# Precise Time and Frequency, Inc

# *ptf* 1204A Digital Distribution

# Operation and Maintenance Manual


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| Document # | 10381 |
| Revision | C |

Introduction

Congratulations on your purchase of the ***ptf*** 1204 Digital Distribution Amplifier !

This product meets the highest standards of quality and reliability, and Precise Time and Frequency, Inc wants to insure that you enjoy the maximum benefits and functionality that this unit can provide.

The technology within this unit uses the decades of experience in time and frequency applications of our engineering team, to provide a unit that is highly advanced, and gives a very powerful feature set in an inexpensive and compact package,

Operation of the unit is straightforward and the contents of this manual are designed to provide a basic understanding of the product, set-up and functionality, and procedures for maintenance and repair.

If you have any questions or concerns, please do not hesitate to contact our technical service department who will be pleased to provide assistance.

Please help us to live up to our stated objectives, our company motto is:

***KNOW THE NEEDS AND EXPECTATIONS OF YOUR CUSTOMER…THEN DELIVER!***

Once again, thank you for purchasing our product, and we look forward to you utilizing Precise Time and Frequency, Inc. for your future time and frequency instrumentation needs.

President
Precise Time and Frequency, Inc.

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# *Certificate of Conformance*

This certificate confirms that the following equipment:

Unit type: ***ptf*** 1204A Digital Distribution Amplifier

Serial Number: _____

has successfully passed a FINAL ACCEPTANCE TEST and conforms in all respects of form, fit, and function to current specifications, including regulatory requirements and certifications.

Inspected and verified by: Date:

_____ _____

For Precise Time and Frequency, Inc

Declaration of Conformity

This certificate confirms that the following equipment:
Unit type: ***ptf* 1204A** Digital Distribution Amplifier
is in conformity with the relevant provisions of the following standard(s)
or other normative document(s):

**EU EMC Directive 89/336/EEC:**

| | |
|---|---|
| EN55022 | Limits and methods of measurements of radio disturbance characteristics of information technology equipment |
| EN61000-3-2 (2001) | Limits for harmonic current emissions (equipment input current up to and including 16A per phase) |
| EN61000-3-3 (1995) | Limitation of voltage fluctuations/flicker in low voltage supply systems for equipment with rated current ≤ 16A |
| EN55024 (1998) | Information technology equipment – immunity characteristics - Limits and methods of measurement |
| EN61000-4-2 (1995) | Electrostatic discharge immunity |
| EN61000-4-3 (1997) | Radiated, radio frequency, electromagnetic field Immunity |
| EN61000-4-4 (1995) | Electrical fast transient/burst immunity |
| EN61000-4-5 (1995) | Surge Immunity |
| EN61000-4-6 (1996) | Immunity to conducted disturbances, induced by radio frequency fields |
| EN61000-4-8 (1994) | Power frequency magnetic field immunity |
| EN61000-4-11 (1994) | Voltage Dips, short interruptions and voltage variations immunity |

**EU Low Voltage Directive 72/23/EEC:**

| | |
|---|---|
| EN 60950-1 (2000) | Safety of Information Technology Equipment, including electrical business equipment |

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1. ***ptf* 1204A Distribution Amplifier - Technical Overview**

The ***ptf*** 1204A uses at its heart an electronic design benefiting from the latest technology in high performance components. Through decades of timing design experience, the ptf team is able to reproduce precision pulse input signals with the minimum of propagation delays.

The unit uses two stages of input signal buffering to distribute the input signal to 12 separate outputs, and insure maximum isolation between individual output signals.

Particular attention has been given to insuring virtually no differential propagation delays between channels, resulting in channel-to-channel output coherence in the order of 2ns.

