Precise Time and Frequency, Inc

ptf 1207A Auto Switch

Operation and Maintenance Manual

Document #	11493
Revision	D

Certificate of Conformance

This certificate confirms that the following equipment:

Unit type: ***ptf*** 1207A Auto Switch

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.

This part conforms to RoHS-2 Standards for material content with no exemptions. This part conforms to REACH Standards for material content and is compliant to the current SVHC list.

Inspected and verified by: Date:

_____ _____

For Precise Time and Frequency, LLC

Declaration of Conformity

This certificate confirms that the following equipment:

Unit type: ***ptf* 1207A** Configurable Auto Switch

is in conformity with the relevant provisions of the following standard(s) or other normative document(s):

EU EMC Directive 2004/108/EC:
ETSI EN 301 489-1, V1.8.1 (2008-04}
Electromagnetic compatibility and Radio spectrum Matters (ERM);
Electromagnetic Compatibility (EMC) standard for radio equipment and services;
Part 1: Common technical requirements

EN 55022:2006
Information technology equipment — Radio disturbance characteristics - Limits and methods of measurement

EN 61000-4-2: 2001
Electromagnetic compatibility (EMC) - Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test

EN 61000-4-3:2006
Electromagnetic compatibility (EMC) - Part 4-3: Testing and measurement techniques - Radiated, radiofrequency, electromagnetic field immunity test

EN 61000-4-4:2004
Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test

EN 61000-4-5:2006
Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Surge immunity test

EN 61000-4-6:2005
Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test

EN 61000-4-11:2004
Electromagnetic compatibility (EMC) - Part 44: Testing and measurement techniques — Voltage Dips and Short Interruptions immunity test

ISO 7637-2:2004
Road vehicles - Electrical disturbances from conduction and coupling - Part 2: Electrical transient conduction along supply lines only

EN 61000-3-2:2006 +A1:2009 +A2:2009
Electromagnetic compatibility (EMC) - Part 32: Limits - Limits for harmonic and current emissions (equipment input current ≤ 16 A per phase)

EN 61000-3-3:1995
Electromagnetic compatibility (EMC) - Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connection

EN 55016-1-1:2007
Specification for radio disturbance and immunity measuring apparatus and methods — Part 1-1: Radio disturbance and immunity measuring apparatus — Measuring apparatus Amendment1 (2007)

ClSPR16-1-2:2003
Specification for radio disturbance and immunity measuring apparatus and methods — Part 1-2: Radio disturbance and immunity measuring apparatus — Ancillary equipment — Conducted disturbances 5
Amendment1 (2004), Amendment 2 (2006)

EN 55016-1-4:2007
Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-4: Radio disturbance and immunity measuring apparatus - Ancillary equipment - Radiated disturbances

EN 55016-2-3:2004
Specification for radio disturbance and immunity measuring apparatus and methods - Part 2-3: Methods of measurement of disturbances and immunity — Radiated disturbance measurements
Amendment 1 (2005)

EN 55016-4-2:2003
Specification for radio disturbance and immunity measuring apparatus and methods — Part 4-2: Uncertainties, statistics and limit modeling — Measurement instrumentation uncertainty

EU Low Voltage Directive 2006/95/EC

EN 60950-1:2006 +A1+A11+A12	Safety of Information Technology Equipment, including electrical business equipment

EU ROHS directive compliance according to Directive 2002/95/EC

Introduction

Congratulations on your purchase of the ***ptf*** 1207A Configurable Auto Switch unit with remote Monitor/Control interface!

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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1. ***ptf*** **1207A Auto Switch - Technical Overview**

There are 2 inputs to each individual channel and one output each. The ptf 1207A can accommodate up to 8 channels in one, 2U high rack mounting unit.

The input signals accommodate either a 13dbm RF sine wave (1volt RMS), or a TTL digital input (usually 1PPS) which are factory configured before shipment.

Each Switching Channel selects the primary input and routes it to a single output. Detection logic embedded in an on-board CPLD determines if there is a fault condition on the primary input and then, if so, automatically switches to the backup input, provided the backup input is in a “healthy” condition.

In addition, the unit continuously monitors the all switching channel inputs and provides a summary fault indication (change over relay contacts) if any one of the primary or backup inputs is reporting a fault.

