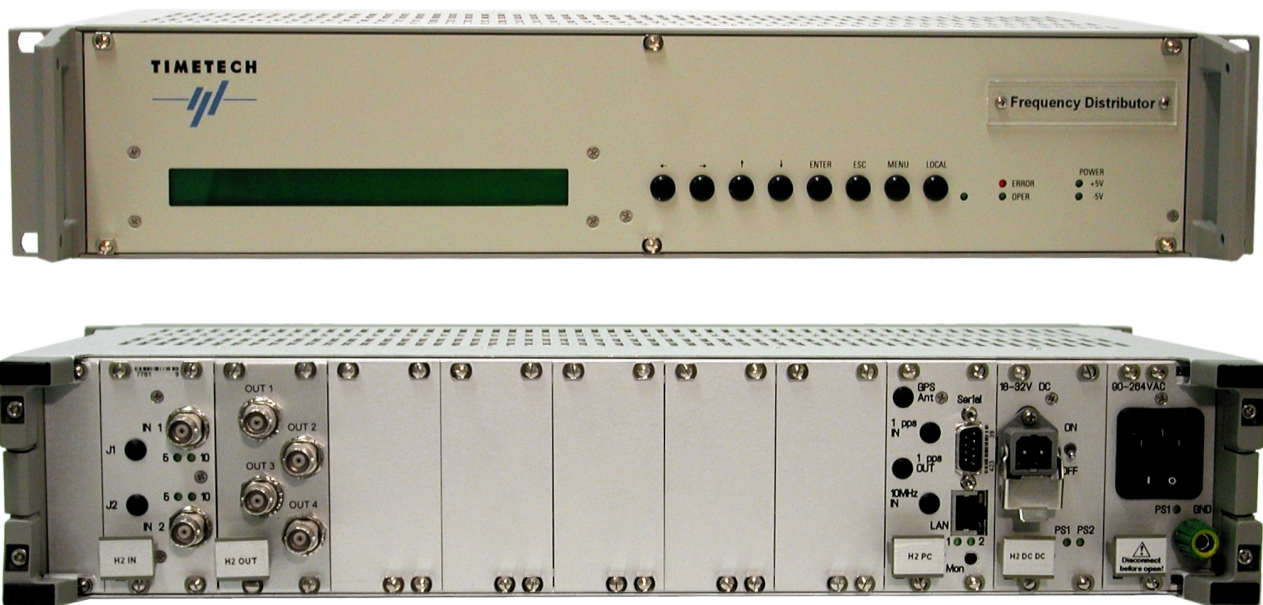


# Frequency Distributor

modular, hot plug  
1 .. 20 MHz, 2 selectable inputs, 4..24 outputs

Part No: 10116



## Key features:

- Hot pluggable distribution modules
- Low phase noise
- Two inputs, automatic or manual input selection
- All inputs and outputs monitored
- Monitoring via serial line or TCP/IP
- Combinable with other TimeTech Distributors to form a complete Frequency & Timing System

# Frequency Distributor

modular, hot plug, 1..20 MHz, 2 inputs, 4..24 outputs

Part No: 10116



The Frequency Distributor is a two height unit rack mountable unit. This series of units is highly modular. The rear side consists of ten modules. Two of them are power supplies; one module holds the monitoring and control PC. One module is used for signal input and up to six modules can be used for signal distribution.

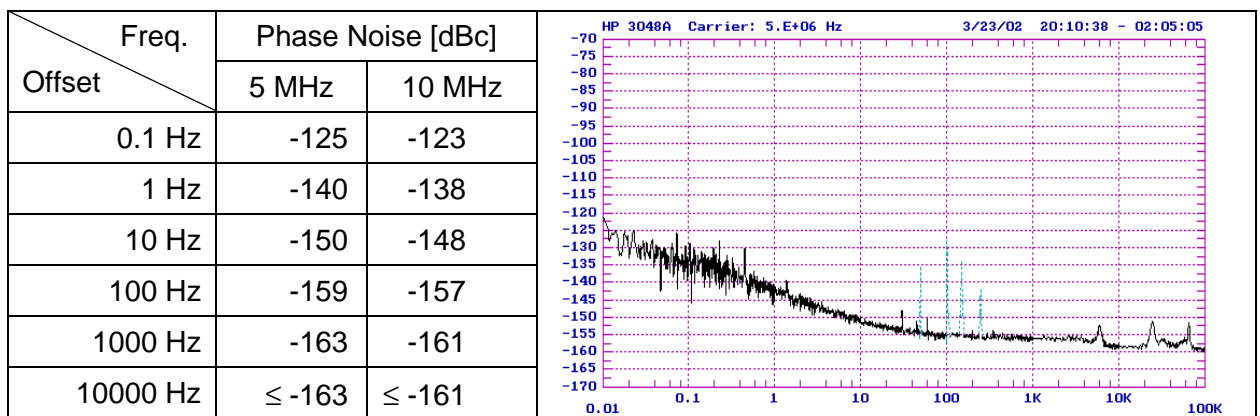
The unit in its standard version has two frequency inputs and 4 frequency outputs being provided by a single distributor module.

The modules can be replaced during operation in hot plug; new modules are recognised dynamically without interruption of operation of other outputs.

