : 0 - 70m/s
3. Digital display : Instantaneous and mean wind direction
: 16 divisions/0 to 360° : LED dotting display (red)
. : Instantaneous and mean wind speed
: 0 - 70m/s : LED 3 digit display (red)
4. Output voltage : Instantaneous and mean wind direction: 0 to 10mV, 0 to 1V
. : Instantaneous and mean wind speed : 0 to 10mV, 0 to 1V
5. Average method : Mean wind direction: CR integration : average for 10 min.
Mean wind speed: time constant: 120 sec. ±10%
6. Allowable error : Wind direction : within ±0.3% of Span
. : Wind speed : within ±0.3% of Span
7. Isolation resistance : Input/output terminal - grand terminal: more than 100M ohm at 500VDC
Grand terminal - power terminal: more than 100M ohm at 500VDC
Power terminal-Input/output terminals: more than 100M ohm at 500VDC
8. Withstand voltage : Input/output terminal - grand terminal: 1 min. at 1000VAC
Grand terminal - power terminal: 1 min. at 1000VAC
Power terminal-Input/output terminals: 1 min. at 1000VAC

9. Power supply (sensor): 12VDC \pm 5%
10. Power requirements : 110VAC \pm 10%, 50, 60Hz
11. Power Consumption : 15VA max.
12. Operation ambient : 0 to 40°C, 30 to 90%RH (no condensing)
Atmosphere of about 1013hPs should not contain
corrosive gases.
13. Storage ambient : -10 to 70°C

III Mean wind speed / Mean wind direction

Time constant is employed for mean wind speed and wind direction of this model. This system makes use of time characteristic of moving wind speed and wind direction. Mean wind speed and mean wind direction is obtained by passing signals of each parameter through the CR integration circuit composed of condensers and resistances. Time constant of CR integration is 120 sec. This mean wind speed (wind direction) is said to show the mean wind speed (wind direction) for about 10 minutes.

Time constant is the time (required constant time) for the indication of mean wind direction of the instrument to reach to 63% of the changed angle. For example, when the wind direction has changed from 0 to 90°, the time constant is the time to reach from 0 to 57° which is 63% of 90°.

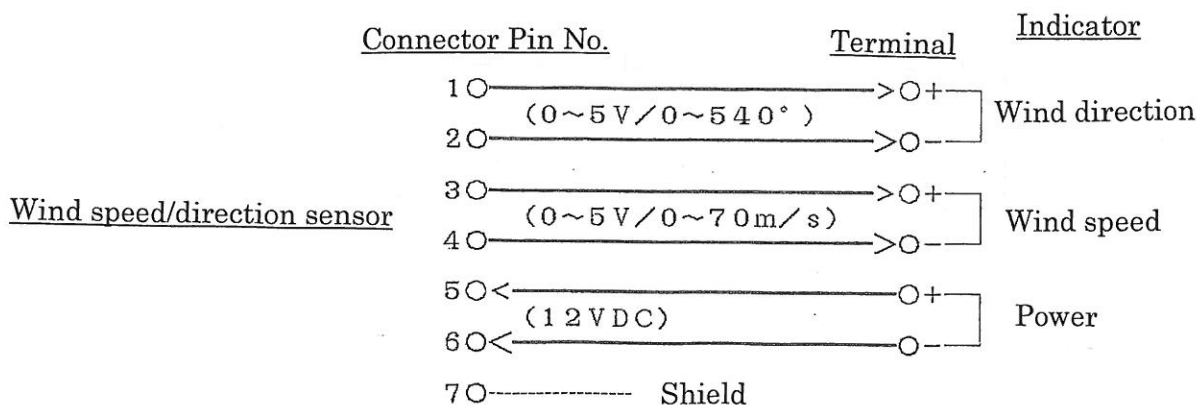
Time constant is the time (required constant time) for the indication of mean wind speed of the instrument to reach from 0m/s to 12.6m/s which is 63% of 20m/s.

Time constant is set to 120sec in this model.

IV Operation

1. Connection

- (1) Connect input signal wires wind speed and direction sensor referring to the diagram.