The Auto Switch normally outputs the primary channel input signals, and automatically switches to the back-up channel based on health status of the measured inputs. In the event of power failure to the unit the unit “fails safe” to leave the current channel input switched onto the outputs

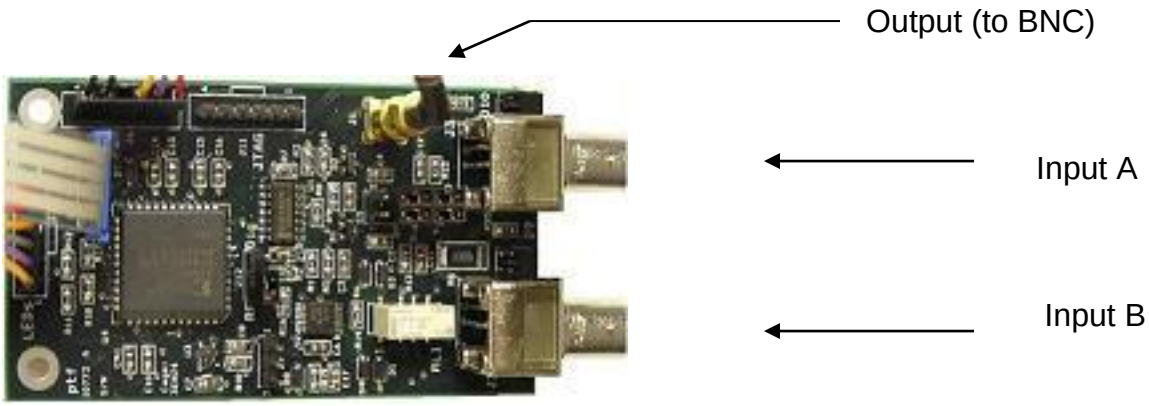


Figure 1. Photograph of internal Auto Switch Module

The remote Monitor/Control interface monitors all channel inputs and provides a remote Ethernet TCP/IP interface (via telnet), an SNMP interface, and an RS232 serial interface. In addition to monitoring status of the unit, the remote Telnet and Serial interfaces can be used to control individual channel modes (Auto or Manual) and to select channel inputs (Primary or Backup).

2. *ptf* 1207A Auto Switch - Specifications

2.1.1. Electrical

RF Inputs – 2 per channel

Frequency Range 900kHz to 20MHz
Level 1V rms/ 13dBm (nominal)
Load Impedance 50Ω
Connectors BNC

RF Outputs – 1 per channel

Frequency Range 900kHz to 20MHz
Level 1 V rms/13dBm (nominal) – will accept 0 to 15 dBm
Load Impedance 50Ω
Connectors BNC

Digital Inputs – 2 per channel

Frequency Range 0.01 Hz to 10MHz
Levels TTL low (<0.5V) TTL High(>3V)

Switching

A/B Input Isolation	> 50dB
Switching	automatic < 3ms
Alarm	Front panel Red LED
	Summary alarm on change over relay.

2.1.2. Power Input

Standard AC power input:

Input voltage	100 to 240 V AC
Input Frequency range	50 to 60 Hz

DC power input:

Input voltage	120 to 270 V DC
Optional DC Supply: (in place of AC input)	18 to 72 VDC

2.1.3. Dimensions

ptf 1207A 1U Chassis (HxWxD)	3.5 x 17 x 12 inches

2.1.4. Weight

Chassis	<15 pounds

2.1.5. Environmental

Operating Temp:	-0º C to +50º C
Storage Temp:	-40º C to +70º C
Humidity	up to 95% RH non-condensing

3. Unpacking/Inspection/Installation

3.1. Unpacking/Inspection

The ***ptf*** 1207A Auto Switch 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.

The equipment must be installed correctly and should only be installed by qualified technical personnel.

This product is also designed for IT power distribution systems with phase-to-phase voltage of 230V.

Warning: If connected to an IT power distribution system, the unit is still under voltage even after operation of the protective fuses.

BNC Input/output connections are designed for connection to local equipment with the same or adjacent racks, and are not intended for connections outside of a local building.

Similarly, the RS232 is for connection to a local terminal and the RJ45 Ethernet connector is for connection to a locally situated, approved basic insulated router or switch.

3.2. Chassis Installation

The ***ptf*** 1207A 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 100 - 230 V AC, +/-10%. The AC input is a universal input – no range switching is required.