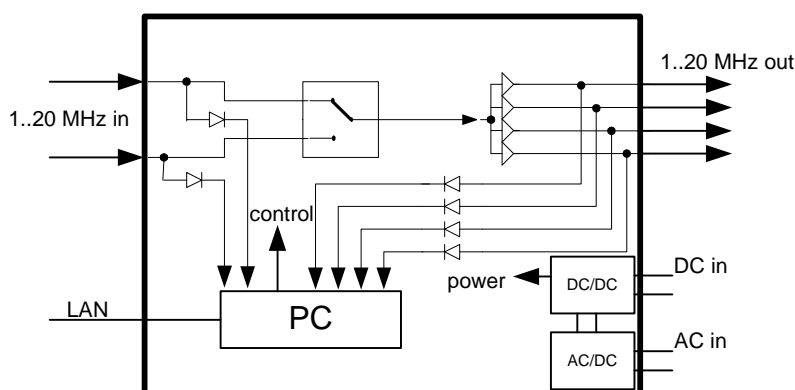
Inputs and outputs are continuously monitored by a built in microprocessor. Input selection can be manual using the front panel keys, remotely commanded via the serial or network interface or automatic, i.e. when the selected input fails the unit selects automatically the other standby input.

Monitoring of output consists of output level (the power sensors are calibrated to 1 dB in the range of +6 to +13 dBm) and output status, where the unit can detect open, loaded, short and failed outputs. Any errors are logged and available at the front panel display and over the serial or network connection.

The distributor is designed to minimise phase noise and shows the following performance:



Specifications are for laboratory environment, temperature +18 .. +24°C, controlled to 1K pp with maximum slopes of 0.5K/h.



Block diagram of the Frequency Distribution Amplifier

# Frequency Distributor

modular, hot plug, 1..20 MHz, 2 inputs, 4..24 outputs

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**TIMETECH**



Slot 0	Slot 1	Slot 2	Slot 3	Slot 4	Slot 5	Slot 6	Slot 7	Slot 8	Slot 9	Slot 10
	Input Module 1..20MHz BNC 2 inputs	Distributor Module 1..20 MHz BNC 4 outputs						PC module  LAN IF	DC/DC Power Input DC 18-32 V	AC/DC Power Input AC 90-265 V

## Rear View

Option	Function	Slot
1	1 additional output module, total 8 outputs	3
2	2 additional output modules, total 12 outputs	4
3	3 additional output modules, total 16 outputs	5
4	4 additional output modules, total 20 outputs	6
5	5 additional output modules, total 24 outputs	7
6	2 <sup>nd</sup> DC input instead of AC input	10

## Included Peripheral Equipment

- Hirschmann Stak 20 connector for self cable mounting for connection to the Stakei 2 DC connector at the unit,
- AC supply cord
- Serial interface cable

## Specification

### Signal Inputs

Number of inputs	2, selectable
Frequency	1 to 20 MHz, sine wave, useable from 100 kHz to 100 MHz
Input impedance	50 Ω, nominal
Input level working	+6 to +14 dBm
Input level nominal	+13 dBm
Input return loss	> 35 dB
Connectors	BNC

### Signal Output

Number of outputs	4 (options for 8, 12, 16, 20, 24)
Gain	0 dB (+0.3/-0.1 dB)
Gain variation	< 0.3 dB, output vs. output
Output impedance	50 Ω, nominal
Output return loss	> 35 dB
Connectors	BNC
Noise figure	< 23.0 dB, (22 dB typ. 1 – 100 MHz)
Group delay flatness, 1 – 100 MHz	< 0.2 ns pp
Group delay variation, channel vs channel	< 0.15 ns
Group delay variation versus temperature	< 6 ps / K

		5 MHz			10 MHz		
Gain compression: - 0.1 dB at	Pout = + 13.5 dBm	+ 13.5 dBm					
Gain compression: - 1 dB at	Pout = + 14.5 dBm	+ 14.5 dBm					
Reverse Isolation [dB]		> 140 (145 typ.)		> 120 (128 typ.)			
Output / Output Isolation [dB]		> 100 (108 typ.)		> 90 (100 typ.)			
Input vs. unused input		> 100 (108 typ.)		> 90 (100 typ.)			
Harmonics [dBc] (1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> )	+10 dBm input	-76	-76	-80	-70	-58	-65
	+13 dBm input	-73	-69	-82	-65	-55	-65

# Frequency Distributor

modular, hot plug, 1..20 MHz, 2 inputs, 4..24 outputs

Part No: 10116

**TIMETECH**



## Electrical interface

Supply voltage DC	18 to 32 V DC
Supply voltage AC	90 to 265 V AC, 47 to 65 Hz
Source selection	Load sharing between AC and DC inputs
Power Consumption	< 30 Watts on AC, < 25 Watts on DC

## M & C interface

Serial line	RS232, 9 pin Sub-D male
Protocol	19200 bps, 8N1, plain ASCII
Ethernet	10 Mbit twisted pair (RJ 45)
TCP services	telnetd (remote screen) port 23 command, data output port 2000, 2001
UDP services	syslog client port 514 tftp server port 69 data output port definable ntp server & client port 123
Monitored items	input presence, input levels (also standby input), active input, output presence, output levels, output status (open, loaded, short).
Commandable items	Select input channel, output mute

## Front panel:

Display 2 lines, 40 characters	Instrument status & configuration, levels of inputs and outputs, selected input, alarms and messages, logged events
Keyboard: 8 function keys	Access to all vital functions: instrument setup & configuration, input and output monitoring, input selection

## Mechanical

Outline	19 inch, 2 height units (448.8 mm * 88 mm) depth 224 mm
Weight	3 to 4 kg

## Environmental

### Transportation and storage

Temperature	-20°C to +75°C
Humidity	10% to 90% (non condensing)
Shock	max 10g acceleration for 11 ms
Vibration	max. 0.15 mm at 5 to 8 Hz, max 1g acceleration at 8 to 500 Hz
Altitude	< 20000 m

### Operation

Temperature	-10°C to +50°C
Humidity	20% to 90% (non condensing)
Altitude	< 3000 m