- (2) After checking power switch is OFF position, insert AC plug to 110VAC receptacle.

2. Starting

(1) Turn power switch on after confirming that connection was done correctly.

(2) L.E.D. of wind direction turns on and 16 divisions by dotting are indicated.
At the same time, 0 – 10mV and 0 – 1V are output.

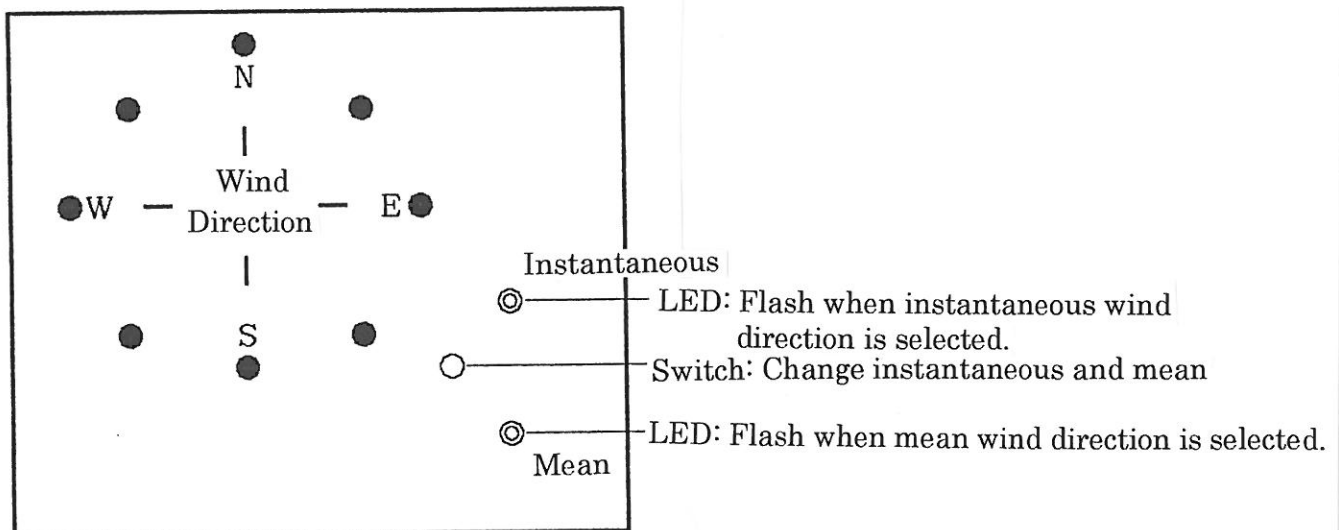
(3) Instantaneous wind speed and mean wind speed are also indicated at digital display at the same time, and 0 – 10mV and 0 – 1V are output.

3. Change the instantaneous and mean wind directions.

LED lamps indicated instantaneous and mean wind directions are on the front panel. Push the button by a stick through a small hole on the front panel to switch the display to mean wind direction and the green LED lamp that indicates mean wind direction will flash. Push the button again, the display will be changed to instantaneous wind direction and the LED will flash on instantaneous wind direction. At this time, output of 0 – 1V and 0 – 10mV are also changed at the same time.

4. Stop operation

Turn power switch off. Every function is stopped.



Power

ON



OFF

Switch (110 VAC)