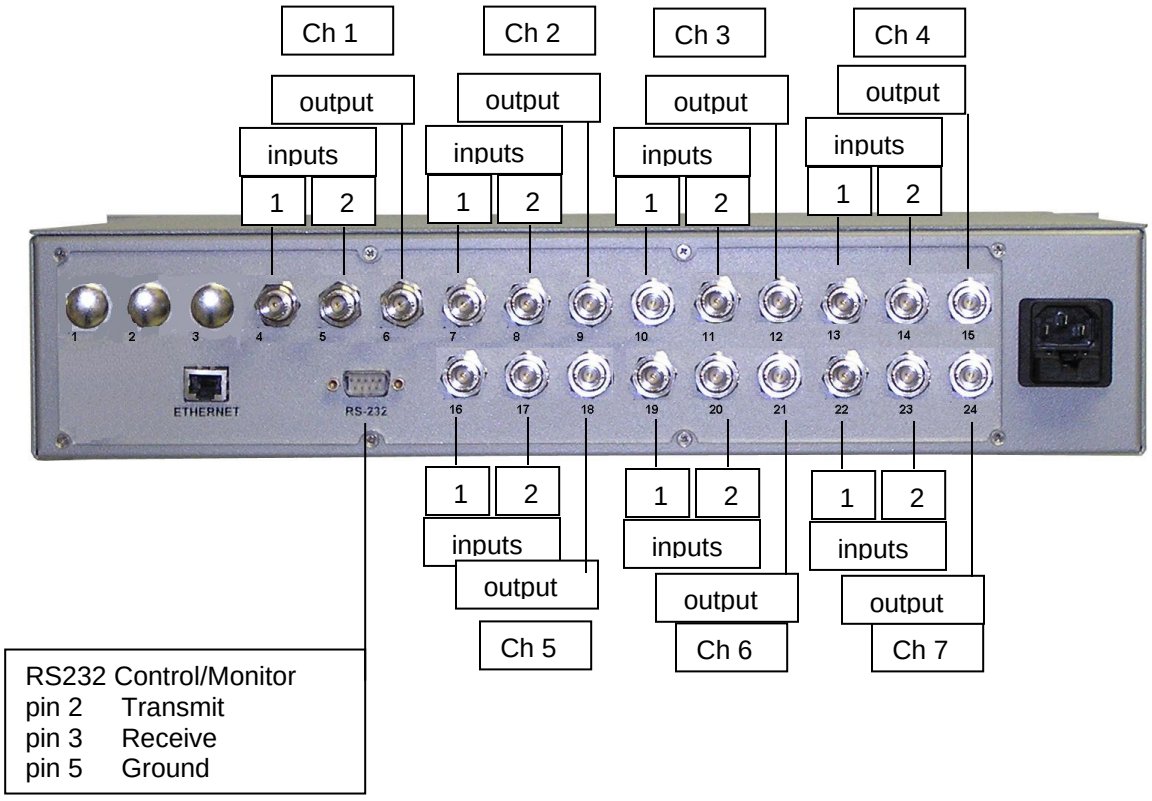
3.4. Input/Output Connections

BNC connectors are provided for the standard ***ptf*** 1207A inputs and outputs.

Connections are shown in the following section.

4. ***ptf*** 1207A – Operation

Operation of the ***ptf*** 1207A is extremely straightforward. Once all of the required input and output connections have been made power can be applied for the unit.



Rear Panel Port Connections ptf 1207A

5. Monitor / Control Interfaces

5.1. Telnet

5.1.1. Command Format

The telnet interface is designed as a machine interface, and therefore characters sent to the unit are not echoed as this imposes undue difficulties on the transmitting device. Command format is of the form :

[Command][Space][Data][Enter]

Where;

Command is in the form BXX e.g. B01

Space is ASCII 32(decimal)

Data can be numbers, or characters according to the command

Enter is line feed/CR combination (ASCII 10 dec. and 13 dec.)

All entered characters are converted internally to UPPER CASE, therefore either upper or lower case characters can be used

Some commands are “locked” when the correct conditions are not set, e.g. the CH X input commands can only be executed when the desired channel mode is selected as Manual.

There are also several special commands that are of the form;
[Command][Enter] e.g. the Status command.

Available commands are shown in section 5.1.3

In addition typing ;

[HELP][SPACE][COMMAND][ENTER]
or typing
[COMMAND][SPACE][?][ENTER]

Will display additional help information on the selected command.

5.1.2. Login

To login to the unit via the telnet interface, it is necessary to provide a user name and password. The user name is user definable, e.g. Admin. The password can be numbers only and the default password is 123456.

5.1.3. Commands

Command	Description	Type	Range	Comments
B01	CH1 Input	String	Primary / Backup	Locked when in Auto
B02	CH1 Mode	String	Auto / Manual	
B03	CH2 Input	String	Primary / Backup	Locked when in Auto
B04	CH2 Mode	String	Auto / Manual	
B05	CH3 Input	String	Primary / Backup	Locked when in Auto
B06	CH3 Mode	String	Auto / Manual	
B07	CH4 Input	String	Primary / Backup	Locked when in Auto
B08	CH4 Mode	String	Auto / Manual	
B09	CH5 Input	String	Primary / Backup	Locked when in Auto
B10	CH5 Mode	String	Auto / Manual	
B11	CH6 Input	String	Primary / Backup	Locked when in Auto
B12	CH6 Mode	String	Auto / Manual	
B13	CH7 Input	String	Primary / Backup	Locked when in Auto
B14	CH7 Mode	String	Auto / Manual	
B15	CH8 Input	String	Primary / Backup	Locked when in Auto
B16	CH8 Mode	String	Auto / Manual	
B17	Date (UTC)	String	MM/DD/YYYY	Only valid dates (Manual or NTP)
B18	Time (UTC)	String	HH:MM:SS	24 hour format (Manual or NTP)
B19	IP	xxx.xxx.xxx.xxx	IP address	
B20	NET MASK	xxx.xxx.xxx.xxx	Net Mask	
B21	GATEWAY	xxx.xxx.xxx.xxx	Gateway	
B22	DHCP	String	ON / OFF	
B23	PASSWORD	Number	1 > 2147483647	

