# HIGH DURABILITY TIME CLOCK DISPLAYS

## Analogue and Digital Public Display and Console Clocks




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ANAB ACCREDITED ISO/IEC 17025 ANSI/NCSL Z540-1

**AS9100D Certificate Number : C0210021-AS3**

JOSCAR

# HIGH DURABILITY TIME CLOCK DISPLAYS

## M350 Series - Digital Console Clocks


## Overview

The M350 LED Console Time Display is ideal in any control room environment or operations control centre where clear and precise time display is needed. The unit dimensions conform to standard DIN dimensions and are readily incorporated into any console design.

A comprehensive range of digit colours, digit sizes and data interfaces are available to suit operation with a variety of system equipment configurations and master clocks, compatible with 50 industry standard serial timecodes as well as NTP. Operational display modes include Time of Day and Date Display options.
All displays clocks are provided with a TCXO based real time clock which maintains an accurate time display during periods of holdover should there be a loss of synchronised master clock time.

Each console clock has a two button menu interface allowing display brightness adjustment as well as menu access and configuration for UTC or local time setting preferences.
In addition, all units have a built in web based configuration server allowing full access to the menu configurations and IP address, subnet & gateway settings, thereby facilitating additional monitoring and remote setup capability.

All units are built to ISO9100D aerospace quality standards and are designed and supplied as long life, highly durable display units, specifically for use in high integrity and high reliability applications.

**Typical applications include:**
Rail - Network Control Room
Airports - Air Traffic Control Room
Defence & Aerospace - Mission Control
Security Control e.g. Police HQs, universities, hospitals, etc

| Features | | Options and ratings |
|---|---|---|
| • High-intensity LED digits | **Single/Double Side** | Single sided |
| • Simple to configure for specific applications with a large range of options (see table) | **No. of Digits** | 6 |
| | **Digit Size (mm)** | [13x6] or [20x4+13x2] or [25x4+20x2] or [25x6] |
| | **Digit Type** | Seven Segment |
| | **Digit Colours** | Red or Yellow or Green |
| • Excellent readability | **Input Signal** | NTP or RS422 / RS485 / RS232 Serial Timecodes |
| • TCXO based Real Time Holdover Clock | **Power** | Power Over Ethernet (PoE) or Mains (90-264VAC 50/60Hz) |
| | **Front** | Acrylic |
| • Suitable for interior applications | **Application** | Indoor equipment panel consoles |
| • User configuration via web browser | **Serial Interface** | RS232 or RS422 or RS485 Link configured - 9 Way D Socket |
| | **Network Interface** | RJ45 100BaseT - NTPv3 [RFC1305] |
| • Standard DIN IEC 61554 (DIN 43700) dimensions | **Case Finish** | Clear Chem Film per MIL-DTL-5541F Class 2 Type 2 |
| | **Environmental** | Operating 0°C to +50°C 0-95% R.H. Non Condensing |
| | **TCXO Holdover** | 1st year 1ppm : 600µs in 24 hrs |
| • Fully CE & RoHS Compliant | **Sync Indication** | Flashing display colons indicate holdover |

| Digit Height (mm) | Overall Dimensions (including Bezel) | | | Cutout Dimensions | | Weight(Kg) | Power (W) |
|---|---|---|---|---|---|---|---|
| | Width(mm) | Height(mm) | Depth (mm) | Width(mm) | Height(mm) | | |
| 13 | 144 | 72 | 200 | 138 | 66 | 2 | 15 |
| 20 x 4 + 2 x 13 | 144 | 72 | 200 | 138 | 66 | 2 | 15 |
| 25 x 4 + 20 x 2 | 192 | 96 | 200 | 186 | 90 | 2 | 15 |
| 25 x 6 | 192 | 96 | 200 | 186 | 90 | 2 | 15 |

# HIGH DURABILITY TIME CLOCK DISPLAYS

## M355 Series - Public Digital Display Clocks


## Overview

The M355 LED Time Display is ideal in any interior public display application where clear and precise time display information is needed.

