



MC-2



DDU-24



DDU-26



DDU-44



DDU-46



NTP, PoE and
Wireless Clock System

MC-2

Wireless Master Clock

DDU-24/26

DDU-44/46

NTP, PoE and
Wireless Slave Clock

Masibus Wireless Clock System MC-2 Master Clock and DDU-24/26, DDU-44/46 Slave Clock is a perfect solution for a wide range of applications where accurate, synchronized time is required over wireless/Ethernet. It displays parameters like Time and Date.

Wireless Clock System eliminates wiring and reduces installation cost and also allows a retrofitting of an existing installation in a convenient way. Each clock can work as Slave cum repeater that helps to extend the network range. The Wireless system allows multiple Slave clocks to work on same/multiple frequency range and can retransmit without interfering with other wireless products.

Frequency hopping technology is available for error free communication in case of interference from some wireless device on some particular communication frequency.

Masibus Wireless Clock also offers the option of wired Ethernet communication using the standard NTP/SNTP protocol. Additionally, Serial communication interfaces (RS232/RS485) are available as optional features on request.

MC-2, DDU-24/26, and DDU-44/46 support multiple Serial time protocols such as NGTS, NMEA, and T-Formats over RS232/RS485 as a input/output.

DDU-24/26, DDU-44/46 also available with NTP [Network Time Protocol] with PoE [Power Over Ethernet] option.

The DDU-24/26, DDU-44/46 has built-in Battery backed RTC which maintains time in case of loss of power and communication break.

DDU-24/26, DDU-44/46 Slave Clock is specially designed with SS faceplates, Modular wall mounting compatible for Pharma & Clean room requirement. The rugged Mild Steel case with Front Soft Steel makes DDU-24/26, DDU-44/46 ideal for demanding industrial environments and elegant look. Flush LED display of DDU-24/26, DDU-44/46 offers a wide angle viewing. Time and Date Display are available in Flush Mount, Panel Mount & Wall mount versions.

DDU-24/26-XP, DDU-44/46-XP is for use in Zone 1 and 2 of Gas group IIA and IIB Hazardous areas. The enclosure is also IP-65 certified.

MC-2 Master Clock is designed in ABS Enclosure with Wall Mount or Table Top provision. Can be provided with FLP Enclosure on requirement

Features

MC-2

- Receives automatic time from network of GPS satellites / NTP Server
- Transmits the time to clocks through RF or Serial
- Synchronization of Server time system through RS232/RS485
- 6 digit 0.56" (14mm) LED Display
- Status LED indications
- Compact ABS plastic Enclosure along with Antenna
- Table-top or Wall-mount option

DDU-24/ 26 or DDU-44/ 46

- 4 digit, 2.3" (57mm), Large LED Display for DDU-24
4" (100 mm), Large LED Display for DDU-44
- 6 digit, 2.3" (57 mm), Large LED Display for DDU-26
4" (100 mm), Large LED Display for DDU-46
- Best suited for clean room applications
- In wireless communication mode, each clock can also function as a repeater, helping to extend the overall network range.
- Works in stand-alone mode if network fails
- Wall Mount, Panel Mount or Flush mount option
- DDU-24/26-XP, DDU-44/46-XP is also available in Ex-proof Enclosure for gas group IIA and IIB (IP65)
- Optional NTP [LAN Interface] with IEEE 802.3af compliant PoE
- Work as Standalone clock with GPS satellites

MC-2 and DDU-24/ 26, DDU-44/ 46

- Option to communicate on RF(866 MHz Freq.) or Serial
- Use of unlimited slave clocks within transmitter's range
- Multiple serial time frame Inputs (Optional)
 - NMEA-0183[RMC] / NGTS/ T-Format
- Retains time during loss of power/time code
- Manual Time Setting(In case of GPS Failure)
- International Time Zone option
- 12 Hour and 24 Hour Time Format
- Time and Date Display (Front keypad selectable)
- Communication loss indication
- Universal Power Supply