B24	Set Default	Password		
B25	Reserved			
B26	Reserved			
B27	Baud Rate	Number	9600 19200 57600	Baud rate for serial port
B28	IP SNMP MGR	xxx.xxx.xxx.xxx	IP	IP address of SNMP manager
B29	SNMP Traps	String	On / Off	
B30	IP NTP SERV	xxx.xxx.xxx.xxx	IP	IP address of NTP server
B31	NTP u/d int	Integer	0 to 100000(seconds)	0 = no timeout
B32	Man Timeout	Integer	0 to 100000(seconds)	0 = no timeout
B33	TNET Port	Integer	1 to 65536	Telnet port number
B34	TNET Timer	Integer	0 to 100000(seconds)	0 = no timeout
LOGOUT	Telnet	String	Logout	Logs out telnet session
HELP	Print Help	String	Help	Prints help menu
VERS	Version	String	Vers	Displays s/w version
Macno	Macno	String	Macno	Display unit MAC #
Reset	Unit Reset	String	Reset	Restarts unit
Status	Status	String	Status	Give channel status
B34	Reserved			
B35	Reserved			
B36	Reserved			
B37	Reserved			
B38	Reserved			
B39	Reserved			
B40	Reserved			
B41	Reserved			
B42	Reserved			

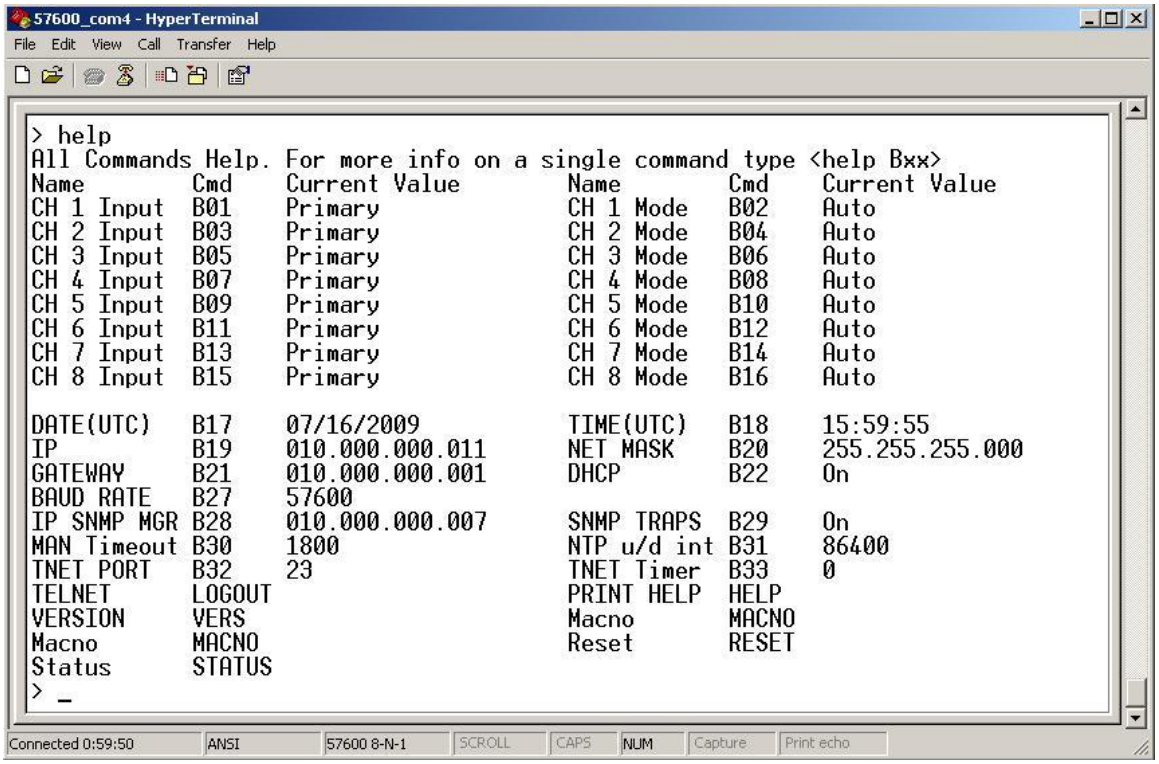
5.1.4. Help Screens

When used with a standard interface such as Hyper terminal, it can be helpful to be able to quickly see available commands and their formats.

