



# 401A & 420A Multi-function Clocks & Stopwatches



401A.02



420A.02



401A.05



420A.05



401A.057



420A.057



401A.12



420A.100

Model No.	Case size	Character height	Viewing distance
401A.02	Front bezel: 144 x 72 x 3 Case body: 132 x 58 x 147mm	20mm & 14mm	7m
401A.05	305 x 90 x 58mm	50mm & 30mm	20m
401A.057	390 x 90 x 58mm	57mm	25m
401A.100	670 x 180 x 58mm	100mm	50m
401A.12	670 x 180 x 58mm	120mm & 100mm	50m
420A.02	See 401A.02 above	25mm	10m
420A.05	240 x 90 x 58mm	50mm	25m
420A.057	305 x 90 x 58mm	57mm	25m
420A.100	480 x 180 x 58mm	100mm	50m
420A.12	480 x 180 x 58mm	120mm	60m

**Radio & GPS Time Code Synchronisation**  
Please refer to the 484 & 488GPS data sheets for information on radio and GPS time code synchronisation.

**Stopwatch Controllers**

START - HOLD - STOP

RESET

C SW

402A

START - STOP

HOLD - RESET

496A

Please refer to the 402 & 496 data sheet for information on stopwatch operation



420A.12



**Alternating Date-Time Display mode**

**Alternating Time-Temperature display mode**  
(requires optional 406 temperature sensor)

The 401A and 420A series of multi-function electronic clocks provide a precise and elegant display of time using bright red or green LED characters with an unrivalled flexibility of operation in the most demanding timekeeping and stopwatch applications.

## Operation

The following standard operating modes may be selected by the user:

- 12 or 24 hour time display format.
- Automatic, pre-programmable, forward-backward seasonal time correction.
- Automatic or manual preset brightness control.
- Stand-alone operation with a typical initial accuracy of better than one second per week from 20-25 °C.
- User selection from over 30 different types of slave operation including synchronising control by alternate and single polarity impulses, EBU/SMPTE time code, GPS and radio time codes, IRIG-B/Afnor NFS 87 500 time codes, MB serial and MOBAline<sup>®</sup> time codes, serial ASCII messages at RS232 or RS485/422 levels in a wide range of formats and data rates and control using w482<sup>®</sup> time code to display time from one of fifteen different time zones.  
Optional low-cost internal wBus<sup>®</sup> interface cards are required for EBU/SMPTE, IRIG-B/Afnor NFS 87 500 and RS232 or RS485/422 operation. DCF or MSF radio time code or GPS satellite synchronisation requires the appropriate receiver, Please refer to the appropriate data sheet for further information.
- Alternating time and temperature and alternating time and date display mode with user selection of display change rate (requires optional type 406 temperature sensor).
- 401A and 420A clocks may be used as multi-function stopwatches. Please refer to the 402A and 496A data sheet for further information.

## Case Styles and Colours

The 401A and 420A series clocks are available in cases suitable for surface wall mounting, ceiling suspension, flush mounting in a panel with rear access or supplied with a steel mounting box for flush mounting in a solid wall. An IP65 rated case is also available for severe environmental conditions. The 401A.02 and 420A.02 models are supplied in DIN style cases for panel mounting.

These clocks are supplied as standard with cases finished in black, bronze or silver fine brushed anodising. Flush mounted cases are normally supplied in black anodising. Other finishes are available at extra cost.

## Power Supply

110V or 230V 50/60Hz operation as standard. 12, 24 or 48V dc or 48V ac operation at extra cost. An automatically re-charging internal battery maintains timekeeping in the event of a mains power failure.

## Output Signals

All 400A models may be fitted with wBus<sup>®</sup> output modules to enable the clock to function as a time signal source.

- When fitted with the optional 404.2 (RS232) or 404.4 (RS485) wBus<sup>®</sup> interface module the clock will provide serial ASCII time messages in one of seven different message formats.
- When fitted with an optional 404.M wBus<sup>®</sup> interface module the clock will function as a master clock to control up to ten other 400A series clocks or calendar clocks.

## Internal wBus<sup>®</sup> Option Interface Modules

wBus<sup>®</sup> modules are small, plug-in, printed circuit boards which locate on a ten way expansion connector within the clock.

## Environment

Operating Temperature:	0-50°C
Altitude:	0 to 3,000m
Relative Humidity:	0% to 95% (non-condensing)
MTBF:	< 50,000hours
Accuracy:	Stand-alone operation - 99.9998% @ 20°C ±3°C Locked to MSF or DCF - within 20mS of UTC Locked to GPS - within 1mS of UTC

MOBAline<sup>®</sup> is a registered trade mark of MOSER-BAER AG

wBus<sup>®</sup> and w482<sup>®</sup> are registered trade marks of Wharton Electronics

## Electromagnetic Compatibility & Safety

400A series electronic clocks, when used in accordance with our recommendations, comply with the European Community Electromagnetic Compatibility Directive 89/336/EEC and Low Voltage Directive 73/23/EEC and conform to the following standards:

- **EN 50081-1** 55022 class B
- **EN 50082-1** IEC 801-2 level 3  
IEC 801-3 level 3  
IEC 801-4 level 3
- **EN 60950**

Please contact us for information on our CSA approved and UL recognised models.

*Designed and manufactured by:*

## Wharton Electronics

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