



USER MANUAL

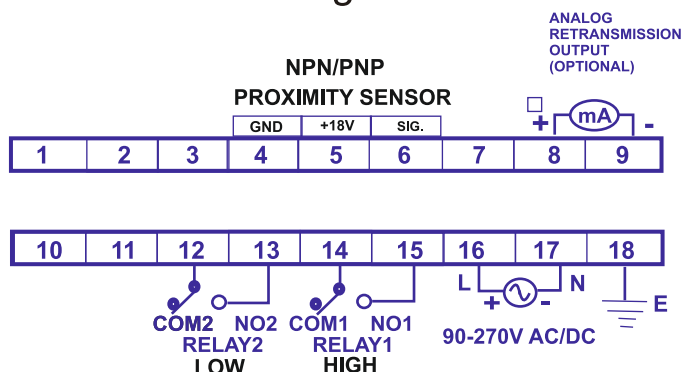
RPM INDICATOR & CONTROLLER **with Retransmission Output** **Model : RP 491**



1. Specification

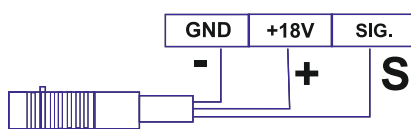
Input	3 - 30V DC from Proximity Sensor, Photo electric Non Contact Sensor, Encoder, Potential Free Contacts, Limit Switch etc.,
Input Speed	3.5 kHz. (Max.)
Range	0 - 9999 RPM, 0 - 9999 RPS, 0 - 9999 RPH (selectable)
Resolution	1, 0.1, 0.01, 0.001(selectable)
Relay Output	Two Relay or Buzzer O/P(optional)
Re transmission	4 - 20 mA OUTPUT (optional)
Display	4 Digit 0.5" 7 Segment LED display RED
Sensor Supply	12V DC ($\pm 10\%$) 50mA
Power Supply	90 To 270V AC/DC
Frequency	50/60Hz
Operating Temperature	0 - 50 ° C (32 ° F TO 122 ° F)/ 5 - 95 % Rh
Over All Dimension	96(H) X 96(W) X 65(D) mm
Cut out Dimension	90(H) X 90(W) mm
Weight	200 grams (Approximately)

2. Terminal Arrangement

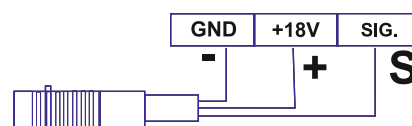


3. Connection Details

SENSOR INPUT (PNP)



SENSOR INPUT (NPN)



4. Changing The Set Value (SV)

1. LOW RELAY Set Point Setting

1. To change the Low Set , press LO  KEY for 3 sec continuously.
2. After 3 Sec the Last Digit gets Blinking.

1000

3. Use HI  KEY to Change the Value, Then Use LO  KEY to Move to Next Digit and roll over between last to first digit.

1025

4. After Setting the Required LOW Set Value Press ENT  KEY.
5. Now you confirm the LOW set point by pressing LO  KEY one time the display shows the LOW set point and automatically come back to Online RPM Reading.

2. HIGH RELAY Set Point Setting

1. To change the High Set , press HI  KEY for 3 sec continuously.
2. After 3 Sec the Last Digit gets Blinking.

3000

3. Use HI  KEY to Change the Value, Then Use LO  KEY to Move to Next Digit and roll over between last to first digit.

3050

4. After Setting the Required HIGH Set Value Press ENT  KEY.
5. Now you confirm the HIGH set point by pressing HI  KEY one time the display shows the HIGH set point and automatically come back to Online RPM Reading.

5. Programming And Configuration

TO ENTER INTO CONFIGURATION SETTING PRESS ENT  KEY FOR 10 SEC CONTINUOUSLY.

1. SCALE FACTOR (SCL)

1. Then the display shows “ SCL ” Scale Factor For Few Sec and display the Previously selected scale factor Value with the last digit blinking.