A comprehensive range of digit colours, digit sizes and data interfaces are available to suit operation with a variety of system equipment configurations and master clocks, compatible with 50 industry standard serial time codes as well as NTP. Operational display modes include Time of Day and Date Display options.

All displays clocks are provided with a TCXO based real time clock which maintains an accurate time display during periods of holdover should there be a loss of synchronised master clock time.

The units have a built in web based configuration server allowing full access to the menu configurations and IP address, subnet & gateway settings, thereby facilitating full monitoring and remote setup capability allowing brightness, UTC and/or local time preferences to be controlled.

All units are built to ISO9100D aerospace quality standards and are designed and supplied as long life, highly durable display units, specifically for use in high integrity and high reliability applications.

**Typical applications include:**

Rail, sea and airport terminals, public stadiums and venues, banks, factories, hospitals and public halls.

| Features | | Options and ratings |
|---|---|---|
| • **High-intensity LED digits**<br>• **Simple to configure for specific applications with a large range of options (see table)**<br>• **Excellent readability**<br>• **TCXO based Real Time Holdover Clock**<br>• **Suitable for interior applications**<br>• **User configuration via web browser**<br>• **Fully CE & RoHS Compliant**<br>• **Section 12 Compliant - Rail Fire & Safety** | **Single/Double Side** | Single or double sided |
| | **No. of Digits** | 4 (HH:MM) or 6 (HH:MM:SS) |
| | **Digit Size (mm)** | 60mm / 100mm / 150mm / 200mm |
| | **Digit Type** | Seven Segment |
| | **Digit Colours** | Red or Yellow or Green |
| | **Input Signal** | NTP or RS422 / RS485 / RS232 Serial Timecodes |
| | **Power** | Power Over Ethernet (PoE) or Mains (90-264VAC 50/60Hz) |
| | **Front** | Acrylic or Glass (Section 12 compliance for Rail fire & safety) |
| | **Application** | Indoor public displays |
| | **Serial Interface** | RS232 or RS422 or RS485 Link configured - 9 Way D Socket |
| | **Network Interface** | RJ45 100BaseT - NTPv3 [RFC1305] |
| | **Case Finish** | Black Anodised to MIL-A-8625 Type 2, Class 2 |
| | **Environmental** | Operating 0°C to +50°C 0-95% R.H. Non Condensing |
| | **TCXO Holdover** | 1st year 1ppm : 600µs in 24 hrs |
| | **Sync Indication** | Flashing display colons indicate holdover |
| | **Mounting** | Ceiling or Wall - supplied with brackets |

| Size | Display Information | Digit Height (mm) | Width (mm) | Height (mm) | Depth (mm) | Weight (kg) | Max viewing Distance (m) |
|---|---|---|---|---|---|---|---|
| 4 digit | [ HH:MM ] | 60 | 325 | 81 | 82 | 1.6 | 25 |
| | [ HH:MM ] | 100 | 468 | 136 | 82 | 2.2 | 50 |
| | [ HH:MM ] | 150 | 625 | 190 | 82 | 3 | 75 |
| | [ HH:MM ] | 200 | 820 | 250 | 82 | 4.2 | 100 |
| 6 digit | [ HH:MM:SS ] | 60 | 362 | 81 | 82 | 1.8 | 25 |
| | [ HH:MM:SS ] | 100 | 633 | 136 | 82 | 2.5 | 50 |
| | [ HH:MM:SS ] | 150 | 930 | 190 | 82 | 3.7 | 75 |
| | [ HH:MM:SS ] | 200 | 1220 | 250 | 82 | 5.5 | 100 |

# HIGH DURABILITY TIME CLOCK DISPLAYS

## M355-LF - Line Frequency Display


## Overview

The M355-LF LED Time Display is ideal in any interior public display application where a clear indication of AC line frequency in digital format is required. The display can be used in conjunction with any time and frequency equipment with the required output interface.

These displays are suitable for interior applications where clear presentation of AC line frequency is required, e.g. Power Grids and laboratory environments.

