DIGITAL FLAMEPROOF SYNCHRONIZED CLOCKS

WIRED RS 485 COMMUNICATION I WIRELESS RF COMMUNICATION

Salient Features:

Flameproof Digital Synchronized Clocks are housed in Aluminium LM- 6 Body Certified by CIMFR, Dhanbad for use in Gas Group Areas I, II, II A & II B. The Flameproof Master & Slave Synchronized Clock Systems work on wired RS485 Modbus Communication & optionally on Wireless RF Communication.

Wired RS 485 Communication:

In the wired RS 485 communication, the slave clocks (upto 120 Nos.) can be connected to the master clock via a 2 core communication cable multidrop network & the master clock time is synchronized with all the slaves. The Master clock can be an Ethernet Master Clock (which communicates with the Server Time) & the same server time is transmitted to all the slave clocks over RS 485 wired communication .

Optionally, the Master Clock can be a GPS Clock, which takes time directly from the GPS Satellite network & the same GPS accurate time is transmitted over RS 485 wired communication to slave clocks.

Upto 120 Clocks can communicate over RS 485 Wired communication network.

Wireless Radio Frequency (RF) Communication:

In the Wireless RF communication, the slave clocks (upto 108 Nos.) can be connected to a single master clock without any need of communication cabling. The Master Clock time is automatically updated every second with the slave clocks over Wireless RF communication using the free to air 865 MHz radio frequency.

The Master Wireless RF clock can be an Ethernet Master Clock (which communicates with the Server Time) & the same server time is transmitted to all the slave clocks over wireless RF communication.

Optionally, the Master Clock can be a GPS Clock, which takes time directly from the GPS Satellite network & the same GPS accurate time is transmitted over Wireless RF communication to slave clocks

In the wireless RF communication clocks , the Master Clock talks to the nearest slave clock & this slave clock , in turn, talks to the next slave clock, thus forming a Wireless Mesh Network. In the Wireless RF Mesh Network, the Master clock can be anywhere & the slave clocks form a mesh network among themselves, thus increasing the distance of communication. Standard range of wireless communication is upto 1 Km. line of sight.

Flameproof Clocks are available in 2 Sizes of Display – 2.5" & 4" Height 7 Segment Suer Bright Red LED Displays.

In the 2.5" Height Display clocks, all the 6 Digits (HH:MM:SS) are 7 Segment Red LED Displays. The 2.5" Height Display Clocks also come in the Hours: Minutes (HH:MM) Format readout.

In the 4" Height Display clocks, the Hours & Minutes (HH:MM) are 4" High 7 Segment Red LED Displays & the seconds (SS) are 2" High 7 Segment Red LED Displays.

Model AI-CL4-S-FLP

Flameproof 4" Clock

Model AI-CL2-S-FLP

Flameproof 2.5" Clock

Model AI-CI2-S-FLp

Flameproof 2.5" Clock
HH:MM

Time is accurately maintained in the Digital Clocks even in the case of power cut by the inbuilt clock backup battery. In the case of GPS Clocks, the time accuracy is +/-1 second, since the time is synchronized to the Global Positioning Satellite time. In the case of Non GPS clocks, the time accuracy is +/-60 seconds (+/- 1 minute) per year.

The Slave Clocks are available in Stainless Steel Outer Overall Enclosures for Clean Rooms or pharma manufacturing blocks & also Flameproof Aluminium LM-6 Body Certified by CIMFR, Dhanbad for use in Gas Group Areas I, II, IIA & IIB. Overall stainless steel enclosure boxes in S.S.316 for the flameproof clocks are also available

Specifications

Digital Ethernet Master Clock (Model AI-CL2-ETH-M-FLP)	4 Digits 2.5" High 7 Segment Super Bright Red LED Display for Hours : Minutes (HH:MM) with Ethernet TCP/IP Communication in Flameproof Enclosure/Optional 6 Digits (HH:MM:SS)
Digital GPS Master Clock (Model AI-CL2-GPS-M)	6 Digits 2.5" High 7 Segment Super Bright Red LED Display for Hours ,Minutes & Seconds (HH:MM:SS) with GPS Communication
Digital Flameproof Slave 2.5" High Display Clock (Model AI-CL2-S-FLP)	Slave Clock 6 Digits 2.5" High 7 Segment Super Bright Red LED Display for Hours , Minutes & Seconds (HH:MM:SS) communicating with Ethernet Master Clock or GPS Master Clock
Display Flameproof Slave 4" High Display Clock (Model AI-CL4-S-FLP)	Slave Clock 6 Digits 4" High 7 Segment Super Bright Red LED Display for Hours & Minutes & 2" High Display for Seconds (HH:MM:SS) communicating with Ethernet Master Clock or GPS Master Clock
Communication (Optional only for Synchronized Clocks)	Standard RS 485 Wired Multidrop Communication or Optional Wireless RF communication, Wireless RF Clocks have a range of 1 Km. Line of Sight & work in the Mesh Network Topology
Time Setting	By Way of Wireless Infra- Red Remote Control for time setting in Master or Slave Clocks, in case of communication failure
Time Display	HH: MM: Secs, 24 Hours Time Format / HH:MM 24 Hours Time Format
GPS Receiver Specifications	Antenna Type : Active Cold Start : 45 Seconds (Avg) Antenna Wire Length ; 3/5 mtrs. Warm Start : 45 Seconds (Avg) Protocol : NMEA Standard Hot Start : 2 Seconds
Ethernet Clock Specifications	Ethernet TCP/IP Protocol communication in Master clock with Customized Time Synchronization Software for Time Setting & IP Configuration in Master Clock
Accuracy Slave Standalone	+/-60 Seconds per year in case of no communication
Accuracy (GPS Option)	+/-1 Second , Direct Satellite Time
Accuracy (Ethernet Option)	+/- 1 Second , as per server time
Size (Flameproof 4")	615 x 375 (W x H) for HH:MM:SS version
Size (Flameproof 2")	280 (W)x 150(H)x115 (D) for HH:MM version
Input Supply	230 V.A.C., Single Phase , 50 Hz /Optional 24 VDC , 1 Amps
Max. No. of Slaves (Only in Synchronized Clock System)	Upto 120 Slaves Max. over Modbus RS 485 Multidrop Communication or Wireless RF Communication
Flameproof Enclosure Certificates	Flameproof Enclosure Certified by CIMFR, Dhanbad for use in Areas of Gas Groups I, II, IIA & IIB