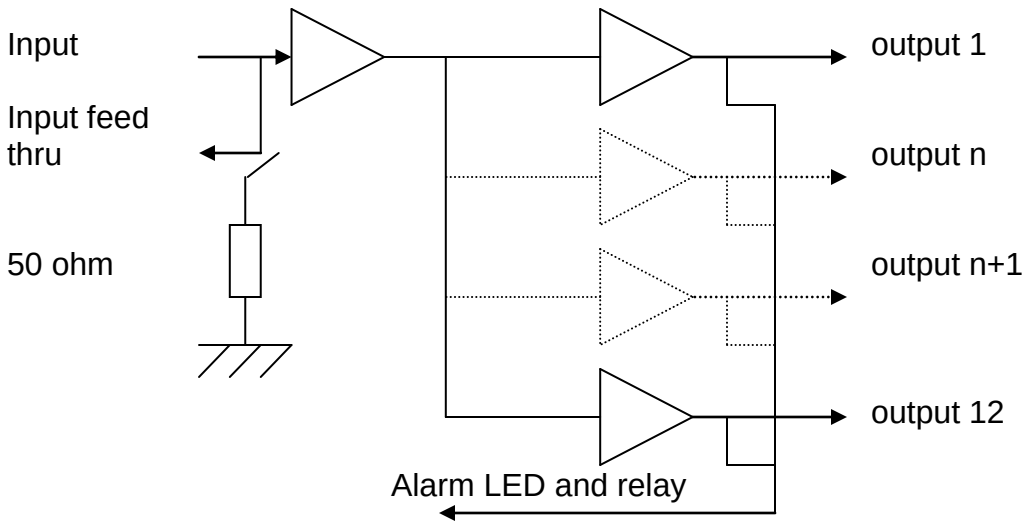


Figure 1. ***ptf*** 1204A Schematic

## 2. *ptf* 1204A Digital Distribution - Specifications

### 2.1.1. Electrical

**Digital Output** (twelve)

Pulse Rate Range 1 pulse per hour to 10,000,000 pulses per second

Level 5V logic (under load)

Load Impedance 50 ohms.

Connectors BNC

**Maximum Alarm setting** 1 minute between pulses

**Pulse Input**

Pulse Rate Range 1 pulse per hour to 1,000,000 pulses per second

Level 5 V logic (tolerant up to 10V)

Impedance 50 ohms

**Alarm Output**

Summary alarm indicates failure of any output signal
Non-alarm condition: Relay energized (fail safe)
Connector: 9 pin D-male

**Alarm Indicator** Red LED,

### 2.1.2. Power Input

Standard AC power input:

| | |
|---|---|
| Input voltage | 85 to 264 V AC |
| Input Frequency range | 45 to 65 Hz |

2.1.3. Dimensions

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|---|---|
| Chassis | Height 1.75 Inches.<br>Width 17”, 19” with ears<br>Depth 16 Inches Maximum. |

2.1.4. Weight

| | |
|---|---|
| Chassis | < 10 pounds |
| Antenna | < 1.5 pounds |

2.1.5. Environmental

| | |
|---|---|
| Operating Temp: | -0 C to +55 C |
| Humidity | to 95% RH non-condensing |

# 3. Unpacking/Inspection/Installation

## 3.1. Unpacking/Inspection

The ***ptf*** 1204A Digital Distribution unit together with accessories, is shipped in a custom designed package. Upon receipt the equipment should first be visually inspected for any signs of visible damage.

If visible damage is apparent immediate notification should be given to both Precise Time and Frequency, Inc., and the carrier responsible for shipment. Do not discard the shipping container, which should be made available for inspection by the carrier.

For purposes of unit reference, the unit serial number located on the rear panel of the unit should be quoted in all communications.

## 3.2. Chassis Installation

The ***ptf*** 1204A chassis is supplied with rack ears ready for simple installation into a standard 19 inch rack frame/cabinet.

For adequate support when mounted into the rack, a rear supporting bar or tray should be used as the rack ears are designed to secure the unit in the rack, NOT to support the full weight of the unit.

