Glossary

The glossary is your easy-to-use reference to familiarize yourself with the most common terms and definitions for time systems, clocks, and time reference.

English	Synonyms	Explanation
AFNOR NFS 87-500		AFNOR NFS 87-500 is a standardized French time code similar to IRIG, but it contains additional information about day, month, day of month, and year. All of this time information is submitted every second with the aid of a modulation frequence of 1kHz.
ASCII		The American Standard Code for Information Interchange (ASCII) is a 7-bit character encoding scheme for numbers, letters and control characters used in PCs with DOS. Windows-based PCs use the ANSI character encoding. All numbers and letters of the ASCII code are integrated within the ANSI code from positions 32 to 127.
Broadcast		In a network, Broadcast means a message will be sent to all members of the network.
Cat 5/6/6A		Cat5/6/6A are the most commonly used cables for networks these days. They differ in their maximal working frequency: Cat5 up to 100MHz Cat6 up to 250MHz Cat6A up to 500MHz
Current Loop		For data communication, a Current Loop is a serial communication interface that uses current drops instead of voltage changes to transmit data.
DCF 77		The time signal transceiver DCF 77 is a long-wave radio in Mainflingen (D), which is used by most radio-controlled clocks in western Europe to synchronize to an accurate time and date. The amplitude of the 77.5kHz carrier signal is reduced for 0.1s or 0.2s to 15% on the beginning of the seconds 0-58. The resulting binary-coded second stamps contain the time and date data. As a special case, the last second of every minute is marked with no carrier reduction to introduce a new minute.
DCF-FSK		DCF - Frequency Shift Keying (DCF-FSK) is a proprietary protocol to transmit DCF frames with FSK-modulation. Instead of the reduction of the amplitude by normal DCF transmission, the frequency of the carrier signal is decreased from 1.25kHz to 1kHz during the second mark. The content of the submitted frames is exactly the same as DCF.
Decibel	dB	Decibel (dB) is a logarithmic unit that indicates the ratio of a physical quantity relative to a specified or implied reference level. A ratio in decibels is ten times the logarithm to base ten of the ratio of the two quantities.
DHCP		With the Dynamic Host Configuration Protocol (DHCP) the network configurations of a client, such as addresses, subnet masks, gateways, and DNS-addresses, can be set automatically from a server. This will normally be proceeded by a boot sequence.

DNS		The Domain Name System (DNS) is a service within a network, which translates domain names meaningful to human like www.mobatime.ch into a IP address.
Ethernet	LAN-Technology	Ethernet is a technology for cable-based realization of a LAN. It is frame-based and enables data exchange between all members of the network. There are 10 Megabit/s, 100 Megabit/s (Fast Ethernet), 1-10 Gigabit/s (Gigabit-Ethernet) specified as transfer rate.
Firewall		A Firewall is a system that supervises data traffic in a network and can block data based on send or destination address, currently used services, and other rules. In this manner it blocks unauthorized access while permitting authorized communication.
Firmware		Firmware is a software embedded in an electronic device to control this device.
Radio transmission		In telecommunications, radio transmission is the process of sending and receiving data without the need of a cable.
Radio-controlled clock		A radio-controlled clock is a clock that can receive a time signal from a time signal transmitter and synchronize to the submitted time.
Galileo		Galileo is a global satellite-based navigation system built by the European Union (EU). It is similar to GPS or GLONASS.
GLONASS		GLONASS is a global satellite-based navigation system built by the Russian government. It is similar to GPS or Galileo.
GMT		Greenwich Mean Time (GMT) is a term originally used to refer to solar time at the zero meridian in Greenwich (UK). In the past it was used as worldtime, but it has been replaced by UTC. GMT is the same as UTC. Today this term is often used for the Western Europe time zone (WEZ/WET, UTC+0)
GPS	NAVSTAR GPS	The Global Positioning System (GPS) is a globally available, satellite-based system for navigation. GPS was designed in 1970 by the United States Department of Defence (USDD)
GUI		A Graphical User Interface (GUI) is the part of a software that enables the communication between humans and machines with graphical elements.
Main Clock	Master Clock	The main clock is the clock within a system of clocks that controls and synchronizes all slave clocks. The main clock takes its time from an accurate time source.
HTTP		The Hypertext Transfer Protocol (HTTP) is a networking protocol for data transfer. It is the foundation of data communication for the World Wide Web. HTTP is mainly used to load websites into a browser.
Hub		A Hub is a central allocator within a network. It sends received data via all other ports to all attached members.

