

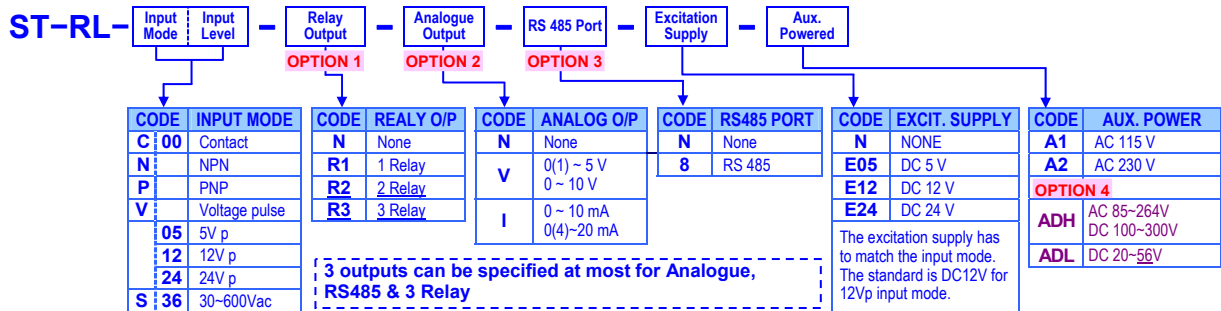
ST-RL PULSE (FREQ.) Conditioner WITH RS485, A/O & RELAY

FEATURE

- Measuring Frequency AUTO RANGE 0.01Hz~100KHz / ~140KHz(optional) / Contact, NPN, PNP, Voltage pulse, Sine wave 30~600Vp
- Accuracy: $\pm 0.005\%$; Display range: 0~99999
- Decimal Point auto moving according to input frequency
- User function, easily programmable via the top panel
- 1 Analogue output, 1 RS 485 port and 3 Relay output available for multi-cross selection 3 outputs at most
- CE Approved



ORDERING INFORMATION



TECHNICAL SPECIFICATION

Input

Input Frequency	Input Mode	Input Level
0.01Hz ~ 50 Hz	Mech. Contact	
0.01Hz ~ 50 Hz 0.01Hz ~ 100KHz 0.01Hz ~ 140KHz (optional)	NPN	High Level: 8~12V; Low Level: 0.0~4.0 V (with excitation supply 12Vdc)
	PNP	
	Voltage Pulse	High Level: over 2/3 of input level Low Level: under 1/3 of input level

Input Mode(NPN, PNP, Contact) & Level(5Vp, 12Vp, 24Vp) changeable by dip switch on inside of top panel cover.

- Calibration:** Doesn't need calibration
- Input range:** Auto range: 0.01Hz ~ 100KHz (~140KHz in option);
- Accuracy:** $\leq \pm 0.005\%$ of FS $\pm 1C$;
- Sampling time:** 15 cycles/sec($\geq 15Hz$);
f cycles/sec($\leq 15Hz$)
- Response time:** ≤ 100 msec(when the AvG = "1")
- Time out function:** Auto, Manual programmable, In manual mode, the period of time out can be set 0.0 sec~999.9sec

Display & Functions

- LED:** Numeric: 5 digits, 0.28"H red high-brightness LED
Relay output indication: 1 square red LED
RS 485 communication: 1 square orange LED
Max/Mini Hold indication: 2 square orange LED
RPM / RPS / Linear Line Speed / Frequency programmable
- Display type:** 0.0000~99999 with auto moving of decimal point
- Display range:** 0.0000~99999 with auto moving of decimal point
- Resolution of PV:** Decimal point will Auto-changed according to input
- (Auto-Moving for d.p.)** Auto / Semi-Auto / Fix; 3 mode programmable
- Compensation factor:** Compensate error from 0.001~9.999
- Over range indication:** $\alpha\alpha FL$, when input is over 20% of input range Hi
- Max / Mini recording:** Maxi & Mini Value of PV storage during power on.
- Display functions:** PV / Max(Mini) Hold / RS 485 programmable
- Low cut:** Settable range: -19999~29999 counts
- Digital fine adjust:** P $\alpha P r o$: Settable range: 0~+99999
P $\alpha S P n$: Settable range: 0~+99999