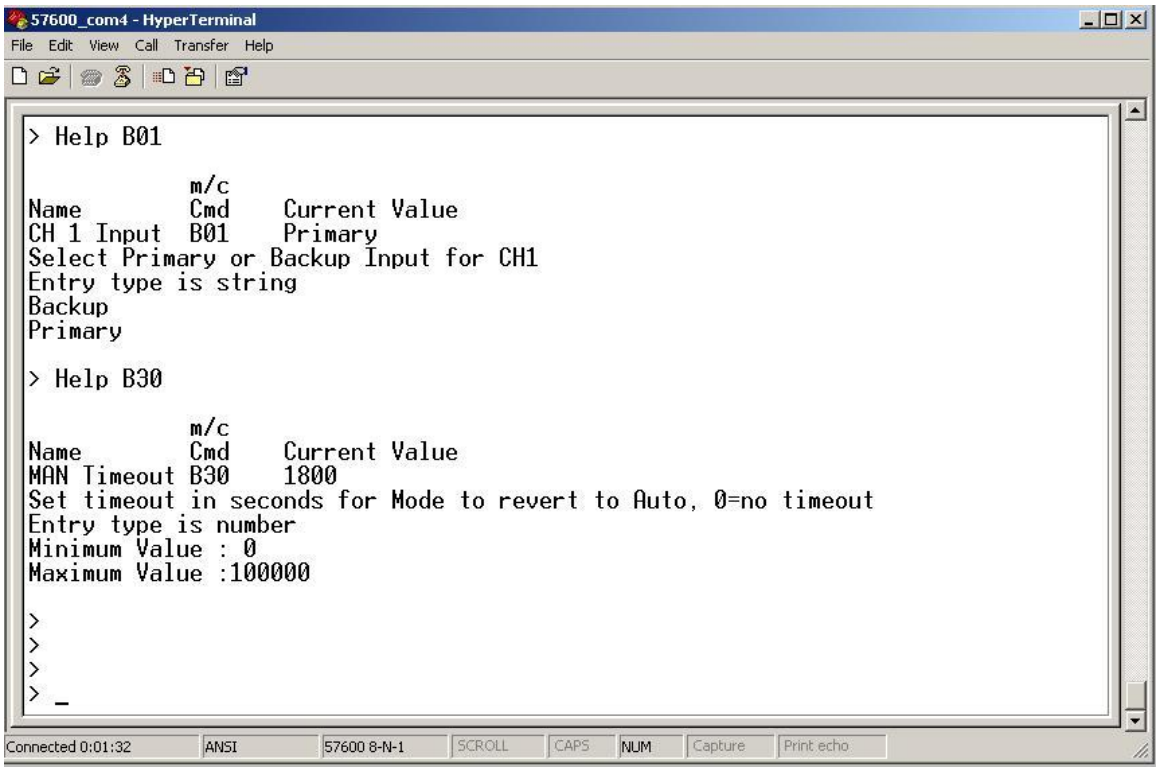
The unit includes both a summary help screen, that provides a quick reference for available commands, and reports the currently set values of the various parameters, and also multi-line help for each of the commands.

The summary screen is accessed by typing;
[HELP][ENTER]
at the command prompt and the multi line help for a single command is accessed by typing either;
[HELP][SPACE][COMMAND][ENTER] or
[COMMAND][SPACE][?][ENTER]

Examples of the help screens as displayed on hyper terminal are shown below;



