



## 601.100 Large Frequency Control Clock System with Mains Frequency Meter - 100mm - 4" high digits



601.100.R.S



601.100.G.S

The 601 and 610 frequency control clocks are designed to provide an integrated display of time and frequency information for power generation control rooms and management facilities.

The units provide an accurate **mains frequency meter**, the **standard time** derived from the internal or external time reference, the **frequency time** derived from the 50 or 60Hz supply frequency and the **time difference** between the **standard time** and the **frequency time**.

The 601 and 610 units have three sets of independently programmable voltage-free relay contacts that may be programmed to close at preset precision time intervals, on detection of error conditions or at preset frequency or time difference limit conditions.

### features

|                         |   |
|-------------------------|---|
| Display                 | Bright 100mm (4") high red or green seven segment display characters, colour matched and brightness selected, LED characters. Suitable for use at viewing distances of up to 50m (150ft). The display brightness can be manually pre-set or controlled automatically.   |
| Case construction       | Clock cases are manufactured from aluminium extrusion and sheet and finished in high quality brushed black or silver anodising. Cases can also be supplied painted to any standard RAL colour as an extra cost option. Case installation options are available for all types of mounting applications.                          |
| Power supply            | 601A series frequency control clocks have a power supply capable of operation from a 100-250v 50/60Hz ac supply. 24v or 48v dc operation is available at extra cost. The operational location and local voltage should be specified at time of order to ensure that the unit is supplied with the appropriate mains connection. |
| Frequency voltage input | The 610 frequency control clock has a transformer isolated frequency voltage input for an input voltage of 100-250v ac.   |

### status relay functions

The 601 and 610 units have three sets of independently programmable voltage-free relay contacts. Each contact set may be programmed to provide one of the following status or precision time signal functions:

|       |  |
|-------|--|
| Power | Contacts are closed while power is present. Contacts open when the power supply is removed.  |
| Error | Contacts are closed while the unit is operating correctly. The contacts open when the unit is in an error state or the time has not been set since the unit was first powered. |
| Lock  | Contacts are closed with the master clock is synchronised to an external source.   |

|                             |  |
|-----------------------------|--|
|                             | Contacts open while the unit is unsynchronised                                       |
| 5 Seconds                   | 100mS contact closure every 5 seconds  |
| 1 Minute                    | 100mS contact closure every minute   |
| 1 hour                      | 100mS contact closure every hour   |
| Programmable                | 100mS contact closure once per day, at a time programmable in hours and minutes      |
| Frequency above limit       | Contacts are closed when the measured frequency is above a user defined preset limit |
| Frequency below limit       | Contacts are closed when the measured frequency is below a user defined preset limit |
| Time difference above limit | Contacts are closed when the time difference is above a user defined preset limit    |
| Time difference below limit | Contacts are closed when the time difference is below a user defined preset limit    |

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## models & sizes ▲

(sizes and weights are for .S. single sided surface mounting units)

| model       | size - width x height x depth            | weight        |
|-------------|--|---------------|
| 601.057.x.S | 1470 x 130 x 58mm - 57.9" x 5.1" x 2.3"  | 7kg - 15.4lb  |
| 601.100.x.S | 2600 x 230 x 58mm - 102.4" x 9.1" x 2.3" | 16kg - 35.3lb |

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## timekeeping & synchronisation ▲

601 & 610 series frequency control clock systems will operate either as stand-alone units or synchronised from a wide range of external time references.

**Stand-alone operation** When used in stand-alone configuration the clock maintains time keeping from a high stability internal crystal oscillator. The clock is pre-programmed for leap-years, and can be user programmed for the required automatic seasonal time-change.

**Standard synch. modes**

- w482® time code
- GPS satellite time signals - requires 488GPS time synchronisation sub-system

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## environment ▲

**Power supply** All 601 & 610 frequency control clocks will operate from a 110 - 250v 50/60Hz ac power supply. DC operation from 24 or 48v supplies is available as an extra cost option. The power consumption is :

- 601.057 <0.3A @230v
- 610.100 <0.5A @230v
- 610.02 <0.2A @230v

**Operating temperature** 0-50°C

**Relative humidity** 0% to 95% non condensing

**MTBF** >50,000 hours

**Accuracy**

- Stand-alone operation: 99.9998% @ 20°C ±3°C
- Synchronised to MSF or DCF: within 20mS of UTC
- Synchronised to GPS: with 1mS of UTC

**EMC** 601 & 610 frequency control clocks, when installed and 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

## case types ▲

|           |   |
|-----------|---|
| case code | type  |
| .S        | Standard surface mounting case supplied with multi-angle mounting brackets  |
| .FP       | Flush mounting with a 6mm wide (0.25") front retaining bezel and supplied with rear mounting clamps for mounting in a panel with rear access                                  |
| .FB       | Flush mounting with a 6mm wide (0.25") front retaining bezel and a steel mounting box for mounting in a solid wall  |
| .SS       | Single sided clock for ceiling suspension, supplied with two support tubes for a drop of up to 1m - (39"). Support tubes for longer drops are available at extra cost         |
| .DS       | Double sided clock for ceiling suspension, supplied with two or more support tubes for a drop of up to 1m - (39"). Support tubes for longer drops are available at extra cost |

## order codes ▲

|                            |   |                                      |                                |                              |  |
|----------------------------|---|--------------------------------------|--------------------------------|------------------------------|--|
| 601.057.G.SS.black-110v ac |   |                                      |                                |                              |  |
| 601                        | .057                                    | .G                                   | .SS                            | .Black                       | -110v ac                                   |
| <b>basic part number</b>   | <b>display height</b>                   | <b>display colour</b>                | <b>case type</b>               | <b>case colour</b>           | <b>operating voltage</b>                   |
| 601                        | .057 = 57mm - 2.3"<br>.100 = 100mm - 4" | .R = red<br>.G= green<br>.Y = yellow | .S<br>.FP<br>.FB<br>.SS<br>.DS | .silver<br>.black<br>.RALxxx | -24v dc<br>-48v dc<br>-110v ac<br>-230v ac |

## special designs ▲

If you have a special LED calendar clock requirement with a display or case design that is not covered by our standard range please do not hesitate to contact our technical department.