The line frequency display provides precise and convenient reference for visual monitoring of mains frequency output. The display can operate as a stand-alone unit, or it can be used as a remote display in conjunction with a Master Clock, which includes AC Measurement capability.

| Features | | Options and ratings |
|---|---|---|
| • AC Line frequency display to 3 decimal places<br>• High-intensity LED digits<br>• Excellent readability<br>• Suitable for interior applications | **Single/Double Side** | Single |
| | **No. of Digits** | 6 |
| | **Digit Size (mm)** | 60mm / 100mm |
| | **Digit Type** | Seven Segment |
| | **Digit Colours** | Red or Yellow or Green |
| | **Input Signal** | Line AC |
| | **Power** | Mains (90-264VAC 50/60Hz) |
| | **Front** | Acrylic |
| | **Application** | Indoor public displays |
| | **Case Finish** | Black Anodised to MIL-A-8625 Type 2, Class 2 |
| | **Environmental** | Operating 0°C to +40°C 0-95% R.H. Non Condensing |
| | **Line Frequency Measurement Input** | 110 - 240 V AC +/- 10% 48-62 Hz |
| | **Line Frequency Measurement Accuracy** | +/- 0.001 Hz |
| | **Display Format Resolution** | Line frequency to 3 decimal places |
| | **Approvals** | CE Compliant |
| | **Mounting** | Ceiling or Wall - supplied with brackets |

# HIGH DURABILITY TIME CLOCK DISPLAYS

## M373 Series - Outdoor Public Digital Display Clocks


## Overview

The M373 LED Time Display is ideal in any interior or exterior public display application where clear and precise time display information is needed.

A comprehensive range of digit colours, digit sizes and data interfaces are available to suit operation with a variety of system equipment configurations and master clocks, compatible with 50 industry standard serial time codes as well as NTP. Operational display modes include Time of Day and Date Display options.

All M373 units are provided with a TCXO based real time clock which maintains an accurate time display during periods of holdover should there be a loss of synchronised master clock time. All units are sealed to IP65 (IEC529) and are glass fronted for compliance with Section 12 Railway Fire & Safety Regulations.

The units have a built in web based configuration server allowing full access to the menu configurations and IP address, subnet & gateway settings, thereby facilitating full monitoring and remote setup capability allowing brightness, UTC and/or local time preferences to be controlled.

All units are built to ISO9100D aerospace quality standards and are designed and supplied as long life, highly durable display units, specifically for use in high integrity and high reliability applications.

**Typical applications include:**
Rail, sea and airport terminals, public stadiums and venues, banks, factories, hospitals and public halls.

| Features | | Options and ratings |
|---|---|---|
| • High-intensity LED digits<br>• Robust construction to IP65 (IEC 529)<br>• Simple to configure for specific applications with a large range of options (see table)<br>• Excellent readability day or night<br>• TCXO based Real Time Holdover Clock<br>• Suitable for interior and exterior applications<br>• User configuration via web browser<br>• Fully CE & RoHS Compliant<br>• Section 12 Compliant - Rail Fire & Safety | **Single/Double Side** | Single or double sided |
| | **No. of Digits** | 4 (HH:MM) or 6 (HH:MM:SS) |
| | **Digit Size (mm)** | 60mm / 100mm / (4 x 100mm + 2 x 60mm) |
| | **Digit Type** | Seven Segment |
| | **Digit Colours** | Red or Yellow or Green |
| | **Input Signal** | NTP or RS422 / RS485 / RS232 Serial Timecodes |
| | **Power** | Power Over Ethernet (PoE) or Mains (90-264VAC 50/60Hz) |
| | **Front** | Glass : Section 12 compliance for Rail fire & safety |
| | **Application** | Indoor and outdoor public displays |
| | **Serial Interface** | RS232 or RS422 or RS485 Link configured - 9 Way D Socket |
| | **Network Interface** | RJ45 100BaseT - NTPv3 [RFC1305] |
| | **Case Finish** | Painted : RAL9007 Aluminium Grey or RAL 9005 Jet Black<br>Option for alternative colours per order :-<br>e.g. RAL9006, Grey NCS-6502 |
| | **Environmental** | Operating : -20°C to +50°C 0-100% R.H. Non Condensing : IP65 |
| | **TCXO Holdover** | 1st year 1ppm : 600µs in 24 hrs |
| | **Sync Indication** | Flashing display colons indicate holdover |
| | **Mounting** | Ceiling or Wall - supplied with brackets |
| | **Vibration** | 0.125mm (0-50Hz) 0.025mm (50-100Hz) |
| | **Shock** | Free drop of 250mm |