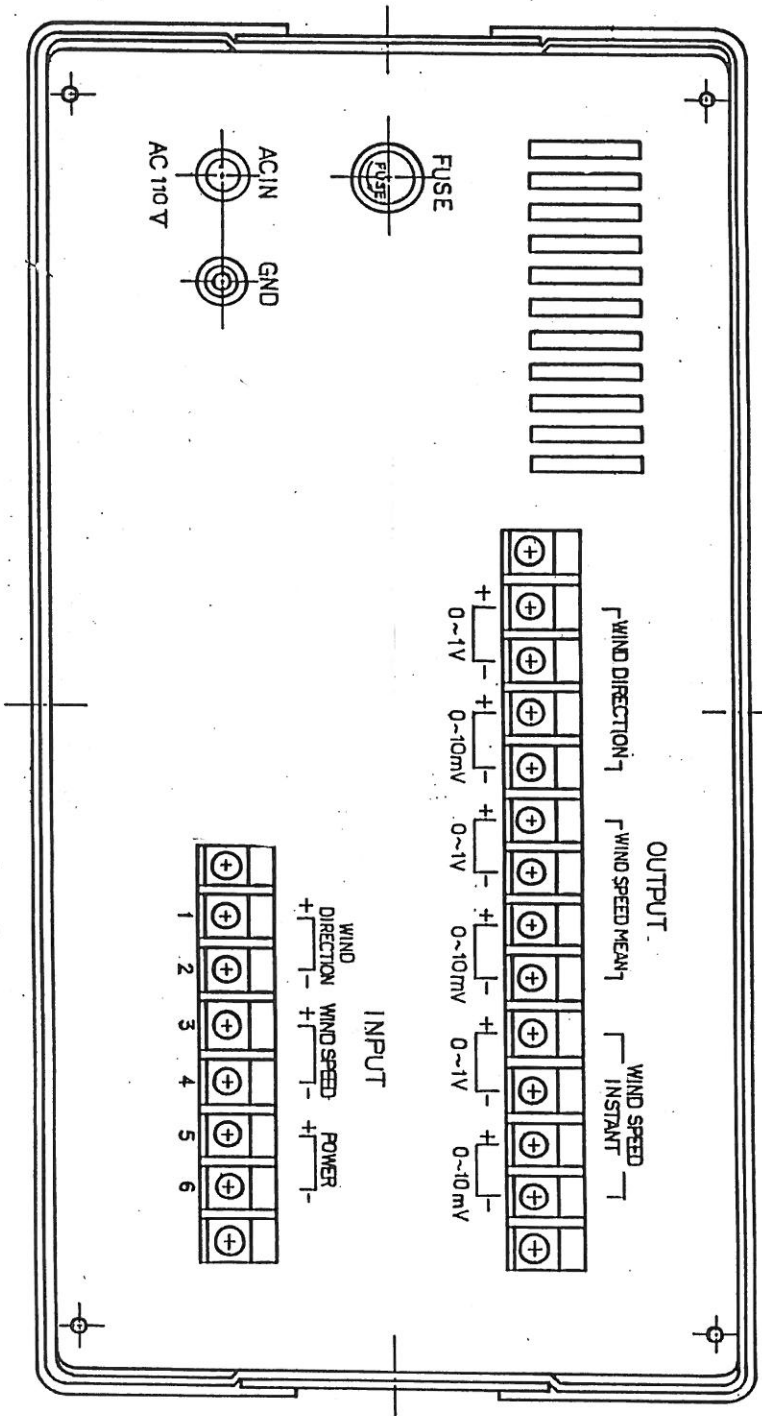
V. Input and output signals of wind speed and direction

Input and output signals of wind direction

Input	Output		
	Dot display	Analog signals	
(V)	16 div.	(mV)	(V)
0.00	N	0.00	0.000
0.83	E	1.67	0.167
1.67	S	3.33	0.333
2.50	W	5.00	0.500
3.33	N	6.67	0.667
4.17	E	8.33	0.833
5.00	S	10.00	1.000

