



DDU-XX Digital Display Unit

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

Masibus Digital Display Unit DDU-XX is a versatile, multi-featured code driven Digital Display. It displays parameters like Time, Date, Day and Frequency. This unit decodes and displays all Time protocols like IRIG-B modulated/ TTL, NTP (Ethernet) and Serial (NGTS, NMEA and T-Formats). 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 over 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 & Frequency Displays are available in both Panel & Wall mount versions. Day Display is of Dot Matrix LED type.

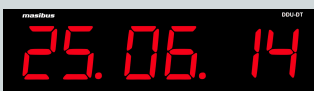
Features

- 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

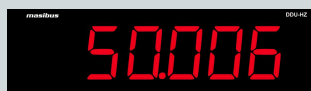
Applications

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

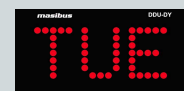
[DDU-DT] - IP20



[DDU-HZ] - IP20



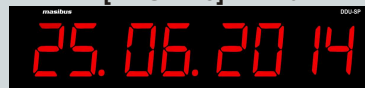
[DDU-DY] - IP20



[DDU-TD] - IP20



[DDU-DT8] - IP20



[DDU-TM] - IP65



[DDU-HZ] - IP65

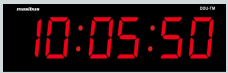







[DDU-DY] - IP65



TECHNICAL SPECIFICATIONS

Technical Specification Sheet

	Time/Date Display	Time & Date Display	Day Display	Frequency Display
Display				
No of Digit	Six / Eight** (Date Only)	Twelve	Three	Five
Digit Height	4" (100 mm)			
Type of display	LED Type, Red Color	LED Type, Red Color	5x8 dot matrix Type, Red Color	LED Type, Red Color
Display Format	HH:MM:SS / DD.MM.YY	HH:MM:SS & DD.MM.YY	DDD	XX.XXX
Lock/Unlock Indicator	✓	✓	✓	NA
12/24 Hour Mode	✓	✓	NA	NA
AM/PM Indication	✓	✓	NA	NA
International Time Zones	✓	✓	✓	NA
User Interface				
DIP Switch	✓	✓	✓	✓
Telnet CLIENT [with LAN Interface only]	✓	✓	✓	NA
Password Protected	✓	✓	✓	NA
Signal Input				
RS232/RS485	✓	✓	✓	✓
IRIG-B TTL [PWM]	✓	✓	✓	NA
IRIG-B Modulated	✓	✓	✓	NA
NTP (LAN Interface)/ Ethernet in case of Frequency Input	✓	✓	✓	NA
Line Frequency Input	NA	NA	NA	✓
Connectors				
RS-232 [DB9]/ RS-485 [Standard 3-pin MSTB Type]	✓	✓	✓	✓
Ethernet, 10BaseT, RJ-45	✓	✓	✓	Contact Factory
Power, Standard 3-pin Plug-in type	✓	✓	✓	✓
Mechanical				
IP20 Protection				
Size (mm) (Without Mounting Bracket)	177(H) x 646(W) x 68(D)	355(H) x 646(W) x 68(D)	177(H) x 326(W) x 68(D)	177(H) x 646(W) x 68(D)
Weight (Approx.)	4.5 Kg	7.32 Kg	2.5 Kg	4.5 Kg
Material	Aluminum with powder coat paint			
Front Acrylic	Smoke Grey Acrylic			
Mounting	Rack Mount/ Wall Mount/ Table Top	Rack Mount/ Table Top	Rack Mount/ Wall Mount/ Table Top	
IP65 Protection		NA		
Size (mm)	200(H) x 800(W) x 120(D)	NA	200(H) x 400(W) x 120(D)	200(H) x 800(W) x 120(D)
Weight (Approx.)	9 Kg	NA	3.3 Kg	9 Kg
Material	1.2 mm mild steel with powder coat paint	NA	1.2 mm mild steel with powder coat paint	
Front Acrylic	Smoke Grey Acrylic	NA	Smoke Grey Acrylic	
Mounting	Hanging Type/ Wall Mount	NA	Hanging Type/ Wall Mount	
Power Supply				
Power	AC: 90-264 V, 47-63 Hz, 1Ph & DC: 120-370 V			
Power Consumption	<10 W	<20 W	<10 W	
Environmental				
Operating Temperature	0 °C to +55 °C			
Storage Temperature	-20 °C to +80 °C			
Humidity	20 to 90 % RH (Non-condensing)			

** For 8 Digit Date display contact factory

TECHNICAL SPECIFICATIONS

Time Signal Input

Input	Description	Physical Interface
Serial RS485	Protocols: NMEA-0183[RMC] / NGTS/ T – Format	Plug-in type Connector
Serial RS232	Baud Rate: 4800/ 9600 bps	9-Pin D type female for IP20 Enclosure, Plug-in type Connector for IP65 Enclosure
IRIG-B Modulated	Format: IRIG-B12X Carrier Frequency: 1 KHz Modulation Ratio : 3:1 3.3 Vpp (10K Input Impedance)	BNC Female connector Plug-in type Connector for IP65 Enclosure
IRIG-B TTL (PWM)	Format: IRIG-B00X TTL Input Impedance: 2KΩ @ 5V	BNC Female connector Plug-in type Connector for IP65 Enclosure
NTP (LAN Interface)	Time sync protocol: NTP V3, UDP, Telnet Internet protocol : IPv4 ; Mode: Client Protocol Time format : UTC	RJ45, 10/100 Mbps

Frequency Signal Input

Input	Description	Physical Interface
Serial RS485	Based on serial Frame [Broadcasted by Server]	Plug-in type Connector
Serial RS232	Baud Rate: 4800/ 9600 bps	9-Pin D type female for IP20 Enclosure, Plug-in type Connector for IP65 Enclosure
AC Voltage Input	63V, 110V & 240VAC Input 45-65 Hz, Input Frequency	2-pin Plug-in type Connector
Ethernet (LAN Interface)	Based on UDP [Broadcasted by Server]	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

Accessories (Optional-On request)

Extra Mounting Clamp for IP20 Enclosure

Wall Mounting Clamp	Rack/Panel Mounting Clamp	Table Top Mounting Clamp
m-MK-FW-50-1	m-MK-FPL-50-1	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	
DDU	XX		X		X		X		X	
	TM	Time	T	Table Top (IP20)	1	RS232	N	None	N	None
	DT	Date	R	Rack/Panel (IP20)	2	RS485	1	SNTP/NTP	1	IRIG-B TTL
	DY	Day	W0	Wall (IP20)			2 [#]	IRIG-B Modulated [#]	2 [#]	IRIG-B Modulated [#]
	TD [▲]	Time & Date	W1	Wall (IP65)						
	SP ^{**}	Special	H	Hanging Type (IP65)						

Ordering Code for Frequency Display Unit

Model	Display Type		Mounting		Input Type		I/P for Line Freq.	
DDU	XX		X		X		X	
	HZ	Frequency	T	Table Top (IP20)	1	RS232	N	Not Applicable**
			R	Rack/Panel (IP20)	2	RS485	1	63VAC
			W0	Wall (IP20)	3	Ethernet	2	110VAC
			W1	Wall (IP65)	4	Line Freq	3	240VAC
			H	Hanging Type (IP65)				

Note: - X - Specify From Table

* - For Special display type & 8 digit Date Display unit contact factory

- Only 1 number of IRIG-B modulated input possible

▲ - Available in IP20 & Table, Panel/Rack type mount only

** - In case of Input type other than Line Frequency; 'I/P for Line Freq.' will be Not applicable

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

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All specifications are subject to change without notice due to continuous improvements.
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