Reading Stable Function

- Average:** Settable range: 1~99 times
- Moving average:** Settable range: 1(None)~10 times
- Digital filter:** Settable range: 0(None)/1~99 times

Control Functions(option)

- Set-points:** Three set-points
- Control relay:** Three relays(Maximum); FORM-A, 1A/230Vac, 3A/115V
- D.P. of set point:** Programmable from 0 / 0.0 / 0.00 / 0.000 / 0.0000
- Relay energized mode:** Energized levels compare with set-points:
Hi / Lo / Hi.HLD / Lo.HLD programmable
- Energizing functions:** DO function: Energized by RS485 command of master.
Start delay / Energized & De-energized delay / Hysteresis / Energized Latch
- Start band:** (Minimum level for Energizing): 0~9999counts
- Start delay time:** 0:00.0~9(Minutes):59.9(Second)
- Energized delay time:** 0.00.0~9(Minutes):59.9(Second)
- De-energized delay time:** 0:00.0~9(Minutes):59.9(Second)
- Hysteresis:** 0~5000 counts

Analogue output(option)

- Accuracy:** $\leq \pm 0.1\%$ of F.S.; 16 bits DA converter
- Ripple:** $\leq \pm 0.1\%$ of F.S.
- Response time:** ≤ 100 msec. (10~90% of input)
- Isolation:** AC 2.0 KV between input and output
- Output range:** Specify either Voltage or Current output in ordering
Voltage: 0~5V / 0~10V / 1~5V programmable
Current: 0~10mA / 0~20mA / 4~20mA programmable
Voltage: 0~10V; $\geq 1000\Omega$;
Current: 4(0)~20mA: $\leq 600\Omega$ max
- Functions:** R $\alpha H 5$ (output range high): Settable range: -19999~29999
R $\alpha L 5$ (output range Low): Settable range: -19999~29999
R $\alpha L \bar{H}$ (output High Limit): 0.00~110.00% of output High
R $\alpha P r o$: Settable range: -38011~+27524
R $\alpha S P n$: Settable range: -38011~+27524

RS 485 Communication(option)

- Protocol:** Modbus RTU mode
- Baud rate:** 1200/2400/4800/9600/19200/38400 programmable
- Data bits:** 8 bits
- Parity:** Even, odd or none (with 1 or 2 stop bit) programmable
- Address:** 1 ~ 255 programmable
- Remote display:** to show the value from RS485 command of master
- Distance:** 1200M
- Terminate resistor:** 150 Ω at last unit.

Electrical Safety

- Dielectric strength:** AC 2.0 KV for 1 min, Between Power / Input / Output / Case
- Insulation resistance:** $\geq 100M$ ohm at 500Vdc, Between Power / Input / Output
- Isolation:** Between Power / Input / Relay / Analogue / RS485
- EMC:** EN 55011:2002; EN 61326:2003
- Safety(LVD):** EN 61010-1:2001
- Vibration:** 1~800 Hz, 3.175 g/Hz

Amend: 2010/4/28: Change power supply code from D25 to ADL: AC/DC20~56V, ADH: AC 85~264V / DC 100~300V

Environmental

Operating temp.: 0~60 °C
Operating humidity: 20~95 %RH, Non-condensing
Temp. coefficient: ≤100 PPM/°C
Storage temp.: -10~70 °C

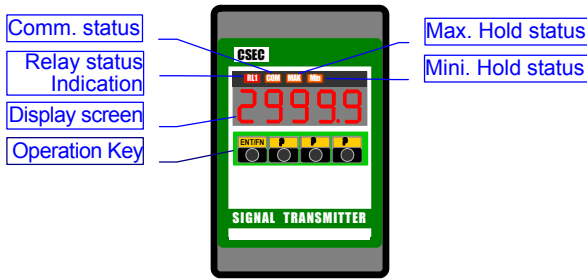
Mechanical

Dimensions: 50mm(W) x 134mm(H) x 80mm(D) with socket
Case material: ABS fire-resistance (UL 94V-0)
Mounting: DIN rail mounting (35mm standard)
Terminal block: 11 pin Socket, 10A/500Vac, M2.6, 16~22AWG
Weight: Under 480g(without socket)