I2C	Two-Wire Interface (TWI)	The Inter-Integrated Circuit (I2C) is a serial data-bus developed by Philips mainly used for inter-device communication over a short distance with a small bandwidth. There are two signals used for communication: Serial Clock Line (SCL) and Serial Data Line (SDA). There are four specified modes with the following maximal clock frequencies: standard mode (100kHz), fast mode (400kHz), fast mode plus (1MHz), and high-speed mode (3.4MHz).
Impulse Line		Depending on the number of impulse side clocks, a transmitter current can be connected to an impulse line and operated simultaneously. The impulse side clocks are controlled by the configurable number of pulses per minute (60, 8, 5, 2, or 1 pulse per minute).
IP-XY		The IP class (International Protection Rating) specifies usability of electrical equipment for different environmental conditions and the protection of users against potential damage. The code always consists of the two letters IP followed by two digits. The first digit indicates the level of protection against the ingress of solid objects. The second digit specifies the protection of the equipment against harmful ingress of water.
IP address		An Internet Protocol address (IP address) is an address in networks based on the Internet Protocol (IP). Every participant of the network is assigned an IP address, with which it is addressable. One IP address can stand for one or a group of devices, and a device can have more than one IP address.
IRIG Time Code		The Inter Range Instrumentation Group Time Code (IRIG Time Code) is group of serial time codes, which uses a continuous stream of binary data to transmit data like time and date. The name of the IRIG format contains one letter and three digits, each of which specifies a characteristic of the Code.
IRIG-A		IRIG-A is a time code defined by the Inter Range Instrumentation Group (IRIG). Every second a frame with 1000 bits of data is transmitted. See also: IRIG Time Code
IRIG-B		IRIG-B is a time code defined by the Inter Range Instrumentation Group (IRIG). Every second a frame with 100 bits of data is transmitted. See also: IRIG Time Code
LAN		A Local Area Network (LAN) is a cable-based network for internal data exchange. A LAN is always limited to a geographical area such as an enterprise, school, or laboratory.
Optical Fiber	Optical Link	An optical fiber is a fiber that acts as a waveguide to transmit light between its two ends.
MAC Address	Ethernet ID (Apple) Airport ID (Apple) Wi-Fi Address (Apple) Physical	The Media Access Control Address (MAC Address) is a global unique identifier assigned to a network interface. The MAC Address has the length of 48 bits and is stored permanently in the hardware of the network interface.

	Address (Microsoft)	
CEST	MEST	The Central European Summer Time (CEST) is used as the summer daylight saving time in most countries of central Europe. The difference to UTC is +2 hours.
CET		The Central European Time (CET) is the official time in most countries of central Europe. The difference to the Coordinated Universal Time (UTC) is +1 hour. The difference of the Central European Summer Time (CEST) to UTC is +2 hours.
Pulses per minute	PPM	see PPM
MOBA*Line*©		MOBA*Line*© is a two-wire interface designed for fail-safe data communication and can supply the connected devices. There are mainly slave clocks attached to MOBALine©.
MSF 60		The time signal transceiver MSF-60 is a long-wave radio station in Anthorn (GB) that transmits time and date information with a 60kHz carrier and ON-OFF-amplitude modulation. Every new minute the carrier signal is switched off for 500ms. All other 59 seconds the carrier signal is switched off for 100ms or 300ms. The resulting second marks carry the binary-coded time and date information. All the information is transmitted once every minute: Bit Value 1-16 dUT1 17-24 Year (0-99) 25-29 Month (1-12) 30-35 Day (1-31) 36-38 Day of the week (0-6; 0 = Sunday) 39-44 Hour (00-23) 45-51 Minute (00-59) 58 Daylight savings (0 = no / 1 = yes)
Multicast		In a network Multicast means that the same message will be sent to a defined group of members within the network.
NAT		Network Address Translation (NAT) is a collective term for different methods that automatically exchange address information within a data package through others to connect two networks. There are two main methods: Source-NAT changes the sender address, Destination-NAT the one of the receiver.
Slave Clock		A slave clock is a clock that is synchronized by the main clock to the time of the main clock.
Slave Clock Line		In a clock system a slave clock line is a path to control a group of connected slave clocks.
Network Time Server		see NTP Server
AFNOR		Association français de nermolisation (AFNOR) is the French national

		organization for standardization.
NTP		The Network Time Protocol (NTP) is a protocol for synchronizing the clocks of computer systems on packed-based networks with variable latency.
NTP Server		An NTP server delivers a reference time in a network to its clients.
Oscillator		An oscillator is a module that generates electrical oscillation.
PoE		Power over Ethernet (PoE) technology describes a system to pass electrical power safely, along with data, on Ethernet cable. The supply voltage is 48V with a maximum current of 350mA.
Polarized Impulses		Pulses which are put out at equal intervals with the same polarity.
Port		A port is an external interface or connection on a device to connect it with another device through a cable (LAN, USB, serial) or to extend it with a card (PCI) to have additional functions. In networks the port is software connection on computers by usage for different services such http, NTP, ftp, telnet.
PPM		A Pulse Per Minute (PPM) is an electrical signal that very precisely indicates the start of a minute.
PPS		A Pulse Per Second (PPS) is an electrical signal that very precisely indicates the start of a second.
PTP		The Precision Time Protocol (PTP) is a high-precision time protocol for synchronization used in measurement and control systems residing on a local area network. Different from NTP, focus is on higher accuracy and local networks. Implemented in hardware, PTP can achieve an accuracy in the range of nanoseconds and with software a few microseconds.
RAL		RAL is a color-matching system used in Europe. Every color has its own unique number allocated.
Redundant System		With redundancy a system will be protected against failure. For this reason the system is often supplemented by a second similar system. In case the first system fails, the second system ensures full functionality.
RJ Connector		A Registered Jack (RJ) is a standardized physical network interface. Common connecters are RJ45 (network) or RJ11 and RJ12 (telephone).
Router		A router connects or separates multiple networks. For this purpose the router analyzes the incoming data packets for its destination address. Depending on the result, the data packet will be blocked or forwarded.
RS-232	EIA-232	This is a standard for a serial binary interface. The standard defines the electrical characteristics and timing of signals, the meaning of signals, and the physical size and pin-out of connectors. The main characteristics are:

