

6844DekaFlex Technical Data

1.1 Technical Data.

Technical data – NTP time server 6844DekaFlex	
housing measurements:	1/1 19" rack 3RU/84HP
housing protection class:	IP20
cooling:	convection
weight (FG6844DF/x/x/x/0):	4,75kg

AC power supply (with standard power supply)	
nominal input voltage:	100 – 240V AC / 47-63Hz connection via input connector compliant with IEC/EN 60320-1/C14 incl. EMI line filter

available DC power supply (with standard power supply)	
nominal input voltage:	110 – 250V DC, 18 – 36V DC or 36 – 72V DC connection via a 2-pole plug connector with additional earth connection and interlocking

Status relay for status report Sync / Power	
Status relay:	switching circuit (max.): 1.0A to 30V DC 0.3A to 60V DC 0.5A to 125V AC switching voltage (max.): 60V DC / 125V AC cycles of operation mechanically / under load: 10 millions / 10,000

General Data	
operation:	<ul style="list-style-type: none"> • FG6844DF/x/x/x/S: function board 6844DF <ul style="list-style-type: none"> o via keypad and LC-display (illuminated) o hmc Management Console via serial interface RS232 • FG6844DF/x/x/x/M: function board 6844DF <ul style="list-style-type: none"> o via keypad and LC-display (illuminated) o WebGUI of the LAN Management Module via network • LAN module 8029NTS/M <ul style="list-style-type: none"> o WebGUI of the LAN Management Module 8029NTS/M via network
display:	<ul style="list-style-type: none"> • LC-display 2x 16 digits • character height 5mm • display type: alphanumeric • background illuminated
keypad:	25 keys

Network access	
network interface LAN module 8029NTS/M for NTP/SNTP (RFC5905) / synchronization of NTP clients in IEC61850 networks:	Standard: 3 x 10/100Base-T (RJ45), mutually independent Optional: up to 7 mutually independent 10/100Base-T LAN ports
for LAN management module:	FG6844DF/x/x/x/M: 1 x 10/100Base-T (RJ45) for configuration / management of function board 6844DF

Optional signal outputs	
two (2) expansion slots for 3RU/4HP functions boards available	

6844DekaFlex Technical Data

Environmental conditions		
temperature range:	operation:	0°C to +55°C At higher temperatures an active cooling / ventilation is recommended. Other temperature ranges can be obtained from hopf .
	storage:	-20°C to +75°C
humidity:		max. 95%, not condensed

CE compliant in accordance with EMC Directive 89/336/EEC and Low Voltage Directive 73/23/EEC		
safety / Low Voltage Directive:	DIN EN 60950-1:2001 + A11 + Corrigendum	
EMC (Electromagnetic Compatibility) / Interference Resistance:	EN 610000-4-2 /-3 /-4 /-5 /-6 /-11	
interference voltage: EN 55022	EN 55022 class B	
interference radiation: EN 55022	EN 55022 class B	

GPS data	
receiver type:	12 channel phase tracking receiver, C/A code
evaluation:	L1 frequency (1,575.42 MHz)
antenna connection:	<ul style="list-style-type: none"> via BNC connector for active antennas, $U_b = 5V$ DC antenna power fed via function board 6844DF BNC connector

DCF77 data (time source on demand available)	
evaluation:	DCF77 antenna signal (77.5kHz)
antenna connection:	<ul style="list-style-type: none"> via BNC connector for active antennas, $U_b = 5V$ DC antenna power fed via function board 6844DF BNC connector

Backup clock	
maintenance free buffering:	at least 3 days / typ. 7 days / max. 10 days

MTBF data	MTBF in [h]	MTBF in years [a]
complete function board 6844DF incl. GPS receiver:	77,767	8.9
function board 6844DF incl. GPS receiver without keypad and display:	680,000	> 77.6
LAN module 8029NTS/M:	> 1,250,000	> 142.6
LAN Management module:	> 1,250,000	> 142.6

6844DekaFlex Technical Data

1.2 Internal System Accuracy.

6844DF/G/x/x/x/x (GPS version)

Internal system accuracy (System-PPS) ⁽¹⁾	
accuracy ⁽²⁾	< ± 150ns
jitter ⁽²⁾	< ± 3 * 10 ⁻⁸
free wheel stability ^(2,3)	< ± 1 * 10 ⁻⁷

6844DF/D/x/x/x/x (DCF77 version on demand)

Internal system accuracy (System-PPS) ⁽¹⁾	
accuracy ⁽⁴⁾	< ± 2msec compared to the on-site DCF77 signal of the antenna
jitter	< ± 1 * 10 ⁻⁶
free wheel stability ⁽⁴⁾	< ± 2 * 10 ⁻⁶

(1) The system crystal frequency is the leading factor for the generation of system-PPS and 1kHz (msec) and is thus crucial for the system accuracy.

(2) after at least 30 minutes of continuous synchronization at constant temperature

(3) max. 30 minutes after synchronization loss at constant temperature

(4) after at least 60 minutes of continuous synchronization at constant temperature

1.3 Technical Data for LAN module 8029NTS/M.

LAN	
network connection:	via LAN-cable with RJ45-connector (recommended cable type CAT5 or higher)
network interface ETH0:	10/100 Base-T
Ethernet-compatibility:	Version 2.0 / IEEE 802.3
request rate per second:	max. 1,000 requests
number of connectable clients:	theoretically unlimited

time protocols

- NTPv4 Server (downwardly compatible NTPv3, NTPv2)
- NTP Broadcast
- NTP Multimode
- NTP Client for additional NTP server (redundancy)
- SNTP Server
- RFC-867 DAYTIME Server
- RFC-868 TIME Server
- SINEC H1 time telegram (Activation Key necessary)

Configuration channels

- http / https-WebGUI (browser based)
- Telnet
- SSH
- **hmc** (**hopf** Management Console Software)

TCP/IP network protocols

- http / https
- DHCP
- Telnet
- SSH
- SNMP (Activation Key necessary)
- NTP (incl. SNTP)

6844DekaFlex Technical Data

RFC

- NTPv4 - Protocol and Algorithms Specification (RFC 5905)
- NTPv4 - Autokey Specification (RFC 5906)
- PPS API (RFC 2783)
- DHCP (RFC 2131)
- Time Protocol (RFC 868)
- Daytime Protocol (RFC 867)
- HTTP (RFC 2616)
- HTTPS (RFC 2818)
- SSH-2 (RFC 4250-4256, 4335, 4344, 4345, 4419, 4432, 4716, 5656)
- TELNET (RFC 854)
- SNMP (RFC 1155-1157, RFC 1213, RFC 1901-1908, RFC 3410-3418, RFC 5343, RFC 5590-5591, RFC 6353)
- SYSLOG (RFC 5424)
- SMTP (RFC 821, RFC 1869-1870, RFC 6152, RFC 5321)

1.4 Technical Data for LAN management module. (only for FG6844DF/x/x/x/x/M)

network connection:	via LAN-cable with RJ45-connector (recommended cable type CAT5 or higher)
network interface ETH0:	10/100 Base-T
Ethernet-compatibility:	version 2.0 / IEEE 802.3

MTBF data	
MTBF:	> 1,250,000 hours

TCP/IP network protocols

- http / https
- DHCP
- Telnet
- SSH
- SNMP

Configuration channels

- http / https-WebGUI (browser based)
- Telnet
- SSH
- **hmc** (**hopf** Management Console Software)
- **hopf** system keypad and display

management functions

- http / https
- SNMP, SNMP Traps (MIB-II, Private Enterprise MIB)
- e-mail-notification
- syslog
- update via TCP/IP