

### Tehničke specifikacije

Specification	EM231, 8×PID
<b>Physical Features</b>	
Dimensions(W×H×D)	71.2×80×62mm
Power Loss(dissipation)	1.2 W
<b>Power Consumption</b>	
From +5V(from I/O bus)	30mA
From L+	39mA
L+ voltage range,class 2 or DC sensor supply	20.4 ~ 28.8V DC
LED indicator	24 VDC Power Supply Good: ON = no fault ,OFF = no power ; SF: ON=module fault, Blink=input signal error, OFF=normal;
<b>Analog Input Features</b>	
Input type	current input
Input range	0~20mA
Number of analog input points	8 points
<b>Isolation</b>	
Field to Logic	500V AC
Field to 24V DC	500V AC
24V DC to logic	500V AC
Common mode input range (input channel to input channel)	120V AC
Common mode rejection	>120dB@120V AC

Input resolution	
Temperature Voltage	0.1°C/0.1°F 15 bits plus sign
Measuring principle	Sigma-Delta
Module update time for all channel	825ms
Wire length to sensor, maximum	100 m
Wire loop resistance	100Ω
Suppression of interference	85dB@ 50Hz/60Hz/400Hz
Data word format	Voltage: -27648 to +27648
Input impedance	≥1MΩ
Maximum input voltage	30V DC
Input filter attenuation	-3dB@ 21kHz
Basic error	0.1% FS(Voltage)
Repeatability	0.05% FS
Cold junction error	±1.5°C
24V DC supply voltage range	20.4 to 28.8 VDC
Diagnostic program	LED : EXTF , SF
<b>PID Features</b>	
PID arithmetic	PID+FUZZY argument auto- tuning
Sampling time	1 second
Minimum output pulse time	10 ms
PID type	P、PI、PD、PID
PID output type	Analog or PWM
PID output polarity	Bipolar or unipolar

Configuring PID Address

Calculating the PID address

PID address	Formula	Note
Address for PID argument	$A = (2048 + S * 256) + 16 * C$	

Address for PID positive pulse	$X=(2048+S*256)+12$	S is the installing slot No. of the module (0 ~ 6) C is the point no.( 0 ~ 7 for 8PID module )
Address for PID negative pulse	$Y=(2048+S*256)+13$	

PID argument output (Module to CPU)

Description	Address	Setting Value	Actual Value
Actual temperature	VM A	0 ~ 13000	0 ~ 1300°C
Status word	VM A+2		data read
PID analog output	VM A+4	-32000 ~ 32000	-32000 ~ 32000

PID argument input (CPU to module)

Description	Address	Setting Value	Actual Value
Setting temperature	VM A+128	0 ~ 13000	0 ~ 1300°C
<b>Control bytes</b>		<b>When VB A+130 is zero</b>	<b>When VB A+130 is 1</b>
	V(A+130).0	PID disable, no output	PID enable
	V(A+130).1	Integral is always active and Kp is not auto tuning	Integral is not active and Kp is auto tuning
	V(A+130).2	Unipolar PID output, 0 ~ 32000	Bipolar PID output, 32000 ~ -32000, with calefaction and cooling function
	V(A+130).3	Unused	
	V(A+130).4	Integral is active	Integral is not active
	V(A+130).5	Differential is active	Differential is not active
	V(A+130).6	Filteing for input	Not Filtering for input
Pulse output cycle for PID	VW A+132	1 ~ 255	1 ~ 255 seconds
Kp	VW A+134	0 ~ 9999	0 ~ 999.9
Ti (Integral time)	VW A+136	0 ~ 3600	0 ~ 3600 seconds
Td (differential time)	VW A+138	0 ~ 3600	0 ~ 3600 seconds