Application

- Synchronization with GPS System in
 - Pharmaceutical Industry and Process Industry
 - Factory/Offices/Warehouse/Canteen/Clean room
 - School/College/Healthcare units[hospital, Laboratory]
 - Airports (Equipment Room, Admin Building, ATC Tower, ACCR Room, Meteorological Room, Fire Station)

TECHNICAL SPECIFICATIONS

Specifications	MC-2 (Master Clock)	DDU-24/44 (Slave Clock)	DDU-26/46 (Slave Clock)
Display			
No of Digit	Six	Four	Six
Digit Height	0.56"(14mm)	2.3"(57mm) for DDU-24/26 4"(100mm) for DDU-44/46	
Type of Display	LED		
Display Color	RED		
Display Format	Time: HH:MM:SS Date: DD.MM.YY/ MM.DD.YY/ YY.MM.DD	Time: HH:MM Date: DD.MM / MM.DD	Time: HH:MM:SS Date: DD.MM.YY/ MM.DD.YY/ YY.MM.DD
12/24 Hour Mode	✓		
AM/PM Indication	✓		
International Time Zone	✓		
User Interface			
Push Button Switch (For Configuration)	✓		
Password Protected	✓		
RF Wireless Communication			
Wireless frequency	866 MHz		
Antenna	3 dbi Rubber-duct External Antenna	Integrated antenna	
Receiver Sensitivity	-120 dBm	-120 dBm	
Transmitter Power	+30 dBm	+20 dBm	
Distance Range (Approx.)	600m Line of site;100meters with obstacles, 50 meters with obstacles for slave to slave(depends on site conditions)		
Serial Communication (RS232 / RS485) (Optional on request)			
Protocols	NMEA-0183[RMC] / NGTS/ T-Format		
Baud Rate	4800/9600/19200/38400	9600/19200	
Terminal	4 pin, Plug-in type Connector; Wire: 2.5mm ²		
Power Supply			
Power	AC: 90-264V, 50/60 Hz, 1Ph & DC: 90-300 V		
Power Consumption	<2W	5W	
Terminal	3 pin, Plug-in type Connector		
Cable/Conductor Size	2.5mm ²		
Environmental			
Operating Temperature	0 °C to +55 °C		
Storage Temperature	-20 °C to +80 °C		
Humidity	20-95%RH(Non-Condensing)		
Physical			
Enclosure Protection	IP20		
Size [H x W x D] [in mm]	80 x 160 x 55	118 x 298 x 54 for DDU-24 175 x 460 x 70 for DDU-44(MS Enclosure) 215 x 500 x 79 for DDU-44(SS Front)	118 x 404 x 54 for DDU-26 175 x 665 x 70 for DDU-46(MS Enclosure) 215 x 705 x 79 for DDU-46(SS Front)
Weight (approx.)	0.4Kg	1.5Kg for DDU-24 2.8 Kg for DDU-44(MS Enclosure) 3.0 Kg for DDU-44(SS Front)	1.9 Kg for DDU-26 4.0 Kg for DDU-46(MS Enclosure) 4.1 Kg for DDU-46(SS Front)
Material	ABS	Front plate (SS) and Enclosure Mild Steel for DDU-24/26, DDU-44/46 Mild Steel for DDU-44/46	
Mounting	Wall Mount/ Table Top	Wall Mount/ Panel/ Flush Mount	
GPS Receiver for MC-2/Standalone Clock		Optional NTP [LAN Interface] for Slave Clocks	
Timing Accuracy	< 15 ns with GPS Receiver (Receiver is locked on fixed position)	Time Sync Protocol	NTP V3, UDP, Telnet
Positioning Accuracy	< 10m	Internet Protocol	IP V4
Input Frequency	1575.42 MHz L1 C/A code	Mode	Client
Tracking	12 parallel channels	Protocol Time Format	UTC
Acquisition Time	Hot Start < 5 sec Warm Start < 38 sec Cold Start < 45 sec	Physical Interface	RJ45, 10/ 100 Mbps
GPS Antenna for MC-2/Standalone Clock		PoE [Power Over Ethernet] for NTP Slave Clocks	
Type	Active L1, GPS, 28 dB gain	Standard	IEEE 802.3af
Antenna Cable	RG174 (3 meters supplied with unit) [#]	Input Supply Voltage	48VDC[36VDCmin - 57VDCmax]
Operating Temperature	-40 to +85 °C	Power Consumption	<6W
Coverage	360°C Omni-directional	Terminal	100BaseT, RJ45
Ingress Protection	IP67	Cable	CAT 5
Weight (approx.)	60 g		
<small>Isolation (Withstanding voltage) Between primary terminals* and secondary terminals**: At least 1500 V AC for 1 minute Between primary terminals* and grounding terminal: At least 1500 V AC for 1 minute Between grounding terminal and secondary terminals**: At least 1500 V AC for 1 minute</small>		<small>* Primary terminals indicate power terminals ** Secondary terminals indicate RS232/485 Insulation resistance: 20MQ or more @ 500 V DC between power terminals and grounding terminal # For any different type of antenna cable and length contact HO</small>	
DDU-24-XP / DDU-26-XP			
Physical		Mounting	
Size [H x W x D] [in mm]	180 x 350 x 85 for DDU-24 180 x 455 x 85 for DDU-26	Mounting	Wall mounting with the help of 4 NOS bolts of size M8
Enclosure	Flameproof (Explosion proof) Ex-d	Cable Entry Size/no	3/4" ET-2 Nos
Area Classification	Zone 1&2	Plug Details	1 Blind Plug & 1 DC Cable gland 3/4"ET
Gas Group	IIA,IIB		
Enclosure Protection	IP65		
Weight (approx.)	5.4Kg for DDU-24/ 6.7Kg for DDU-26		

