



DDU-XX Digital Display Unit

DDU-TDC (Time/Date)

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) or GPS signal. 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 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
- GPS time signal input
- 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
- Remote time monitoring
- 4 level brightness control


Applications

Synchronization with GPS System in electrical utilities:

- Generation
- Transmission
- Energy and demand monitoring
- Distribution interface with SCADA/RTU
- EMS system

TECHNICAL SPECIFICATIONS

Technical Specification Sheet

	Time/Date Configurable Display	Time or Date Display	Time & Date Display	Day Display	Frequency Display	Calendar Display (Date, Time, Day)
Display						
No. of Digit	Six	Six / Eight ¹ (Date only)	Time: Six Date: Six	Three	Five	Time: Six Date: Six Day: Three
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	7 Segment	5x7 Dot matrix type	7 Segment	Time: 7 segment Date: 7 segment Day: 5x7 dot matrix type
Display Colors ²	Red	Red	Red	Red	Red	Time: Red Date: Red/Green Day: Red/Amber
Display Format	Time: HH:MM:SS Date: DD:MM:YY	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	✓
User Interface						
Serial Configuration [Hyper Terminal]	✓	✓	✓	✓	NA	✓
Telnet CLIENT [with LAN Interface only]	✓	✓	✓	✓	NA	✓
Password Protected	✓	✓	✓	✓	NA	✓
DIP Switch	NA	NA	NA	NA	✓	NA
Signal Input						
RS-232/RS-485	✓	✓	✓	✓	✓	✓
NTP (LAN Interface)/ Ethernet in Case of Frequency Input	✓	✓	✓	✓	✓	✓
IRIG-B TTL [PWM]	NA	✓	✓	✓	NA	✓
IRIG-B Modulated	NA	✓	✓	✓	NA	✓
Line Frequency Input	NA	NA	NA	NA	✓	NA
GPS Signal Input	✓	NA	NA	NA	NA	NA
Mechanical						
IP20 Protection						
Size [HXWXD] (in mm) [Without Mounting Bracket]	175 X 665 X 60	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.)	3.8 Kg	4.5 Kg	7.32 Kg	2.5 Kg	4.5 Kg	5.5 Kg
Material	M.S with Powder Coating Inside and Out Aluminum with black powder coat paint inside and out					
Front Acrylic Mounting	Smoke grey/ acrylic Rack mount / Wall mount / Table top / Hanging type					
IP65 Protection	NA					NA
Size [HXWXD] (in mm)	NA	200 x 800 x 120	400 x 800 x 120	200 x 400 x 120	200 x 800 x 120	NA
Weight (Approx.)	NA	9 Kg	16 Kg	3.3 Kg	9 Kg	NA
Material	NA 1.2 mm mild steel with powder coat paint					
Front Acrylic Mounting	NA Smoke grey acrylic Hanging type / Wall mount					



Technical Specification Sheet

Power Supply	Non-POE (Standard)	POE (NTP) option (Available in DDU-TDC model only)
Power	AC: 90-264 V, 47-63 Hz, 1Ph & DC: 90-300 V	48V DC [36V DC min - 57V DC] max Standard: IEEE 802.3af Aux power supply port will not be available in POE option.
Power Consumption	<10 W	<6W
Terminals	3 pin plug-in type connector [Cable size: 2.5 sq.mm]	100BaseT, RJ45
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

TECHNICAL SPECIFICATIONS

Time Signal Input

Input	Description	Physical Interface
Serial RS-485	Protocols: NMEA-0183[RMC] / NGTS/ T – Format	2 Pin plug-in type connector [Cable size: 2.5 sq mm]
Serial RS-232	Baud rate: 4800/9600/19200/38400/57600/115200 bps	9-Pin d type female for IP20 Enclosure, 3 Pin plug-in type connector [Cable size: 2.5 sq mm] for IP65 enclosure and DDU-TDC model
IRIG-B Modulated	Format: IRIG-B12X Carrier frequency: 1 KHz Modulation ratio: 3:1 3.3 Vpp (10K Input impedance)	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)	Format: IRIG-B00X TTL input Impedance: 2KΩ @ 5V	BNC Female connector for IP20 enclosure 2 Pin plug-in type connector [Cable size: 2.5 sq. mm] 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

GPS Signal Input

Timing Accuracy	< 15 ns with GPS receiver (Receiver is locked on fixed position)	BNC female connector
Positioning Accuracy	< 10 m	
Input Frequency	1575.42 MHz L1 C/A code	
Tracking	12 Parallel channels	
AcquisitionTime	Hot start < 5 sec. Warm start < 38 sec. Cold start < 45 sec.	