Summary Help Screen

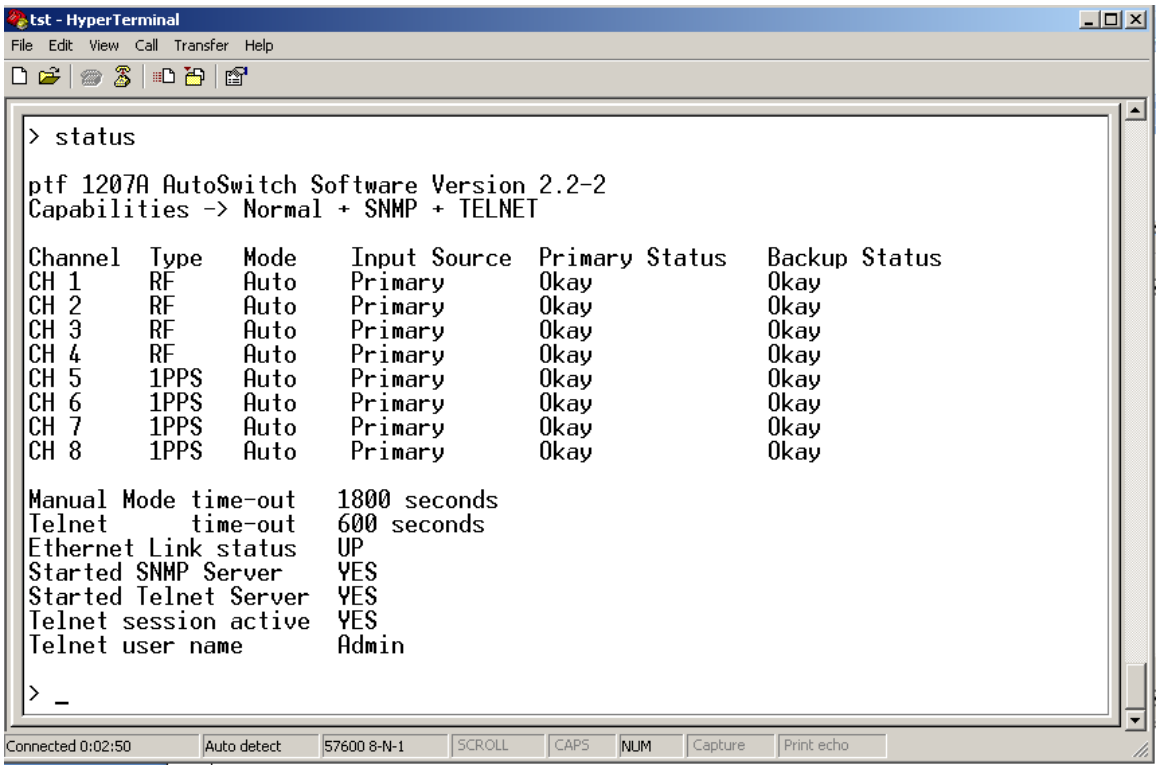


Expanded help on specific commands

5.1.5. Status Command

The Status command is provided as a means of obtaining a quick summary of the status of the unit, and provides summary information on each of the Auto switch channels, together with other settings such as the Manual mode and telnet timeouts, Ethernet status etc.

A sample Status screen is shown below;



Auto switch Status Screen

5.2. RS 232

5.2.1. Configuration

The RS232 port factory default setting is 57600-8N1, but may be changed through the RS232 menu.

5.2.2. Command Format

The RS232 command format has been designed to have an identical look and feel as the telnet interface. The main difference is that the RS232 is primarily provided for local control and therefore the commands are echoed.

For the command format please refer to section 5.1.1

5.2.3. Login

As the RS232 is designed for local access, no login is required to access this capability as physical presence is assumed.

5.2.4. Commands

Available commands are exactly the same as for the telnet interface. Please refer to section 2.1.3

5.2.5. Help Screens

The RS232 Help Screens are identical to those provided on the telnet interface. Please refer to section 2.1.4

5.2.6. Status Command

Format of the Status command is exactly the same as the format for the telnet interface. Please refer to section 2.1.5

5.3. SNMP Agent

5.3.1. General

The Auto switch unit includes an SNMP agent (SNMPv1) using the standard UDP interface and providing basic information on the unit (location, capabilities etc.) together with traps on alarm conditions that are sent to the address set as the SNMP manager IP address.