Ordering Code for MC-2

Model	Mounting	Output Type 1	Output Type 2	Input Type
MC-2	X	X	X	X
	W	N	N	1
	T	1	1	2
	Wall	None	None	GPS
	Table Top	Wireless(RF)	RS 232	Sync over RS 485
			RS 485	Sync over NTP

Note : For FLP Enclosure in MC-2 contact factory.

Ordering Code for DDU

Model	Display size	No of Digits	Mounting	Input Type 1	Input Type 2	
DDU	X	X	X	X	X	
	2	2.3"	4	4 digits	W	Wall (IP 20)
	4	4"	6	6 digits	F*	Flush Mount
					R**	Rack/Panel Mount (IP20)
					SS***	SS Box Wall Mount (IP20)
					XP	Flame Proof (IP65)
					XPSS	Flame Proof with SS Box
					XPSF	Flame Proof with SS Front Plate & Back MS
					1	Wireless(RF)
					2	NTP
				3	NTP + PoE	
				N	None	
				S	Special	

Note: DDU-44/46 is available with SS (SS-304) Front Plate without Conceal Box with wall mount key holes.

*Flush Mounting will have only front SS Plate, other part of Enclosure will be MS Material.

**Panel Mount Enclosure available in DDU-44/46 only.

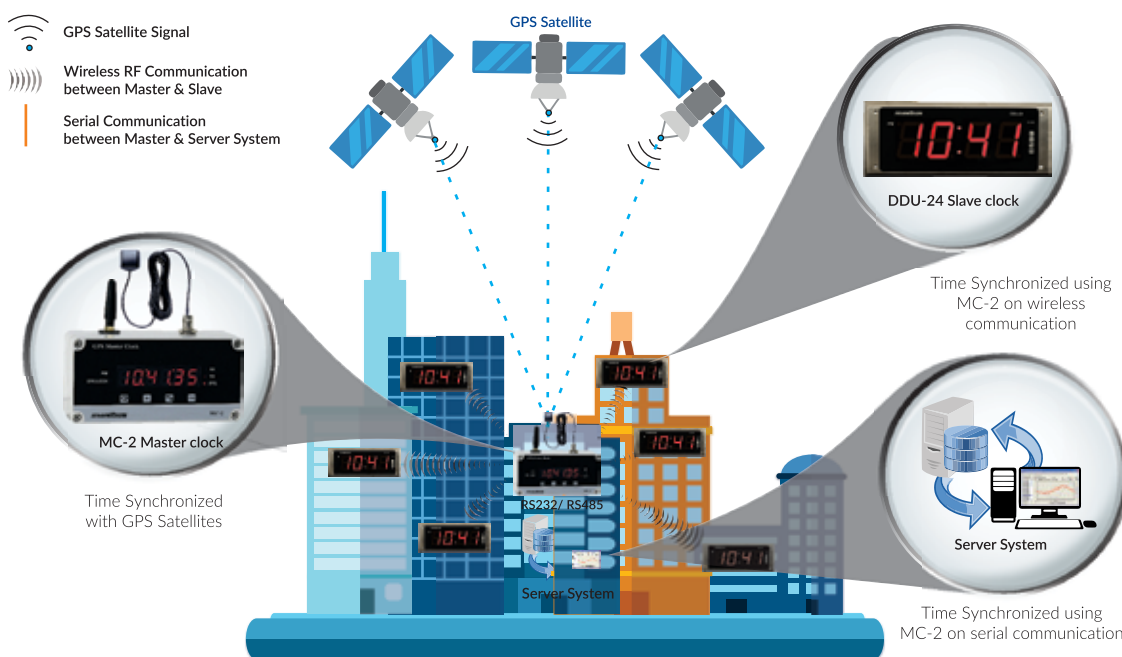