Antenna

Type	Active L1. GPS, 40 dB gain
Antenna Cable (<i>to be ordered separately</i>)	RG 6 (Std.) (Optional coaxial cable)
Operating Temperature	-40 to +85 °C
Coverage	360 °C
Ingress Protection	IP67
Weight	150 g

Frequency Signal Input

Input	Description	Physical Interface
Serial RS-485	Based on serial frame [Broadcasted by server]	2 Pin plug-in type connector [Cable size: 2.5 sq. mm]
Serial RS-232	Baud rate: 2400/4800/9600/19200 bps	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	63V, 110V & 240 V AC input Voltage range is -30% to +25% of selected input 45-65 Hz, input frequency	2-Pin plug-in type connector [Cable size: 2.5 sq. mm]
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



[DDU-TDC] - IP20



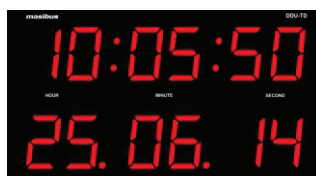
[DDU-DT] - IP20



[DDU-DT8] - IP20



[DDU-TM] - IP20



[DDU-TD] - IP20



[DDU-TM] - IP65



[DDU-DY] - IP20



[DDU-HZ] - IP20



DDU-CL

TECHNICAL SPECIFICATIONS

Ordering Code for Time / Date Configurable Display Unit (DDU-TDC)

Model	Display Type	Mounting	Input Type 1	Input Type 2
DDU	XXX	X	X	X
	TDC Time/date configurable	T Table top (IP20)	1 RS-232/RS-485	N None
		R Rack / panel (IP20)	2 GPS signal	1 SNTP/NTP
		W0 Wall (IP20)		2 NTP over POE option [^]
		H0 Hanging type (IP20)		

[^]Aux power supply port will not be available in POE option.
With GPS as an input all other input will be disabled

Accessories for DDU-TDC (Optional)

Extra Mounting Clamp for IP20 Enclosure

Rack/panel
m-MK-FPL-50-3
[177mm height unit]



Table top
m-MK-TT-50-2



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 RS-232	N None	N None	N None
	DT Date	R Rack/panel (IP20)	2 RS-485	1 SNTP/NTP	1 IRIG-B MOD	1 IRIG-B TTL
	DY Day	W0 Wall (IP20)				
	TD [#] Time & Date	W1 Wall (IP65)				
	CL [#] Calendar	H1 Hanging type (IP65)				
	SP Special					

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

Ordering Code for Frequency Display Unit

Model	Display Type	Mounting	Input Type
DDU	XX	X	X
	HZ Frequency	T Table Top (IP20)	1 RS-232
		R Rack/Panel (IP20)	2 RS-485
		W0 Wall (IP20)	3 Ethernet
		W1 Wall (IP65)	4 Line Freq - 63 V AC
		H1 Hanging Type (IP65)	5 Line Freq - 110 V AC
		6 Line Freq - 240 V AC	

Note: -
For Frequency display unit in case of Ethernet or Line Frequency input type, RS-232 serial port will be given for firmware upgradation
For Display Color other than RED, please specify at the time of Order.

Accessories for Time/ Date/ Day/ Frequency Display Unit (Optional)

Extra Mounting Clamp for IP20 Enclosure

Wall
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]

Rack/Panel
m-MK-FPL-50-2
[266mm Height Unit]



m-MK-FPL-50-3
[355mm Height Unit]

Table Top
m-MK-TT-50-1