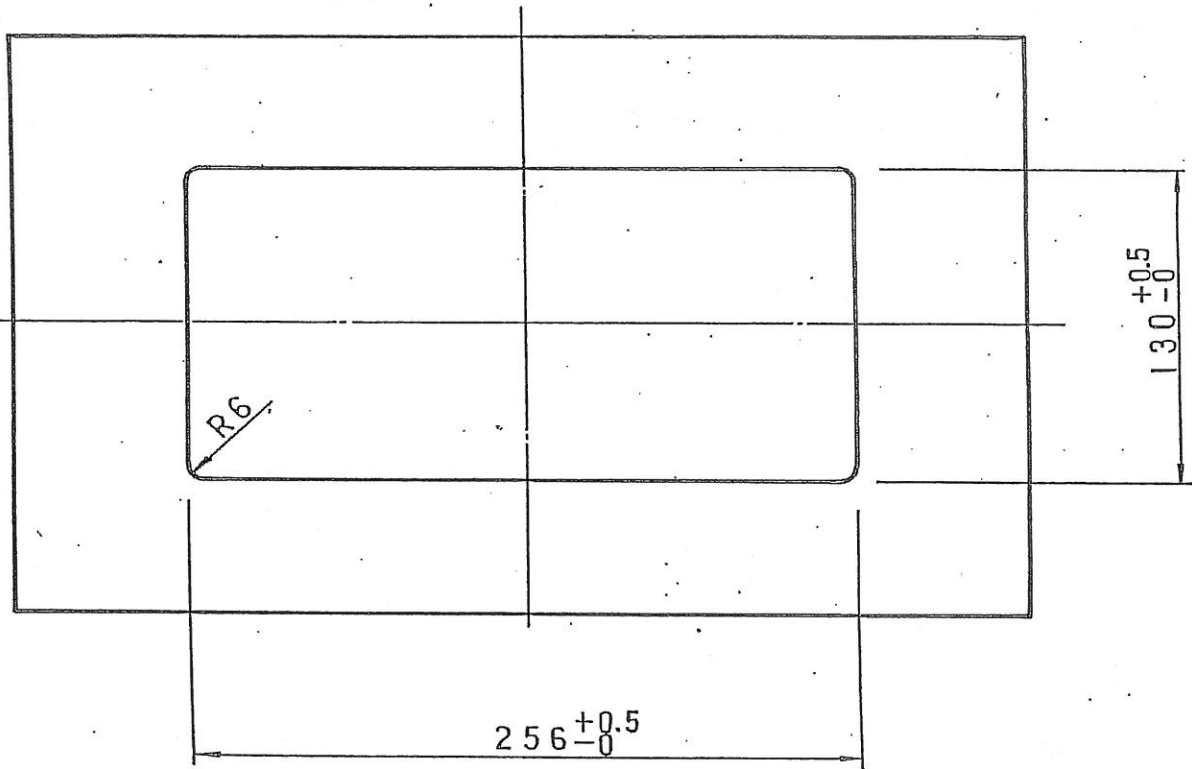
Input and output signals of wind speed

Input	Output		
	Dot display	Analog signals	
(V)	(m/s)	(mV)	(V)
0.00	0.0	0.00	0.00
0.05	0.7	0.10	0.01
0.25	3.5	0.50	0.05
0.50	7.0	1.00	0.10
1.00	14.0	2.00	0.20
2.00	28.0	4.00	0.40
3.00	42.0	6.00	0.60
4.00	56.0	8.00	0.80
5.00	70.0	10.00	1.00