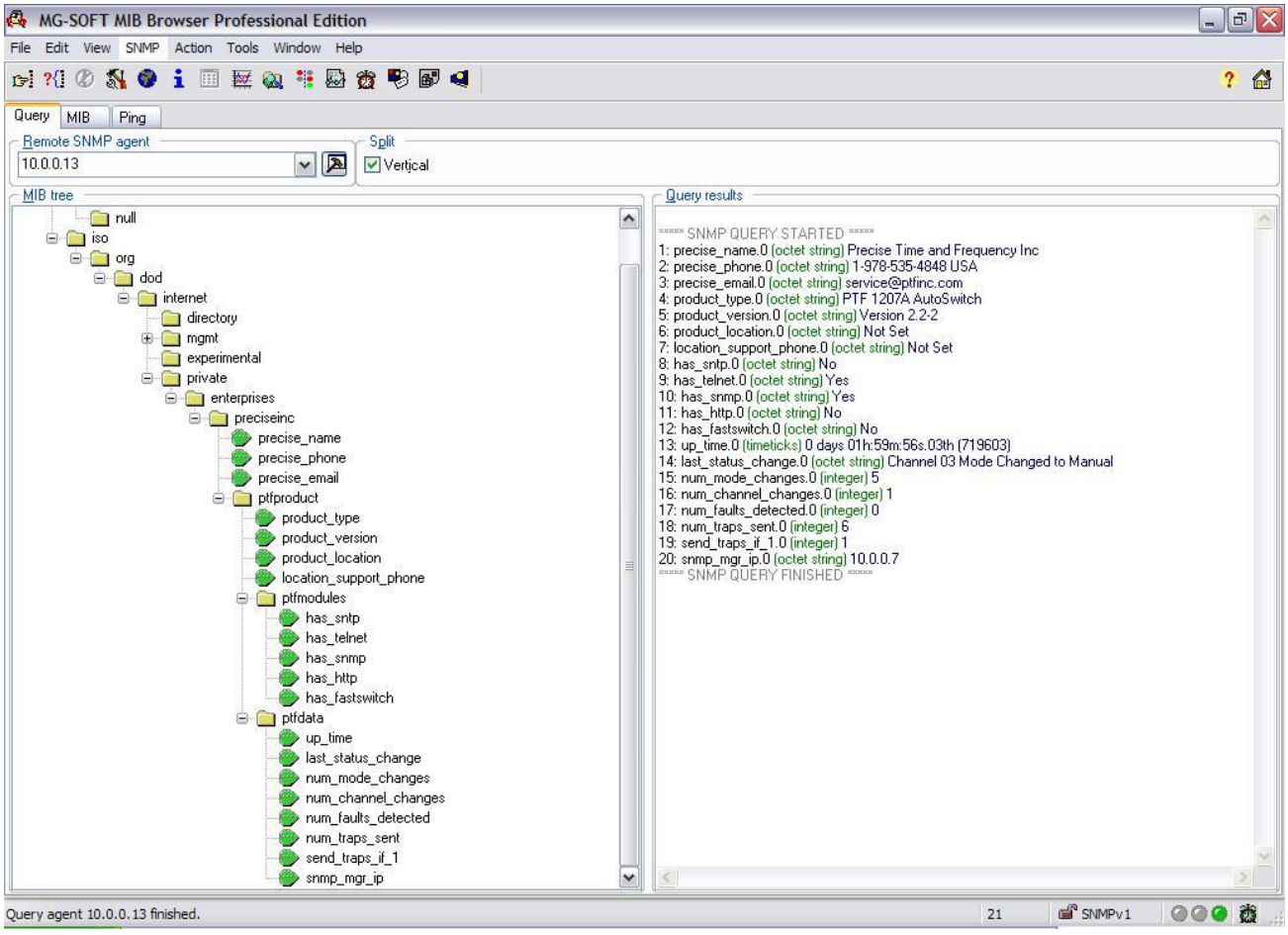
5.3.2. SNMP Queries and Traps

SNMP traps are available to provide summary event information to the SNMP manager. Specific traps available are;

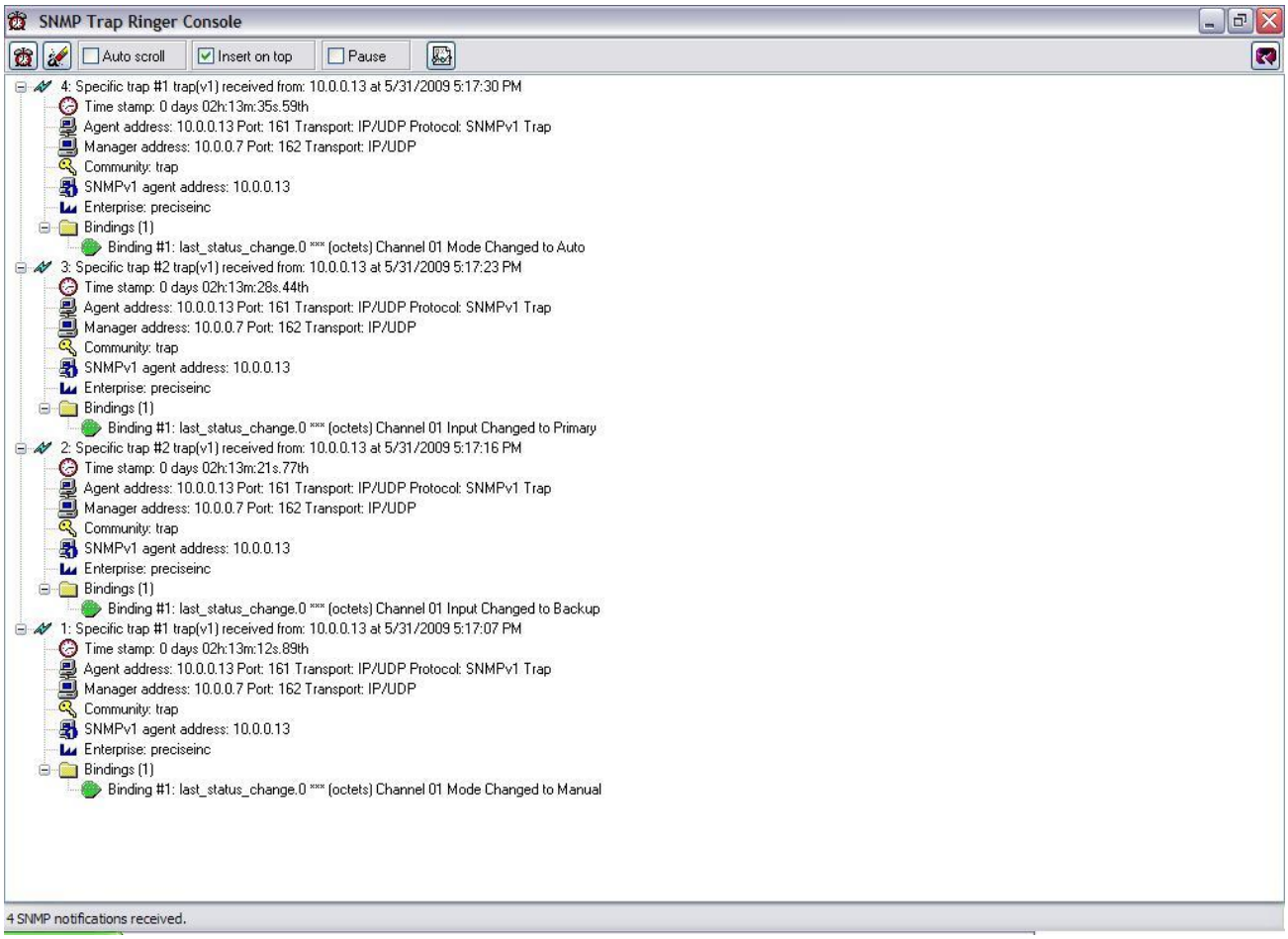
Trap#1	Channel Mode Change (Auto/Manual)
Trap#2	Channel Input Change (Primary/Backup)
Trap#3	Channel Primary Input Fault (Fault/Okay)
Trap#4	Channel Backup Input Fault (Fault/Okay)

