

## DDU-XX

### Digital Display Unit



- DDU-TM (Time)
- DDU-DT (Date)
- DDU-TD (Time & Date)
- DDU-DY (Day)
- DDU-HZ (Frequency)
- DDU-CL (Calendar)

Masibus Digital Display Unit DDU-XX is a versatile, multi-featured code driven Digital Display. It displays parameters like Time, Date, Day, Calendar and Frequency. The Time, Date and Day display decodes and displays all Time protocols like IRIG-B modulated/ TTL, NTP (Ethernet) and Serial (NGTS, NMEA and T-Formats). Frequency Display decodes frequency from raw input signal or from Ethernet input. IRIG-B decoding supports the 1 KHz modulated format (B12x) and the TTL format (B00x).

The DDU has built-in Battery backed RTC which maintains time in case of loss of power and communication break. Redundant Input option is available for critical installations.

The 100mm large display can be viewed from a distance of around 50m.

The rugged aluminum case makes DDU-XX ideal for demanding industrial environments. Flush LED display of DDU-XX offers a wide angle viewing. Time, Date, Day, Calendar & Frequency Displays are available in both Panel & Wall mount versions.

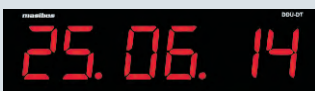
#### Features

- 4" (100mm) Large Display
- Multiple time frame Inputs
  - NMEA-0183[RMC] / NGTS/ T-Format
  - NTP Protocol
  - IRIG-B Modulated
  - IRIG-B TTL
- Retains time during loss of power/time code
- Wall/ Rack/ Table-Top Mounting for IP20 Enclosure
- Wall/ Hanging-Type Mounting for IP65 Enclosure
- Universal Power Supply
- Manual Time Setting
- Configurable International Time Zone

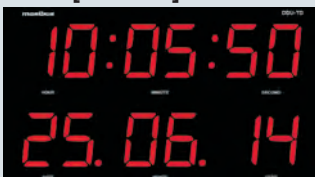
#### Applications

- Synchronization with GPS System in Electrical utilities:
  - Generation
  - Transmission
  - Energy and Demand monitoring
- Distribution Interface with SCADA/RTU
- EMS system

[DDU-DT] - IP20



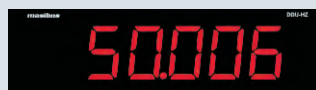
[DDU-TD] - IP20



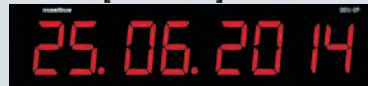
[DDU-TM] - IP65



[DDU-HZ] - IP20



[DDU-DT8] - IP20



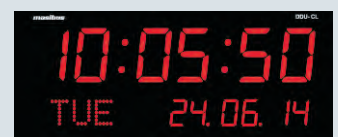
[DDU-DT] - IP65



[DDU-DY] - IP20



[DDU-CL] - IP20




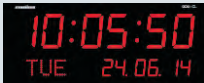
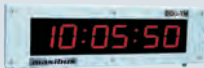
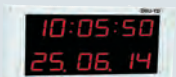




