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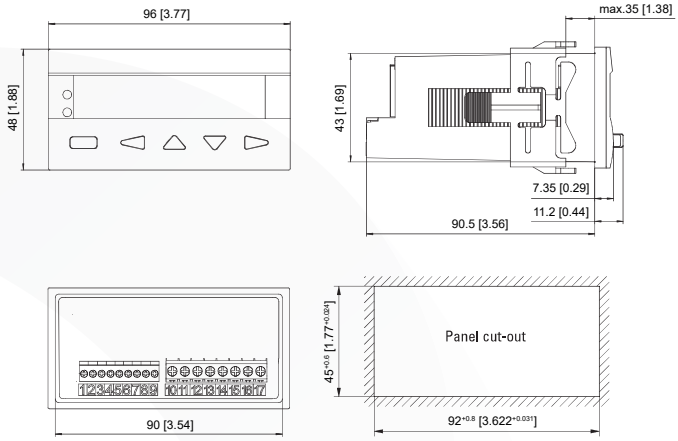
# Model 898X

## Electronic Programmable LCD Preset Counter and Rate Indicator




The 898X is a counter, tachometer, timer and position display in a single unit. It can be used as a preset counter, batch counter or totalizer depending on requirements, with automatic help text to take the user through programming. With its automatic help text, clearly and legibly displayed on 14 LED segments, the 898X preset counter takes the user effortlessly through the programming. The large user-friendly front keys can be operated even when wearing gloves. The 14mm high LED display ensures easy reading even from a long distance and in poor lighting conditions.

Available with RS485 interface and MODBUS and CR/LF protocol

### Key Fetatures

- Counter, tachometer, timer and position display in one counter
- Can be used as a preset counter, batch counter or total counter
- 2 relays (change-over)
- Many different count models
- Scalable display
- Set value, step to tracking preset
- Multi-range power supply for AC
- Readable or configurable via RS232/485 interface via Modbus or CR/LF protocol
- Allows for direct connection of a large display or Printer

### Benefits

- Automatic help text
- 14-segment LED for improved text representation
- Status display of the presets
- 3 defined parameters
- Tracking presets eliminate the need for re-programming the pre-signal
- 4-stage RESET modes
- 3-stage keypad locking
- Suitable for installation in mosaic systems

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# Specifications

## General Technical Data

| | |
|---|---|
| **Display** | 6-digit red 14 segment LED display, 14mm [0.55] high |
| **Operating Temperature** | -20ºC - +65ºC [-4ºF - +149ºF] (non-condensing) |
| **Storage Temperature** | -25ºC - +5ºC [-13ºF - +167ºF] |
| **Relative humidity (at +40ºC [+104ºF])** | RH 93% (non-condensing) |
| **Altitude** | up to 2000m [6562'] |

## Electrical characteristics

| | |
|---|---|
| **Power Supply** | AC 100-240 VAC, +10% max. 11 VA, 50/60 Hz |
| **External Fuse Protection** | 230 VAC T0.1 A 10-30 VDC T 0.25 A |
| **Data Retention** | >10 years, EEPROM |
| **Response time of the frequency meter** | 100 / 600 ms (details in instruction manual) |
| **Input Modes** | Count Direction (cnt.dir), |
| *Pulse Counter:* | Difference (up.dn) |
| | Addition A+B (up.up) |
| | Phase discriminator x1, x2, x4 (quad, quad x2, quad x4), |
| | Ratio (A/B), |
| | Ratio in % ((A-B)/Ax100%) |
| *Frequency Meter:* | A, A-B, A+B quad, A/B, (A-B)/A x 100% |
| *Timer:* | 4 start modes: FrErun, Auto, InpA.InpB., InpB.InpB. |
| **Sensor power supply** | *AC supply:* 24V DC+ 15%, 80 mA |
| | *DC Supply:* max. 80 mA, external power supply is connected through |
| **EMC** | Emmitted interference: EN55011 class B |
| | Immunity to interference: EN 61000-6-2 |
| **Device safety** | Designed to EN 61010 part 1 |
| | Protected class 3 |
| | Application Area Pollution level 2 |

## Mechanical Data

| | | |
|---|---|---|
| **Protection** | IP65 (from the front) | |
| **Weight** | approx. 180g [6.35 oz] | |
| **Count inputs** | A and B | |
| **Polarity of the inputs** | programmable for all inputs in common, NPN/PNP | |
| **Input resistance** | 5kΩ | |
| **Count frequency** | Pulse counters: max. 55kHz | |
| | Tachometers: max. 65 kHz | |
| | Can be damped to 30 Hz (mechanical contacts) (details in instruction manual) | |
| **Control/Reset input** | MPI 1 and MPI 2, Lock, Gate, Reset | |
| **Min pulse duration of the inputs** | 10 ms/1ms | |
| **Switching levels with AC supply** | *4-30 VDC* | Low: 0 … 2 VDC |
| | | High 3.5 … 30 VDC |
| **Switching levels with DC supply** | *1-30 VDC* | Low: 0 … 2 VDC |
| | | High: 3.5 … 30 VDC |
| **Pulse shape** | | variable, Schmitt-Trigger characteristics |

## Outputs

| | |
|---|---|
| **Switching voltage** | max. 250 VAC / 150 VDC |
| **Switching current** | max . 3 A AC / DC |
| | min. 30 mA DC |
| **Switching capacity** | max. 750 VA / 90 W |
| ***Output 1 + 2*** | |
| **Mech. Service life (switching cycles)** | $2 \times 10^7$ |
| **No. of switching cycles at 3 A / 250 VAC** | $5 \times 10^4$ |
| **No. of swiching cycles at 3 A / 30 VDC** | $5 \times 10^4$ |
| **Relay with changeover contact** | |
| **Reaction time of the outputs** | 13ms |
| **(pulse / time)** | (details in instruction manual) |

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**Optional interface MODBUS and CR/LF**

| | |
|---|---|
| **Count Frequency** | max. 45 kHz 9 (details in instruction manual) |
| **Interface** | RS232, RS485 |
| **Baud Rate** | 9600 |
| **Device address** | 1-99, programmable |

## Functions / Count Modes

**Pulse Counter**

- Count with direction mode
- Difference mode
- Quadrature mode quad / quad2 / quad4
- Add, sub, automatic reset
- 2-input adding mode A+B
- Ratio measurement A/B
- Multi-range power supply for AC or DC
- Percentage difference measurement (A/B) / A x 100%
- Batch counting
- Totaliser (overall total)
- Multiplication and division factor (up to 99.9999)
- Set value
- Step or tracking preset

**Frequency Meter (tachometer)**

- A
- A - B
- A + B
- A / B
- (A – B) / A x 100% (percentage display)
- Quad (phase discriminator with recognition of direction)
- Averaging
- Start delay
- 2nd tacho input
- Gate input
- Multiplication and division factor (up to 99.9999)

**Time and hours-run Meter (timer)**

- FrErun (control via gate input)
- Auto (start via reset , stop at preset)
- InpB.InpB (start with the first edge at InpB (stop with second edge InpB.)
- InpA.InpB (start w/ InpA., stop w/ inpB.)
- Totaliser (overall total)
- Batch counting
- Set value
- Step or tracking preset

## Part Numbers

| | |
|---|---|
| **8980-1:** | Dual Preset, Dual Relay Counter, 10-30VDC |
| **8981-1:** | Dual Preset, Dual Relay Counter, 100-240VAC |
| **8981-5:** | Dual Preset, Dual Relay Counter, 100-240VAC, RS485 |

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