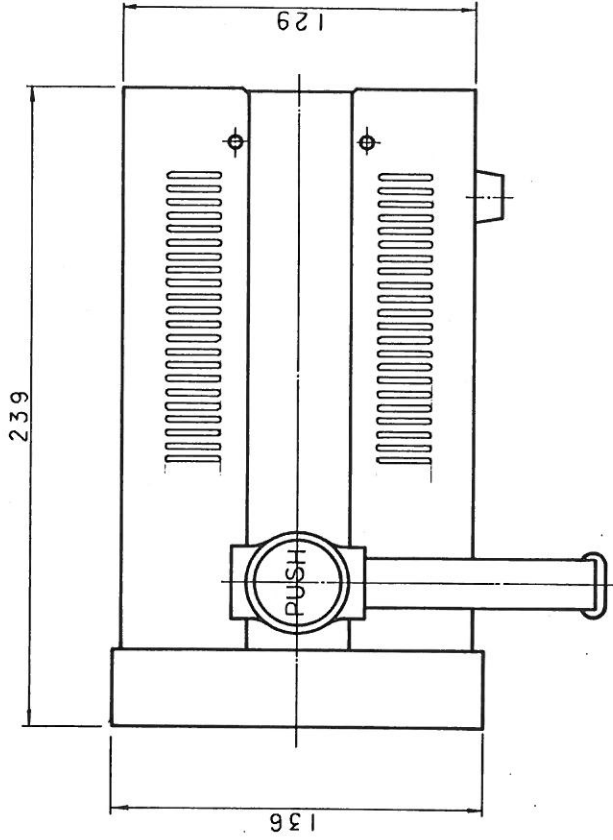
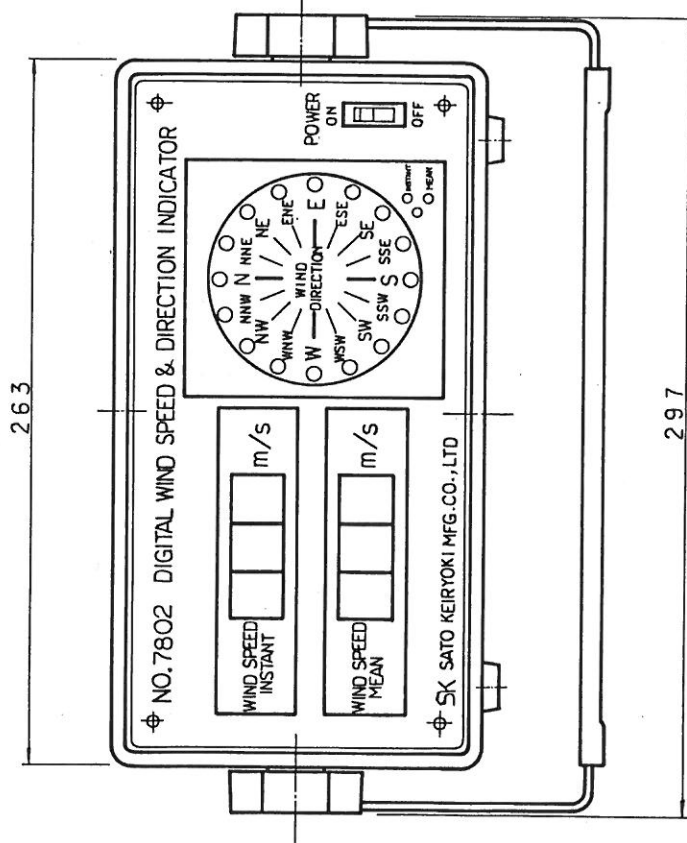
BY Y. K.		SUBJECT	PAGE
Appd			
REVISION (SIZE) 1		NO.7802. Rear Panel	DATE 2001. 5. 17
訂正事項			TYPE NO. 7802
m.m.		SATO KEIRYOKI MFG. CO., LTD.	
		TOKYO JAPAN	
		2010517-1	

第 3 角 法



株式会社
 佐藤計測製作所

NO. 7802	仕 上	~	▽	▽▽	▽▽▽	尺 寸	1/3	個 数	材 質
	処 理					設 計	製 図	写 図	検 図
Panel Cut	同 心 度								K.
	直 角 度								IGARASI
	寸 法 範 圍	機 械 加 工				日 付	98 . 6 . 8 .		
	1 以 上	4 以 下	± 0.1	±	品 名	デジタル指示風向風速計			
	4 を こ え	16 以 下	± 0.2	±	図 番	9800608 - 4			
	16 "	63 "	± 0.3	±					
	63 "	250 "	± 0.5	±					
	250 "	1000 "	± 0.8	±					
訂 正 事 項									



BY K. IGARASHI	SUBJECT NO. 7802	PAGE
APP'D	DIGITAL WIND SPEED & DIRECTION INDICATOR	SHEET
REVISION (SIZE) 1/2		DATE 9.1.11.28.
880115 修正事項		TYPE NO. 7802
880115 修正事項		DATE 9.10.11.28.
		NO. 7802
		DATE 9.10.11.28.

BY K. IGARASHI		SUBJECT NO. 7802		PAGE	
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				NO. 7802	
				DATE 9.10.11.28.	

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