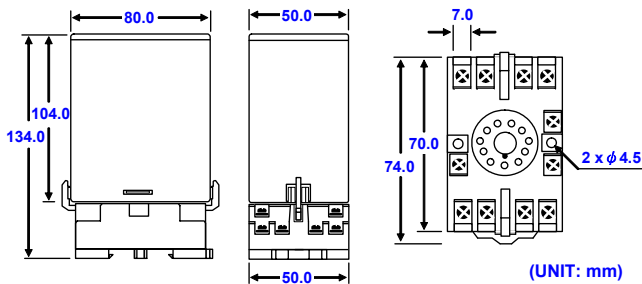
Power

Power supply: AC 115 or 230V ± 15%, 50/60Hz;
Optional: AC 85~264V / DC 100~300V, DC 20~56V
Excitation Supply: DC12V, 24V/30mA maximum
Power consumption: 5.0VA maximum
Back up memory: By EEPROM

FRONT PANEL

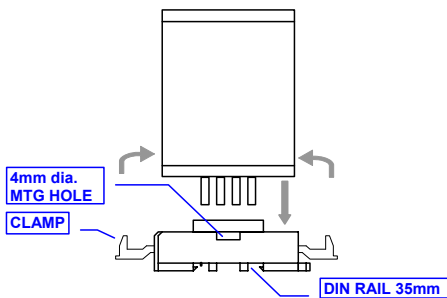


DIMENSIONS

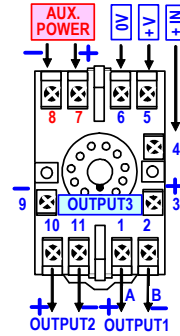


INSTALLATION

The meter should be installed in a location that dose not exceed the maximum operating temperature and provides good air circulation.



CONNECTION DIAGRAM(11 PIN)

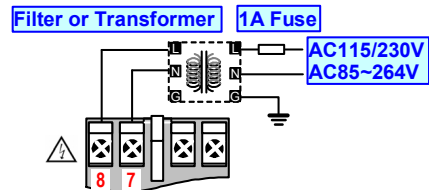


Remark: ST series has been designed in multi-output with limited terminals. Please check the output functions and specify terminals as label on product before wiring.

	OUTPUT 1	OUTPUT 2	OUTPUT 3
	TERMINAL 1+ & 2-	TERMINAL 10+ & 11-	TERMINAL 3+ & 9-
3 O/P	RS485	ANALOGUE	RELAY
3 O/P	ANALOGUE	RELAY	RELAY
3 O/P	RS485	RELAY	RELAY
3 O/P	RELAY	RELAY	RELAY
2 O/P	RS485	ANALOGUE	
2 O/P	RS485	RELAY	
2 O/P	ANALOGUE	RELAY	
1 O/P	ANALOGUE		
1 O/P	RS485		
1 O/P	RELAY		

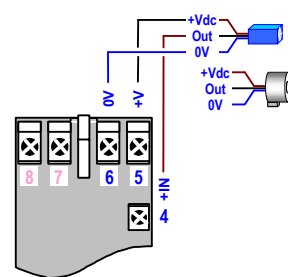
Please check the voltage of power supplied first, and then connect to the specified terminals. It is recommended that power supplied to the meter be protected by a fuse or circuit breaker.

Power Supply



Due to the limited terminals for three outputs(Analogue, RS485, Relay), the outputs will be assigned as label on the product and above table. Please check it out before wiring.

Sensor input connection

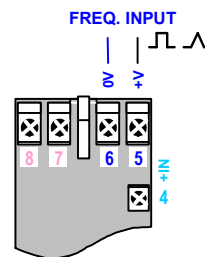


Please change the dip-switch on rear of meter to match the input mode and level.

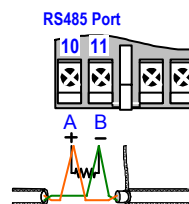
	D-S				
	1	2	3	4	5
NPN	ON				
PNP		ON			
Mech. Contact					ON
Voltage pulse 5V _p					
Voltage pulse 12V _p			ON		
Voltage pulse 24V _p				ON	

D-S is on when it is in down site

Frequency input connection



RS485 Communication Port



Max. Distance: 1200M Terminate Resistor (at latest unit): 120~300ohm/0.25W; (typical: 150ohm)

For more detail function description, please refer to the data sheet of CS2-RL or ST-RL operating manual