FOR FEW SEC



SET BETWEEN 0.001 TO 9.999 AS PER YOUR REQUIREMENT

2. To change the Scale Factor Value , press HI  KEY to roll over between 0 - 9 and move to next Digit , Using LO  KEY.

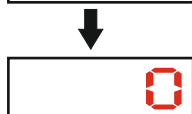


2. EXPONENT (EP_0)

1. After Setting the required Scale Factor Value, Press ENT  KEY to Save and Enter into the Exponent.
2. Then the display shows “ EP_0 ” Exponent For Few sec and display the Previously selected Exponent Value.



FOR FEW SEC



SET 0 for 10^0 , 1 for 10^1 , 2 for 10^2 , -3 for 10^{-3} , -2 for 10^{-2} , -1 for 10^{-1} AS PER YOUR REQUIREMENT

3. To change the Exponent Value , press HI  KEY to roll over between 0 to - 3

3. POWER ON DELAY FOR RELAY (P_{on})

1. After Setting the required Exponent Value, Press ENT  KEY to Save and Enter into the Power ON Delay For Low & High Relay.
2. Then the display shows “ P_{on} ” Power ON Delay For Few sec and display the Previously selected Power ON Delay Time with Blinking at last digit.



FOR FEW SEC



Power ON Delay : If Any Relay condition is ON at power ON, the Relay output will be activated only after the time set as, Power ON delay.(0 - 999 sec)

3. To change the Power ON Delay Time , press HI  KEY to roll over between 0 to 9 and move to next Digit , Using LO  KEY.

4. ALARM ON DELAY FOR RELAY (RL_d)

1. After Setting the required Power ON Delay Time, Press ENT  KEY to Save and Enter into the Alarm ON Delay For Low & High Relay.
2. Then the display shows “ RL_d ” Alarm ON Delay For Few sec and display the Previously selected Alarm ON Delay Time with Blinking at last digit.

ALD

FOR FEW SEC

05

Alarm ON Delay : When Relay condition occurs, the Relay output will be activated only after the time set as Alarm Delay (0 - 99 Sec).

3. To change the Alarm ON Delay Time, press HI  KEY to roll over between 0 to 9 and move to next Digit , Using LO  KEY.

5. HYSTERISIS FOR RELAY (HYS)

1. After Setting the required Alarm Delay Time, Press ENT  KEY to Save and Enter into the Hysterisis For Low & High Relay.
2. Then the display shows “ HYS ” Hysterisis For Few sec and display the Previously selected Hysterisis value with Blinking at last digit.

HYS

FOR FEW SEC

05

Hysterisis(0 - 99 Least Count) : Low Relay is ON when Read $\leq$ LO Set. It turns off when, Read $>$ (LO Set + Hysterisis). High Relay is ON when Read $\geq$ HI Set. It turns off when, Read $<$ (HI Set - Hysterisis).

3. To change the Hysterisis Value, press HI  KEY to roll over between 0 to 9 and move to next Digit , Using LO  KEY.

6. RESOLUTION FOR READ (RES)

1. After Setting the required Hysterisis Value, Press ENT  KEY to Save and Enter into the Resolution Selection Mode.
2. Then the display shows “ RES ” Resolution For Few sec and display the Previously selected Resolution.

RES

FOR FEW SEC

1

SELECT RESOLUTION BETWEEN 1, 0.1, 0.01, 0.001 AS PER YOUR REQUIREMENT.

3. To change the Resolution, press HI  KEY to roll over between 1 to 0.001.

7. READ MODE SELECTION (MOD)

1. After Selecting the required Resolution, Press ENT  KEY to Save and Enter into the INPUT Mode Selection.
2. Then the display shows “ MOD ” MODE For Few sec and display the Previously selected Input Mode.

MOD

FOR FEW SEC

R

SELECT INPUT MODE “ R ” for RPM (Revolution Per Minute)
“ H ” for RPH (Revolution Per Hour)
“ S ” for RPS (Revolution Per Second).

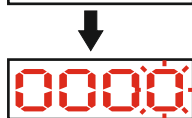
3. To change the Input Mode, press HI  KEY to roll over between R to S

8. ANALOG OUTPUT LOW LIMIT (RLO)

1. After Selecting the required Input Mode, Press ENT  KEY to Save and Enter into the ANALOG OUTPUT LOW LIMIT setting.
2. Then the display shows “ RLO ” MODE For Few sec and display the Previously selected LOW Limit Value.