		The transfer is done in words often as ASCII encoding.
		It's a bit-serial interface, the bits are transmitted one after another on one line.
		The data transfer is asynchronous, i.e. there is no common clock between the sender and receiver.
		It's an asymmetrical voltage interface since the information is transmitted via a single wire per direction with different voltage levels.
		The connector used today is commonly a 9-pin D-Sub connector.
RS-422	EIA-422	This is a standard for a differential symmetrical serial interface. The main difference to RS-232 is that data are transmitted differentially over two data wires. There is also the possibility of having multiple receivers for one transmitter (multidrop network).
RS-485	EIA-485	This is a standard for a differential symmetrical serial interface. Compared to RS-422, the RS-485 holds an additional protection against shorts and allows the connection of multiple transmitters and receivers (multipoint).
Sweeping Second		This means that the second hand moves continuously without any jumps.
Self-setting		Self-setting indicates that a clock that has a connection to a time signal (e.g. MOBALine) sets itself to the corresponding time.
SNMP		Simple Network Management Protocol (SNMP) is a standard protocol to manage IP-based devices such as routers, switches, servers, work stations, printers, and so on. The devices can be managed, controlled, and monitored by a central station.
SNTP		The Simple Network Time Protocol (SNTP) is a simplified version of NTP for synchronizing the clocks on computer-based systems. Due to the simplification, SNTP is less accurate than NTP.
Stepwise Second		A stepwise second is a second hand that jumps from second to second.
SSH		Secure Shell (SSH) is a network protocol that allows data to be exchanged using a secure channel between two network devices. It was developed to detach non-encrypted protocols like telnet.
Strata		Strata indicates the number of devices from the time source to the time server. Normally the time source has the value 1. Each device between them increases the value with n+1. The maximum allowed is 16, which means it is not synchronized or there is no reachable time source available.
Switch		A Switch or a network switch is a computer network device that connects network segments. It is responsible for the distribution of data packets in a network. The switch can do a direct link between connected devices, provided it has access to the ports of the receivers. To do so, it uses the MAC addresses in the submitted data packets.
TCP		The Transmission Control Protocol (TCP) is one of the core members of the Internet Protocol Suite. It's a convention for exchanging data between computers. Compared to UDP, TCP is an connection-orientated network protocol. It provides a connection between two

		endpoints in a network. With this connection, data can be exchanged in both directions. Many application protocols such as HTTP, FTP, or telnet need a permanent connection channel for data communication.
TCP/IP		Transmission Control Protocol / Internet Protocol (TCP/IP) refers to a family of network protocols. Because of their great importance to the internet, they are also known as an internet protocol family. To identify the computers in the network, each device has its own IP address through which it is reachable. TCP or UDP is used for transporting the data.
Telnet		Telnet is a character-orientated communication protocol for transferring data between two devices. It is typically used for remote device control. Since the communication is not encrypted, it is displaced by SSH.
TFTP		The Trivial File Transfer (TFTP) is file transfer protocol known for its simplicity. Generally it is used for automated data transfer of configuration or boot files between machines in a local environment, e.g. loading a new firmware.
ToE		Time over Ethernet (ToE) means the distribution of time over Ethernet.
Twisted Pair		Twisted Pair cable is a type of wire in which two conductors (the forward and return) are twisted together. This is an additional protection against electromagnetic interferences.
UDP		The User Datagram Protocol (UDP) is one of the core members of the Internet Protocol Suite. It is a connectionless network protocol. As opposed to TCP, there is no logical connection between the endpoints. Common network applications that use UDP are NTP, DNS, TFTP, VoIP, and streaming media applications.
Switching Relays		A relay is an electrically operated switch that can be controlled with a small electrical current over distance. For this reason the relay has an electromagnet.
Unicast		This marks the transfer of a message between a transmitter and a single receiver.
UTC		UTC is a time standard by which the world regulates clocks and time. Most computer-based systems use this time.
WAN		A wide area network (WAN) is a computer network that covers a large area.
Time Server		A time server is a server that reads the actual time from a reference clock and distributes it to its clients.
Time Synchronization		Time synchronization means the adjustment of local time with a external time source.
Clock Change		Clock change means the change from Daylight Saving and back to Standard Time.

LON		LON (called LonWorks) is a fieldbus that is used for the automation of various functions within buildings.
Crystal Oscillator		A crystal oscillator is an electronic oscillator circuit that uses the mechanical resonance of a vibrating quartz crystal to create an electrical signal with a very precise frequency.