SQUARE ROOT EXTRACTION TRANSDUCER

SRTP1 - ☐ ☐☐☐

SRTP1-C5F5

(80× 50× 121mm/350g)

Use

Outputs a DC signal in proportion to square root of various kinds of DC signals.

Features

1. Constant voltage/current output.
2. Withstand voltage between electric circuit and outer case is AC1, 500V (50/60Hz) for 1 minute, or between input and output is AC1, 500V (50/60Hz) for 1 minute.
3. Output less than or equal to 10% shall be clamped at 0%.
4. Plus/minus input is not manufacturable.
5. Impulse withstands voltage 5kV, 1.2/50μs (between electric circuit and outer case), and positive/negative polarity 3 times each is guaranteed.

Connection diagram

Indicated in ( ) are the polarities in the case of DC auxiliary supply.

Specification

Input (input resistance or voltage drop)		Output (load resistance)	Auxiliary supply	Common specification
A1 : DC0-10mV (approx.1MΩ)	C1 : DC0-10μ A (100mV) *1	1 : DC0-100mV (200)	1 : AC100V±10%, 50/60Hz	Tolerance: ± 0.25% *2
A2 : DC0-50mV (approx.1MΩ)	C2 : DC0-100μ A (100mV)	2 : DC0-1V (200)	2 : AC110V±10%, 50/60Hz	Response time: 0.5sec./99%
A3 : DC0-60mV (approx.1MΩ)	C3 : DC0-1mA (approx.100Ω)	3 : DC0-5V (1k)	3 : AC200V±10%, 50/60Hz	Consumption VA:
A4 : DC0-100mV (approx.1MΩ)	C4 : DC0-5mA (approx.100Ω)	4 : DC 0-10V (2k)		AC power source:3VA
A5 : DC0-1V (approx.1MΩ)	C5 : DC0-10mA (approx.100Ω)	5 : DC1-5V (1k)	4 : AC220V±10%, 50/60Hz	DC power source:4W
A6 : DC0-5V (approx.1MΩ)	C6 : DC0-16mA (approx.100Ω)	A : DC0-1mA (10k)		Weight:
A7 : DC0-10V (approx.1MΩ)	C7 : DC4-20mA (approx.100Ω)	B : DC0-5mA (2k)	5 : DC24V±10%	AC power source:700g
A8 : DC1-5V (approx.1MΩ)	00 : other than those above	C : DC0-10mA (1k)	6 : DC48V±10%	DC power source:350g
		D : DC0-16mA (600)	0 : other than those above	
		E : DC1-5mA (3k)		
		F : DC4-20mA (750)		
		0 : other than those above		

*1. Circuit voltage 15V for an input of 10μ A. *2. Tolerance becomes ±0.5% when input voltage is less than 50mV; input current is less than 100μA. Open of current output: even if the current output terminal is used in a state of regular open, there is no problem. Also, a voltage of approx. 25V occurs on the output terminal.

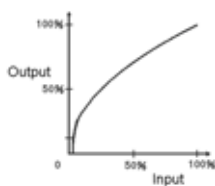### UR-1 precise resistance unit (selling separately)

Please use a UR-1 combined with a square root extraction transducer of voltage input. When changing the square root extraction transducer in a hot line state at the time of current input, if measures against open are necessary, connect UR-1 to socket and convert it into a voltage signal before using it. (UR-1, the resistance specified)

Block diagram

Input circuit
Square circuit
Pulse width modulation circuit
Pulse width demodulation circuit
Output circuit
Insulated power source circuit

Operational expression

Input: IB IM
Output: OB OM

$$O= \overline{(I\text{-}IB)/(IM\text{-}IB)} \times \ OM\text{-}OB \ +OB$$

IB: Min. input value.
IM: Max. input value.
OB: Min. output value.
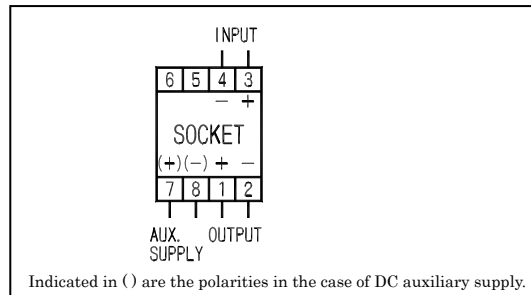OM: Max. output value.
I: Input value.
O: Output value.
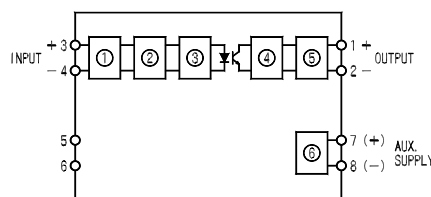

Input/output relationship graph

Purchase specifications

Item to specify

Type

SRTP1 - C 5 F 5

Input   Output   Auxiliary supply

Transducer Catalog   e-98-099b