| Size | Display Information | Digit Height (mm) | Width (mm) | Height (mm) | Depth (mm) | Weight (kg) | Max viewing Distance (m) |
|---|---|---|---|---|---|---|---|
| 4 digit | [ HH:MM ] | 60 x 4 | 405 | 168 | 136 | 4.6 | 25 |
| | [ HH:MM ] | 100 x 4 | 560 | 260 | 210 | 5.2 | 50 |
| 6 digit | [ HH:MM:SS ] | 60 x 4 | 405 | 168 | 136 | 4.8 | 25 |
| | [ HH:MM:SS ] | 100 x 4 + 60 x 2 | 690 | 260 | 210 | 5.5 | 50 |
| | [ HH:MM:SS ] | 100 x 6 | 690 | 260 | 210 | 5.7 | 50 |

# HIGH DURABILITY TIME CLOCK DISPLAYS

## M385 Series - Smart Analogue Display Clocks

## Overview

M385 Smart analogue clocks provide a high quality, high readability time display solution in any interior or exterior application where clear and precise analogue time display information is needed, night or day.

A wide range of sizes, back lighting options and data interfaces make these clocks suitable for a variety of applications ranging from small internal offices and waiting rooms to large public venues, such as parks and public concourses.

The network enabled units have a built in web based configuration server allowing full access to the menu configurations and IP address, subnet & gateway settings, thereby facilitating full monitoring, remote setup and local time preferences to be controlled.

All units are designed and supplied as long life, highly durable clocks ideal for high reliability applications.
Options for timekeeping from the master clock system include pulsed, serial or NTP interfaces.
All clocks automatically adjust to the correct master clock time upon receipt of a valid time code signal.

**Typical applications include:**

Rail, sea and airport terminals, public stadiums and venues, banks, factories, hospitals and public halls.

| Features | | Options and ratings |
|---|---|---|
| • **Suitable for interior & exterior use**<br>• **Robust construction to IP55 (IEC 529)**<br>• **Excellent readability day or night**<br>• **TCXO based Real Time Holdover Clock**<br>• **User configuration via web browser**<br>• **Fully CE & RoHS Compliant**<br>• **Automatic adjustment to time signal** | **Single/Double Side** | Single or double sided |
| | **Hands** | Hours & Minutes or Hours, Minutes & Seconds |
| | **Clock Diameter (mm)** | 230mm / 300mm / 400mm / 600mm / 800mm |
| | **Back light Illumination** | None / Fluorescent / LED |
| | **Colours** | Grey / White / Clear anodised aluminium - RAL737 |
| | **Input Signal** | NTP or RS422 / RS485 / RS232 Serial Timecodes |
| | **Power** | Power Over Ethernet (PoE) or Mains (90-264VAC 50/60Hz) |
| | **Connections** | Internal terminal blocks for power and data |
| | **Application** | Indoor and outdoor public displays |
| | **Serial Interface** | RS232 or RS422 or RS485 Link configured - Terminal blocks |
| | **Network Interface** | NTPv3 [RFC1305] |
| | **Environmental** | Operating : -20°C to +50°C 0-95% R.H. Non Condensing : IP55 |
| | **TCXO Holdover** | 1st year 1ppm : 600µs in 24 hrs |
| | **Service Life MTBF** | > 85000 Hrs |
| | **Mounting** | Ceiling or Wall - supplied with brackets |
|  | **Viewing Distances** | 230mm diameter - 10 metres<br>300mm diameter - 20 metres<br>400mm diameter - 30 metres<br>600mm diameter - 60 metres<br>800mm diameter - 100 metres |