[DDU-DY] - IP65



# TECHNICAL SPECIFICATIONS

## Technical Specification Sheet

	Time/Date Display	Time & Date Display	Day Display	Frequency Display	Calendar Display (Date, Time, Day)
<b>Display</b>					
No of Digit	Six / Eight <sup>1</sup> (Date Only)	Time: Six digit Date: Six digit	Three Digits	Five Digits	Time: Six Digit Date: Six Digit Day: Three Digit
Digit Height	4" (100 mm)				Time: 4"(100 mm) Date: 2.3"(57 mm) Day: 2"(50 mm)
Type of display	7 segment	7 segment	5x7 dot matrix Type	7 segment	Time: 7-segment Date: 7-segment Day: 5x7 dot matrix type
Display Colors <sup>2</sup>	Red/Amber/Green/Blue	Time: Red Time: Red/Amber	Red/Amber/Green/Blue	Red/Amber/Green/Blue	Time: Red Date: Red/Green Day: Red/Amber
Display Format	Time: HH:MM:SS Date: DD:MM:YY/ MM.DD.YY/YY.MM.DD	Time: HH:MM:SS Date: DD:MM:YY/ MM.DD.YY/YY.MM.DD	DDD	XX.XXX	Time: HH:MM:SS Date: DD.MM.YY/ MM.DD.YY/YY.MM.DD Day: DDD
Lock/Unlock Indicator	✓	✓	✓	NA	✓
12/24 Hour Mode	✓	✓	NA	NA	✓
AM/PM Indication	✓	✓	NA	NA	✓
International Time Zones	✓	✓	✓	NA	✓
<b>User Interface</b>					
Serial Configuration [Hyper Terminal]	✓	✓	✓	NA	✓
Telnet CLIENT [with LAN Interface only]	✓	✓	✓	NA	✓
Password Protected	✓	✓	✓	NA	✓
DIP Switch	NA	NA	NA	✓	NA
<b>Signal Input</b>					
RS232/RS485	✓	✓	✓	✓	✓
IRIG-B TTL [PWM]	✓	✓	✓	NA	✓
IRIG-B Modulated	✓	✓	✓	NA	✓
NTP (LAN Interface)/ Ethernet in case of Frequency Input	✓	✓	✓	✓	✓
Line Frequency Input	NA	NA	NA	✓	NA
<b>Connectors</b>					
RS-232 [DB9]/ RS-485 [Standard 3-pin Plug-inType]	✓	✓	✓	✓	✓
Ethernet, 100BaseT, RJ-45	✓	✓	✓	✓	✓
Power, Standard 3-pin Plug-in type	✓	✓	✓	✓	✓
<b>Mechanical</b>					
IP20 Protection					
Size [HXWXD] (in mm) [Without Mounting Bracket]	177 x 646 x 68	355 x 646 x 68	177 x 326 x 68	177 x 646 x 68	266 x 646 x 68
Weight (Approx.)	4.5 Kg	7.32 Kg	2.5 Kg	4.5 Kg	5.5 Kg
Material	Aluminum with Black powder coat paint inside and out				
Front Acrylic	Smoke Grey Acrylic				
Mounting	Rack Mount / Wall Mount / Table Top				
IP65 Protection					
Size [HXWXD] (in mm)	200 x 800 x 120	400 x 800 x 120	200 x 400 x 120	200 x 800 x 120	NA
Weight (Approx.)	9 Kg	16 Kg	3.3 Kg	9 Kg	NA
Material	1.2 mm mild steel with powder coat paint inside & out				
Front Acrylic	Smoke Grey Acrylic				
Mounting	Hanging Type / Wall Mount				

# TECHNICAL SPECIFICATIONS

## Technical Specification Sheet

### Power Supply

Power	AC: 90-264 V, 47-63 Hz, 1Ph & DC: 120-370 V
Power Consumption	<10 W
Terminals	3 pin Plug-in type Connector [Cable size: 2.5 sq.mm]

### Environmental

Operating Temperature	0 °C to +55 °C
Storage Temperature	-20 °C to +80 °C
Humidity	20 to 90 % RH (Non-condensing)

**Note:-** 1. For 8 digit Date display contact factory  
2. For Display Color other than RED, please specify at the time of Order

## Time Signal Input

Input	Description	Physical Interface
Serial RS485	<ul style="list-style-type: none"> <li>Protocols: NMEA-0183[RMC] / NGTS/ T – Format</li> </ul>	2 pin Plug-in type Connector [Cable size: 2.5 sq mm]
Serial RS232	<ul style="list-style-type: none"> <li>Baud Rate: 4800/9600/19200/38400/57600/115200 bps</li> </ul>	9-pin D type female for IP20 Enclosure, 3 pin Plug-in type Connector [Cable size: 2.5 sq mm] for IP65 Enclosure
IRIG-B Modulated	<ul style="list-style-type: none"> <li>Format: IRIG-B12X</li> <li>Carrier Frequency: 1 KHz</li> <li>Modulation Ratio : 3:1</li> <li>3.3 Vpp (10K Input Impedance)</li> </ul>	BNC Female connector for IP20 Enclosure 2 pin Plug-in type Connector [Cable size: 2.5 sq. mm] for IP65 Enclosure
IRIG-B TTL (PWM)	<ul style="list-style-type: none"> <li>Format: IRIG-B00X</li> <li>TTL Input</li> <li>Impedance: 2KΩ @ 5V</li> </ul>	BNC Female connector for IP20 Enclosure 2 pin Plug-in type Connector [Cable size: 2.5 sq. mm] for IP65 Enclosure
NTP (LAN Interface)	<ul style="list-style-type: none"> <li>Time sync protocol: NTP V3, UDP, Telnet</li> <li>Internet protocol : IPv4 ; Mode: Client</li> <li>Protocol Time format : UTC</li> </ul>	RJ45, 10/100 Mbps