***Full SS will be available in DDU-24/26 only.

Ordering Code for Standalone DDU Clock

Model	Display size	No of Digits	Mounting	Input Type	Output Type 1	Antenna Type	Antenna Cable Length
DDU	X	X	X	X	X	X	X
	2	2.3"	4	4 digits	W	Wall (IP 20)	1
	4	4"	6	6 digits	1	GPS	1
					1	NTP	1
					1	NTP	2
						1	None
						1	Magnetic
						2	Rooftop
						3	50 Meter
						4	100 Meter
						5	Special

Note: 3 Meter Standard Antenna cable will be supplied in case of Magnetic Antenna is Selected.
RS 232 / RS 485 Output will be Provided as Standard output.

Wireless Master Slave Communication



Link for Time Sync Software for MC-2

Net T Sync Software : The Net T Sync Software is Designed for Windows-based systems to provide accurate time synchronization and server functionality.

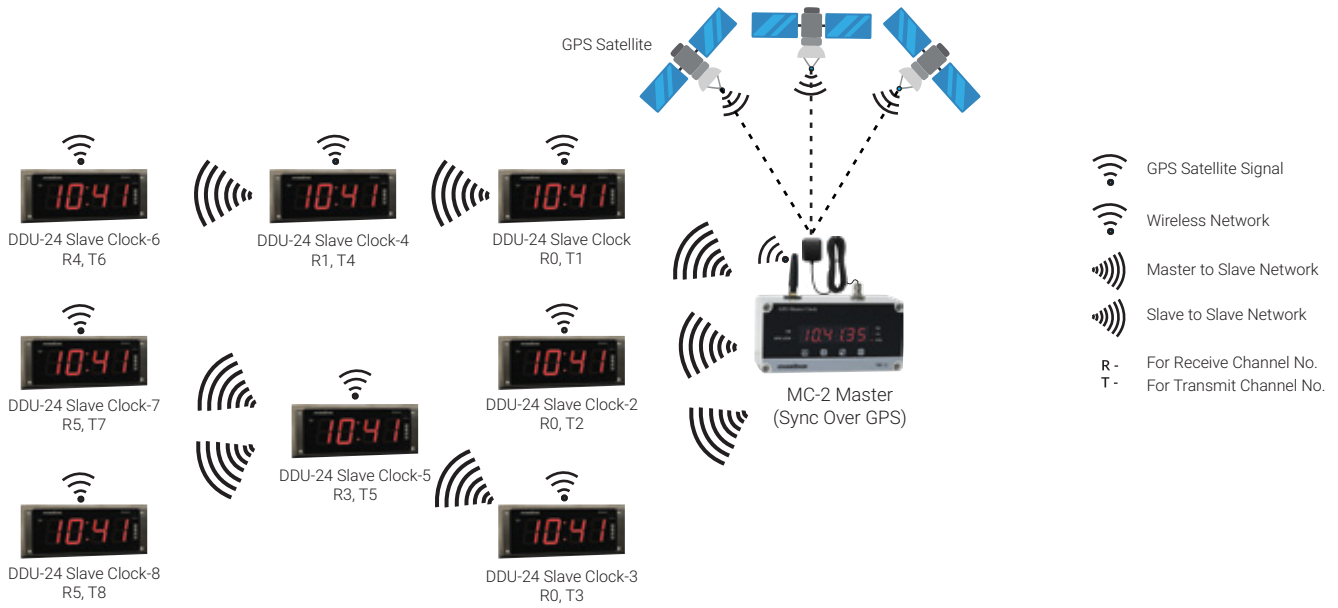
Download Link: <https://www.masibus.com/downloads/software//Net-T-Sync-V-1.0.2.1.rar>