FOR FEW SEC



SET REQUIRED VALUE BETWEEN 0 to 9999 as
Analog Low Limit Value for 4 mA Output

3. To change the Analog Low Limit Value , press HI  KEY to roll over between 0 - 9 and move to next Digit , Using LO  KEY.



8. ANALOG OUTPUT HIGH LIMIT (RHi)

1. After Selecting the required Input Mode, Press ENT  KEY to Save and Enter into the ANALOG OUTPUT HIGH LIMIT setting.
2. Then the display shows “ RHi ” MODE For Few sec and display the Previously selected HIGH Limit Value.



FOR FEW SEC



SET REQUIRED VALUE BETWEEN 0 to 9999 as
Analog High Limit Value for 20 mA Output

3. To change the Analog High Limit Value , press HI  KEY to roll over between 0 - 9 and move to next Digit , Using LO  KEY.



4. After Selecting the Analog High Limit Value, Press ENT  KEY to Save and Exit from Configuration Setting to Read Mode.
5. Now the Instrument is Ready for Your Required Application.

5. Sample Calculation

A. For RPM(Revolution Per Minute) Indicator

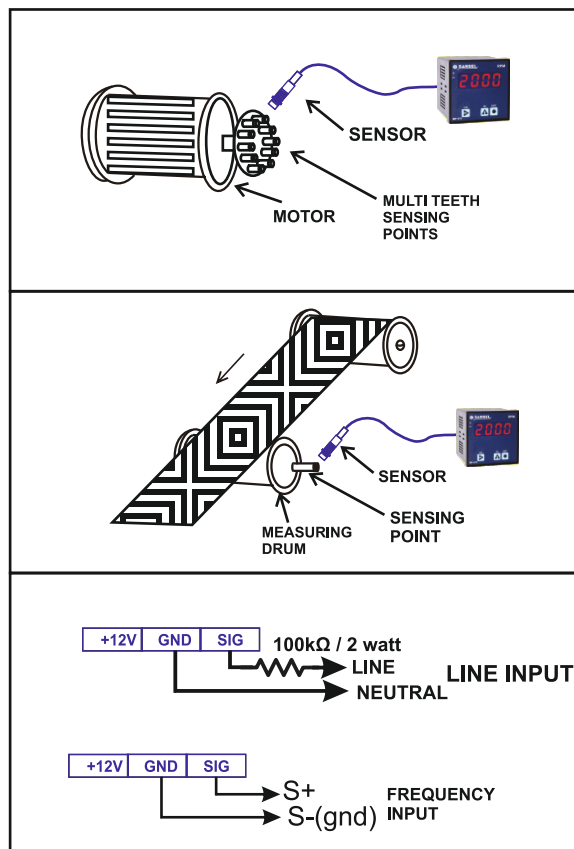
1. No. of teeth in sensing point = 10
2. To Calculate the RPM of the Motor = $1 \text{ pulse} / 10 \text{ teeth} = 1 \times 10^{-1} = 0.1 \text{ RPM / Pulse}$.
3. Here Scale factor = $1,000 \times 10^{-1}$
4. So set scale factor = 1.000 & exponent = - 1 (10^{-1})
5. Now our Instrument is work as RPM Indicator For Multi Teeth Sensing point Motor.

B. For Rate Indicator

1. Diameter of the measuring drum = 10 m
2. Circumference of the measuring drum = $\pi r^2 = 3.143 \times 10 \text{ m} = 31.43 \text{ m}$.
3. So the length of the Item delivered per revolution of measuring drum is 31.43 m. Since our proximity sensor given 1 pulse per revolution, the display should increment by 31.43 for every pulse.
4. Here Scale factor = 3.143×10^1
5. So set scale factor = 3.143 & exponent = 1 (10^1)
6. Now our Instrument is work as Rate Indicator in meter / minute.

C. For Frequency Indicator

1. Set Input Mode = RPS (S).(For Line Frequency Indication Put 100k Ω / 2 watt Resistor in series with Line to S+ of terminal as per following drawing)
2. Now our Instrument is work as Frequency Indicator in Hz.
3. Connect Frequency Input S+ in Connector 3 and Input -(gnd) in Connector 2.



For further clarification kindly contact us.



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