## Frequency Signal Input

Input	Description	Physical Interface
Serial RS485	<ul style="list-style-type: none"> <li>Based on serial Frame [Broadcasted by Server]</li> </ul>	2 pin Plug-in type Connector [Cable size: 2.5 sq. mm]
Serial RS232	<ul style="list-style-type: none"> <li>Baud Rate: 2400/4800/9600/19200 bps</li> </ul>	9-pin D type female for IP20 Enclosure, 3 pin Plug-in type Connector [Cable size: 2.5 sq. mm] for IP65 Enclosure
AC Voltage Input	<ul style="list-style-type: none"> <li>63V, 110V &amp; 240VAC Input</li> <li>Voltage range is -30% to +25% of Selected input</li> <li>45-65 Hz, Input Frequency</li> </ul>	2-pin Plug-in type Connector [Cable size: 2.5 sq. mm]
Ethernet (LAN Interface)	<ul style="list-style-type: none"> <li>Based on UDP [Broadcasted by Server]</li> </ul>	RJ45, 10/100 Mbps

### 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**  
Between secondary terminals\*\*: **At least 1500 V AC for 1 minute**

\* Primary terminals indicate power terminals.

\*\* Secondary terminals indicate RS232/485, IRIG-B TTL, IRIG-B Modulated and RJ45.

There is no Isolation between RS232/485 and IRIG-B TTL

Insulation resistance: 20MΩ or more @ 500 V DC between power terminals and grounding terminal



[DDU-TM] AMBER COLOUR DISPLAY



[DDU-TM] RED COLOUR DISPLAY



[DDU-TM] BLUE COLOUR DISPLAY



[DDU-TM] GREEN COLOUR DISPLAY

# TECHNICAL SPECIFICATIONS



DDU-CL






DDU-TD



DDU-CL

## Accessories (Optional-On request)

### Extra Mounting Clamp for IP20 Enclosure

Wall		Rack/Panel			Table Top
m-MK-FW-50-1 [177mm Height Unit]	m-MK-FW-50-2 [266 & 355mm Height Unit]	m-MK-FPL-50-1 [177mm Height Unit]	m-MK-FPL-50-2 [266mm Height Unit]	m-MK-FPL-50-3 [355mm Height Unit]	m-MK-TT-50-1
					

### Ordering Code for Time/ Date/ Day Display Unit

Model	Display Type		Mounting		Input Type 1		Input Type 2		Input Type 3		Input Type 4	
DDU	XX		X		X		X		X		X	
	TM	Time	T	Table Top (IP20)	1	RS232	N	None	N	None	N	None
	DT	Date	R	Rack/Panel (IP20)	2	RS485	1	SNTP/NTP	1	IRIG-B MOD	1	IRIG-B TTL
	DY	Day	W0	Wall (IP20)	Note: - X - Specify From Table # - Available in IP20 & Table, Panel/Rack type mount only * - For Special display type & 8 digit Date Display unit contact factory							
	TD#	Time & Date	W1	Wall (IP65)								
	CL#	Calendar	H	Hanging Type (IP65)								
	SP*	Special										

### Ordering Code for Frequency Display Unit

Model	Display Type		Mounting		Input Type	
DDU	XX		X		X	
	HZ	Frequency	T	Table Top (IP20)	1	RS232
			R	Rack/Panel (IP20)	2	RS485
			W0	Wall (IP20)	3	Ethernet
			W1	Wall (IP65)	4	Line Freq - 63VAC
			H	Hanging Type (IP65)	5	Line Freq - 110VAC
					6	Line Freq - 240VAC

Note: -

For Frequency display unit in case of Ethernet or Line Frequency input type, RS232 serial port will be given for firmware upgradation

For Display Color other than RED, as mentioned in the Technical specifications, please specify at the time of Order.