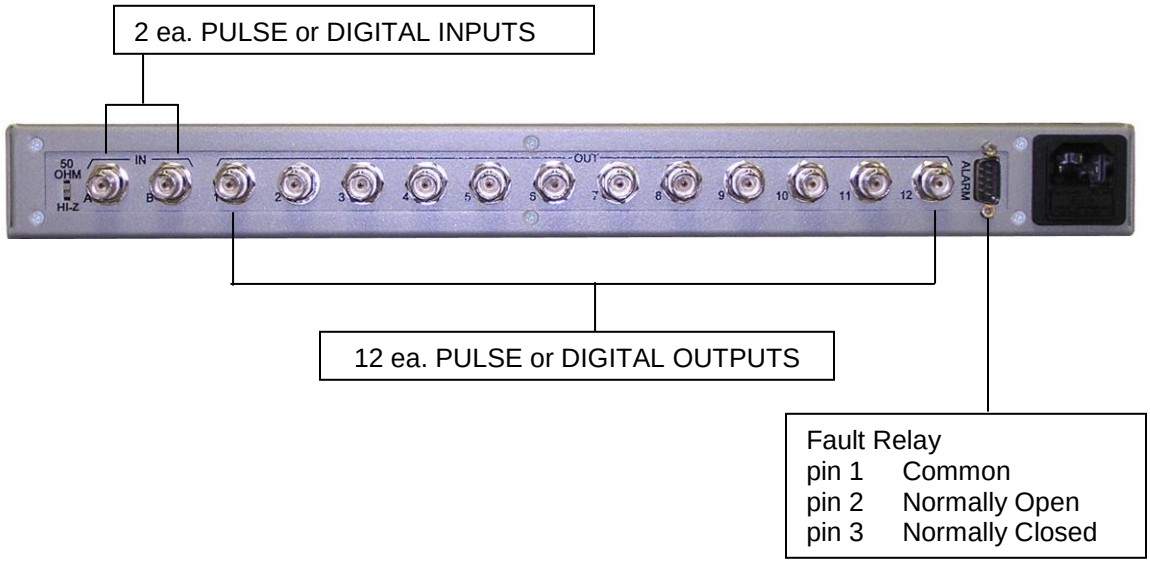
Attention should be given to the internal rack environment to insure the unit operates within it's specified operating temperature range of 0 to 50 deg. C also noting that the unit relies upon convection for cooling, so there should be sufficient air flow to accommodate this.

## 3.3. Power Connection

Power is supplied by connecting the supplied AC power cable to and ac source, at 120 or 230 V AC, +/-15%. The ac input is a universal input – no range switching is required.

### 3.4. Input/Output Connections

BNC connectors are provided for the standard ***ptf*** 1204A outputs.




## 4. ***ptf*** 1204A – Operation

Operation of the ***ptf*** 1204A is extremely straightforward. Once all of the required input and out connections have been made power can be applied for the unit.

Note that an additional “feed thru” input connector is provided so that if it is desired to drive more than one ***ptf*** 1204A distribution amplifier from the same input signal, the input can be coupled to the next unit.

In this case, the units that the signal is “fed thru” should not be terminated at the input (see input termination switch). Only the last unit in the chain should be terminated to optimize impedance matching.

# 5. Maintenance

## 5.1. Overview

The ***ptf*** 1204A distribution amplifier uses state-of-the art solid state and semi-conductor, primarily surface mount, components.

All of the components are selected for their inherent high reliability, and as advanced techniques with highly sophisticated equipment, are used for assembly and test of the unit.

Due to the above, no periodic maintenance of the unit is required and the units can be expected to deliver many years of trouble free operation.

Any maintenance or service of the unit should be performed at a Precise Time and Frequency, Inc. authorized facility, to insure the appropriate equipment and expertise is available.

6. Contact Information – Technical Assistance

   The Precise Time and Frequency, Inc service department normal hours of operation are from Monday to Friday, between the hours of 8.00 a.m. and 5.00 p.m. US Eastern Standard Time.

   24 hour, 7-day technical assistance is available under special contract.

   Before returning any equipment for service or repair please contact our service department for an RMA number.

   Tel: (+1) 781 245 9090
   Fax: (+1) 781 245 9099
   E-mail: service@ ptfinc.com

   Shipping address is:

   Precise Time and Frequency, Inc.
   50L Audubon Road
   Wakefield, MA 01880
   USA

   Attn: Service Manager

   Billing address is:

   Precise Time and Frequency, Inc.
   50L Audubon Road
   Wakefield, MA 01880
   USA

   Attn: Accounts