PROGRAMMABLE PULSE SCALER ISOLATED TRANSMITTER

MODEL: TFP

FEATURES
- Accept rates up to 10KHz
- Wide selection of input/output range
- Wide input pulse multiplicator scale (0.1 to 1.0) and divide scale (1 to 165000)
- Dielectric strength 2kV/1min (input/output/power)
- Wide input range for auxiliary power
- Dimension small and high stability

1. MODEL: TFP

<table>
<thead>
<tr>
<th>NO</th>
<th>Input Type</th>
<th>Sensor Power</th>
<th>NO</th>
<th>Output Model</th>
<th>NO</th>
<th>Aux. Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Pulse (NPN/PNP/Switch contact)</td>
<td>DC 5.6V(50mA)</td>
<td>U</td>
<td>Open-collector&lt;30V/40mA</td>
<td>A</td>
<td>AC/DC 16-60V</td>
</tr>
<tr>
<td>B</td>
<td>Magnetic pick-up (AC30mV~30V)</td>
<td>DC 2V(50mA)</td>
<td>T</td>
<td>5V pulse&lt;10mA</td>
<td>B</td>
<td>AC/DC 24-280V</td>
</tr>
<tr>
<td>C</td>
<td>NAMUR sensor (ON&lt;1mA, OFF&gt;2.2mA)</td>
<td>DC 12V(50mA)</td>
<td>C</td>
<td>12V pulse&lt;10mA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>SPECIFIED</td>
<td>DC 24V(50mA)</td>
<td>H</td>
<td>24V pulse&lt;10mA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>SPECIFIED</td>
<td></td>
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</tbody>
</table>

2. SPECIFICATION
- Count input type: DIP switch selectable current sourcing (NPN) or current sinking (PNP)
- Count input trigger levels:
  - High level: ViH=DC4~30V (Pulse)
  - ViH=AC 30mV~30V (Magnetic pick-up)
  - ViH=RI<500 ohm (Switch contact)
  - ViH=2.2mA (NAMUR sensor)
- Low level: ViL=DC0~2V (Pulse)
  - ViL=AC0~20mV (Magnetic pick-up)
  - ViL=RI>1Kohm (Switch contact)
  - ViL=<1mA (NAMUR sensor)
- Max. count rates:
  - <10KHz (50% duty cycle (Pulse))
  - <1KHz (Magnetic pick-up)
  - <100Hz (Switch contact, NAMUR sensor)
- Count multiplier scale range: 0.1~1.0 can be selective
- Count divide scale range: 1~165000 can be selective
- Output drive capability:
  - <DC30V/40mA (Open collector output, Max. 10KHz)
  - <DC10mA (Voltage pulse output, Max. 10KHz)
- Sensor power supply:
  - 5.6Voc±3%(<50mA, Pulse sensor power)
  - 8.2Voc±3%(<50mA, NAMUR sensor power)
  - 12Voc±3%(<50mA, Pulse sensor power)
- Isolation:
  - Input/Output/Power/Case
- Insulation Resistance: >100Mohm with 500Voc
- Dielectric strength: 2kV/1min. (input/output/power)
- Operating condition:
  - 0~60°C (20 to 90% RH non-condensed)
- Storage condition:
  - 0~70°C (20 to 90% RH non-condensed)
- Construction: Socket/plugin type with barrier terminals
- CE EMC Certification:
  - EN 55022:1998/A1:2000 Class A
  - EN 61000-3-2:2000

3. TERMINAL CONNECTION

- Pulse input
  - EXC Input:
    - Power Output:
      - +12V  - +
      - 7  8  1  2
      - +  +  +  -

- Magnetic pick-up input
  - EXC Input:
    - Power Output:
      - 6  5  4  3
      - 7  8  1  2
      - +  +  +  -

- NAMUR sensor input
  - EXC Input:
    - Power Output:
      - 6  5  4  3
      - 7  8  1  2
      - +  +  +  -

4. DIMENSION (unit: mm)
5. FUNCTION SWITCHES (S1, S2, S3)

- **S1**—input type (P1-P2) and input pulse multiplicator scale (P3-P8) selection
  - P1: ON = current sinking input (NPN)
  - OFF = current souring input (PNP)
  - P2: ON = switch contact input
  - OFF = pulse input (NPN/PNP)
  - P3: ON = main selection input pulse multiplier scale 1.0
  - OFF = selection P4 is ON (P3-P4 only one pin on)
  - P4: ON = main selection input pulse multiplier scale 0.1 to 0.9
  - OFF = selection P3 is ON (P3-P4 only one pin on)
  - P5-P6-P7-P8: multiplicator scale 0.1 to 0.9 selection

- **S2**—input pulse divide scale (1~165) selection
  - D1: ON = enable
  - OFF = all pin off

- **S3**—input pulse divide scale (10^0~10^3) selection
  - D2: ON = enable
  - OFF = P1-P4 only one pin on

6. OUTPUT FREQUENCY PROGRAMMABLE FORMULA

\[ F_o = \frac{F_i \times M}{D_1 \times D_2} \]

7. APPLICATION

**Example 1: TFP-A30B**
- Input pulse number: 10000 pulse
- Input type: switch contact input (NPN)
- Output pulse number: 6 pulse
- Output model: open-collector (<30V/40mA)
- Aux. Power: AC/DC 90~260V

\[ F_o = \frac{10000 \times 0.3}{5 \times 100} = 6 \text{ pulse} \]

**Example 2: TFP-A3RA**
- Input pulse number: 100 pulse
- Input type: switch contact
- Output pulse number: 100 pulse
- Output model: relay contact
- Aux. Power: AC/DC 18~60V

\[ F_o = \frac{100 \times 1}{1 \times 1} = 100 \text{ pulse} \]