

8 DIGIT LED UNIVERSAL COUNTER/TIMER/FREQUENCY

"Flat Pack" No Panel Cut Out Required (NEMA 3 or NEMA 4X)

MODEL 412

Features

- TTL Compatible
- Frequency
- Frequency Ratio
- Interval Timer
- Event Counter
- Period
- DC-10MHz Response
- MTBF: 100,000 Hours



FLAT PACK



SANITARY

Applications:

- Rate Indicator
- Frequency Monitoring
- Frequency Comparison
- Process Timing
- Period Measurement
- Event Counting

DESCRIPTION: The Model 412 is a multifunction 8-digit counter for measurements of FREQUENCY, FREQUENCY RATIO, PERIOD, TIME INTERVAL OR EVENT. User Selectable gating times of 0.01, 0.1, 1, and 10 seconds are available. All inputs and outputs, including those designated as "A" and "B" are TTL-Compatible. The standard crystal time base is 10MHz.

In the FREQUENCY or FREQUENCY RATIO Mode, with the decimal point automatically (internally) set, the display is in KHz. In the PERIOD Mode, the display is in μ S. All four gating times are available in each mode. The 412 samples or updates its display five times per second. Automatic leading zero blanking (LZB) facilitates display reading and conserves power.

The 412 has two internal micro dip rotary switches to select the function and the gating time.

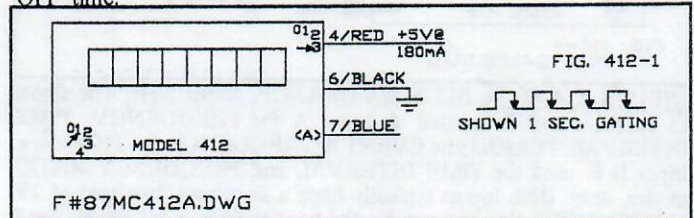
HOUSING: Otek's Flat Pack requires no panel cut out. Just drill a 10mm (3/8") \varnothing hole, pass the wires through, attach the provided double-sided tape (to prevent rotation), align the flat pack, tighten the nut and make the connections to the wires. No connector or tools required! No behind the panel space needed! The case is U.L. approved ABS Polycarbonate 94VO rated. **NEMA 4X housing option does not have access to the adjustments. If other than Otek's standard setting is required, please specify at the time of ordering.** Our New Sanitary housing is wall, pipe or panel mount and can include 2 flat packs, please specify.

POWER SUPPLIES: Externally mounted. Two types are available, the "Open Frame" style accepts 120/240VAC and delivers 5VDC up to 400mADC. The "Power Pack" is a wall plug in module available only for 120VAC input and delivers 5VDC up to 200mADC.

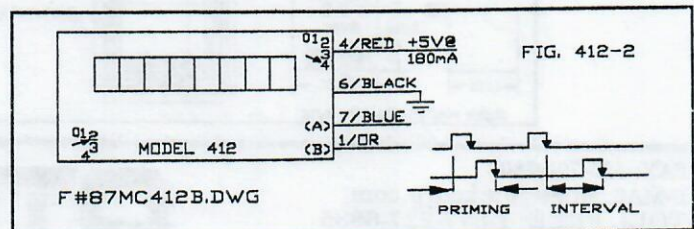
FUNCTION SWITCH: The FUNCTION switch is a 4-position, repeating, micro-dip switch located on the lower left corner. Since the 412 offers five functions but the switch has only four positions, the standard configuration provides the following switch position designations: 0-none, 1-FREQUENCY, 2-TIME INTERVAL, 3-PERIOD, and 4-EVENT. The fifth option, FREQUENCY RATIO, replaces EVENT when so ordered.

GATING SWITCH: The GATING switch, located on the upper right corner of the 412, allows the user to select any one of four gating times or cycles of the reference counter. Since the switch has only four positions while the 412 offers five positions, the fourth switch position is used for one of two options. The standard switch positions are: 0-none, 1-0.01s or 1 count, 2-0.1s or 10 counts, 3-1.0s or 100 counts, and 4-10s or 1000 counts. The option available for position 4 is EXTERNAL RANGE (an externally determined gating time). This option is for use when none of the internally generated times apply, such as in the measurement of events as a function of flow, temperature, or pressure. The EXTERNAL RANGE is "active low," meaning that the signal to be measured will be accepted and displayed only as long as the terminal is held "low." A pull-up resistor of 10K ohms is required externally when this option is ordered.

FREQUENCY MODE (Position 1): In the FREQUENCY mode the 412 displays the frequency presented at Input A (Blue) in accordance with the position of the GATING. When the GATING switch is in the 10-s position, it is necessary to wait at least 10 seconds for an accurate reading, as described under GATING switch above. The decimal point is automatically positioned to correspond with the GATING switch position. The maximum clock rate is 10 MHz, with 50 μ s (min.) ON or OFF time.



TIME INTERVAL MODE (Position 2): In this Mode, the 412 displays the time in microseconds (resolution depending on the gating time) between two signals **Going Low**, examples: Signal "A" (Blue) switches from High to Low, then Signal "B" (Orange) switches from High to Low. The Time Differential between "A and B" High to Low transition will be displayed with resolutions as high as 1nS or Full Scale as high as 10 seconds. The maximum Input Frequency is 2MHz



ORDERING INFORMATION (11/1/00)

MODEL **4** **1** **2**-**0**

FREQUENCY RATIO option must be specified when ordering (if req'd) and the EVENT function is deleted.

- (1) See NEMA 4X note in "Housing" section above.
- (2) See "Power Supplies" section above.

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| | POWER INPUT(2) |
| 0 | 5VDC |
| 1 | Open Frame 120/240VAC |
| 2 | Power Pack 120VAC |
| | HOUSING (1) |
| 0 | NEMA 3 |
| 1 | NEMA 4X |
| 2 | Sanitary |

COUNTERS, TIMERS, RATE