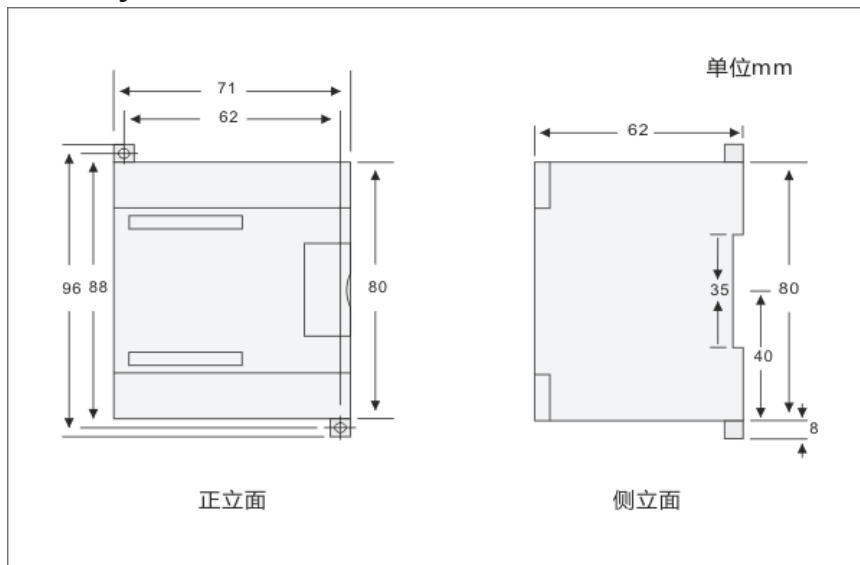
Address for positive pulse output

point 0	V X.0
point 1	V X.1
point 2	V X.2
point 3	V X.3
point 4	V X.4
point 5	V X.5
point 6	V X.6
point 7	V X.7

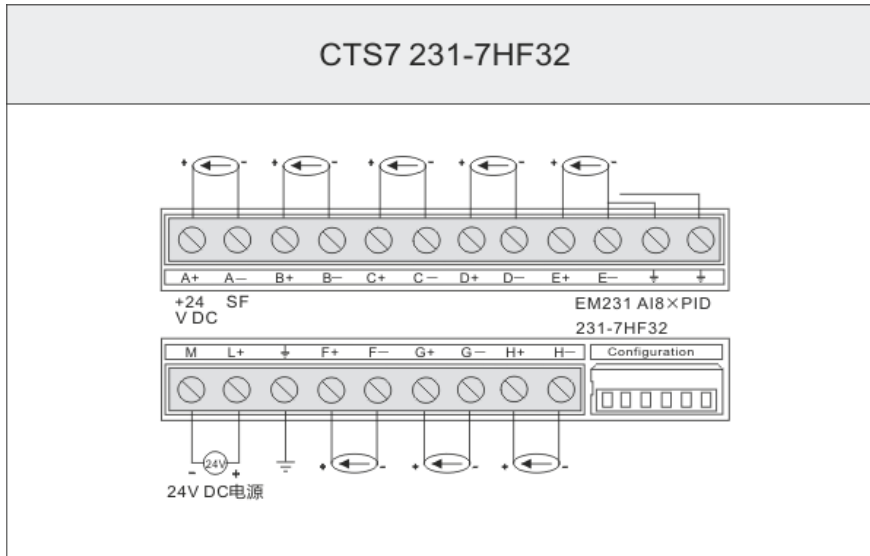
Address for negative pulse output

point 0	V Y.0
point 1	V Y.1
point 2	V Y.2
point 3	V Y.3
point 4	V Y.4
point 5	V Y.5
point 6	V Y.6
point 7	V Y.7

## Dimenzije



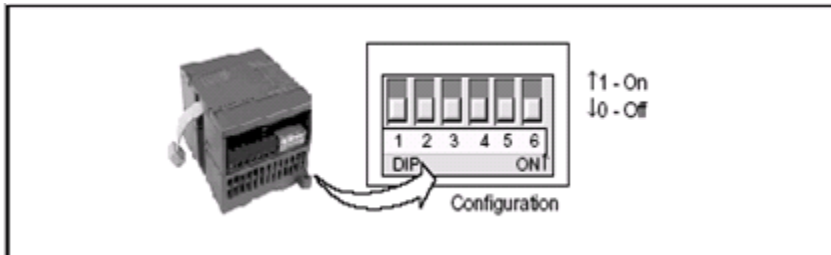
## Šema spajanja



### Konfiguracija DIP prekidača

The EM 231 PID modules can only connect to J or K thermocouple type interface, the modules provide a 6-PIN DIP switches, SW1 to SW2 is unused, and SW3 to SW6 is to select thermocouple type, temperature scale, cold junction compensation and burnout direction. the PID modules is always enable open wire check.

The configuration DIP switches are located on the right bottom of the module, as shown in the figure below, For the DIP switch settings to take effect, you need to power cycle the PLC and/or the user 24V power supply.



Sw1	Sw2	Sw3	Sw4	Sw5	Sw6	range	resolution
ON	ON	OFF	OFF	OFF	OFF	0—20mA	0.1°C/F
ON	ON	ON	OFF	OFF	OFF	4—20mA	0.1°C/F