mTime Sync Software : The mTime Sync Software is designed to synchronize the GPS MC-2 Master Clock with the system time using serial communication.

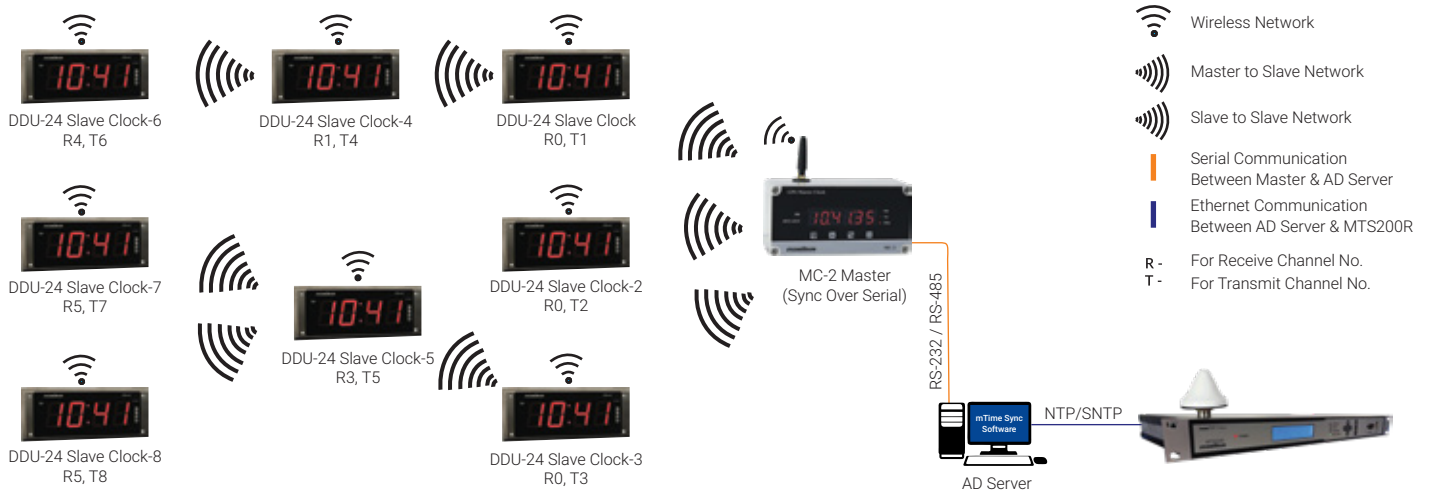
Download Link: https://www.masibus.com/downloads/software/mTime_Sync_V_1.0.4.0.rar

APPLICATION DIAGRAM:

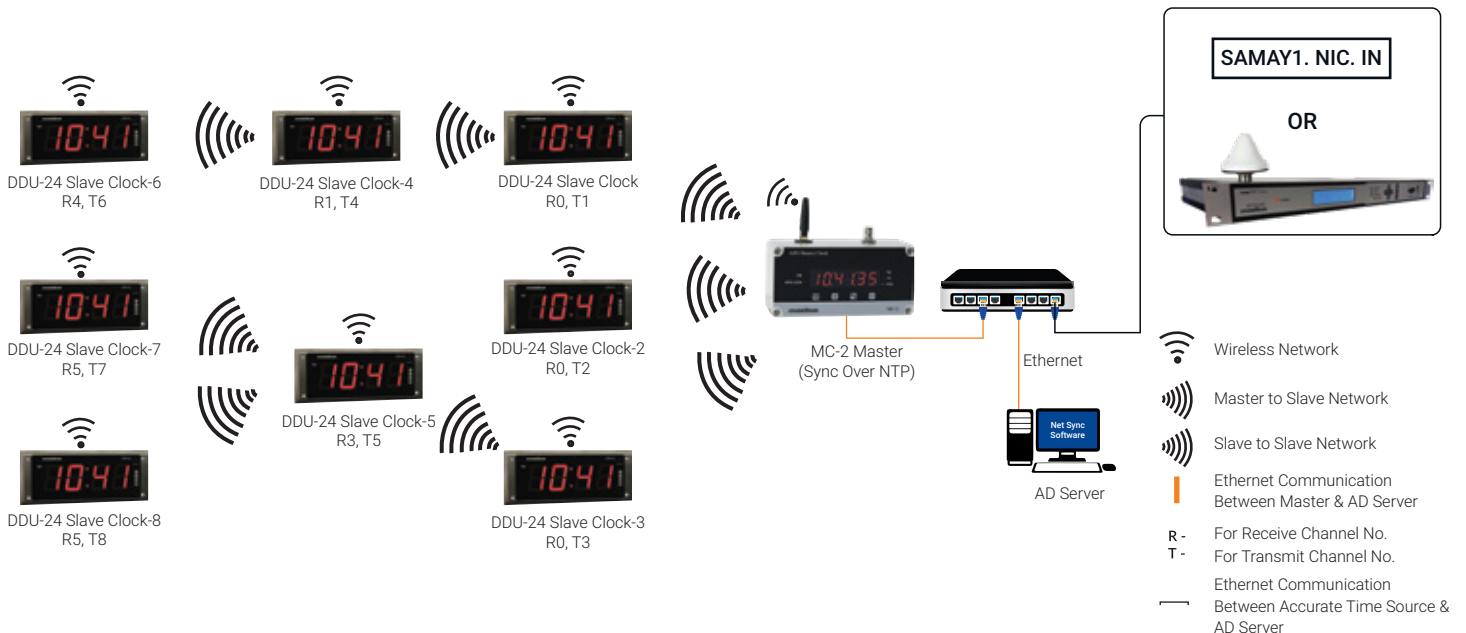
Wireless Master Sync Over GPS Application Diagram



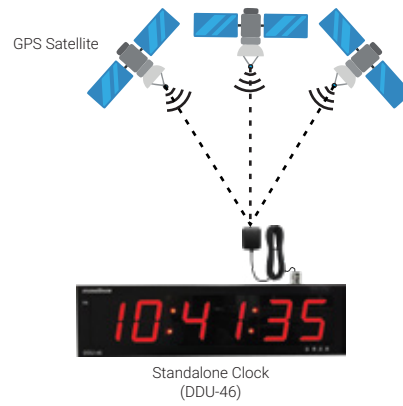
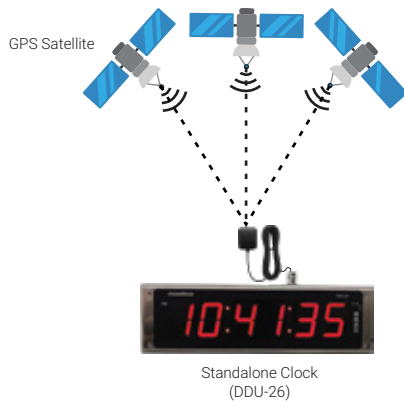
Wireless Master Sync Over Serial Application Diagram



Wireless Master Sync Over NTP Application Diagram



Standalone Clock Sync Over GPS Application Diagram



DDU 24/26 or DDU 44/46 Wireless & NTP PoE Synchronized Slave Clock