Traps can be enabled or disabled from either the telnet or the serial Monitor/Control interface.

Screen shots of the SNMP Query screen and trap ringer console after initiating a number of “trap” events, are shown below;



SNMP Query Screen



SNMP Trap Ringer Screen

5.4. SNMP SMI/MIB Files

The SMI and MIB files for the SNMP manager are shown in the following pages;

SMI File;

```
-- ****************************************************************
-- Precise-SMI.txt:  Precise Time and Frequency Enterprise
--                   Structure of Management Information
--
-- September 2003  Les Herbst
--
-- Copyright (c) 2003 by PTF Inc
-- All rights reserved.
--
-- ****************************************************************

Precise-SMI DEFINITIONS ::= BEGIN

IMPORTS
        OBJECT-TYPE
                FROM RFC-1212
        enterprises,
        mgmt
                FROM RFC1155-SMI;
--
-- Node Definitions
--

   -- try and add a small subset of SNMP2
   -- 1.3.6.1.2.1
   mib-2 OBJECT IDENTIFIER ::= { mgmt 1 }

   -- 1.3.6.1.2.1.1
   system OBJECT IDENTIFIER ::= { mib-2 1 }

        -- 1.3.6.1.4.1.18507
        preciseinc OBJECT IDENTIFIER ::= { enterprises 18507 }

        -- 1.3.6.1.2.1.1.1
        ptfproduct OBJECT IDENTIFIER ::= { system 1 }

   -- Note, leaf nodes under ptfproduct 1-4 are
   -- prod type
        -- prod version
        -- prod location
        -- prod local support phone
        -- then comes modules folder
   -- 1.3.6.1.2.1.1.1.5
   ptfmodules OBJECT IDENTIFIER ::= { ptfproduct 5 }

    -- 1.3.6.1.2.1.1.1.6
   ptfdata OBJECT IDENTIFIER ::= { ptfproduct 6 }


END
```

MIB File;

```
-- ***************************************************************
-- ***************************************************************
-- -- Copyright 2009 Precise Time and Frequency Inc
--
-- DESCRIPTION:
--    This file contains the ptf 1207A Autoswitch private MIB.
--
-- ***************************************************************
-- ***************************************************************


PRECISE1207Av2-MIB DEFINITIONS ::= BEGIN


IMPORTS
  OBJECT-TYPE
    FROM RFC-1212
  preciseinc
-- ptfproduct,
-- ptfmodules,
-- ptfdata
  FROM Precise-SMI;


        -- 1.3.6.1.4.1.18507.6
  ptfproduct OBJECT IDENTIFIER ::= { preciseinc 6 }

   -- Note, leaf nodes under ptfproduct 1-4 are
   -- prod type
  -- prod version
  -- prod location
  -- prod local support phone
  -- then comes modules folder
   -- 1.3.6.1.4.1.18507.4.5
   ptfmodules OBJECT IDENTIFIER ::= { ptfproduct 7 }

    -- 1.3.6.1.4.1.18507.4.6
   ptfdata OBJECT IDENTIFIER ::= { ptfproduct 8 }

   -- 1.3.6.1.4.1.18507.1
   precise_name OBJECT-TYPE
     SYNTAX OCTET STRING
     ACCESS read-only
     STATUS mandatory
     ::= { preciseinc 1 }

    -- 1.3.6.1.4.1.18507.2
```

```
precise_phone OBJECT-TYPE
  SYNTAX OCTET STRING
  ACCESS read-only
  STATUS mandatory
  ::= { preciseinc 2 }

-- 1.3.6.1.4.1.18507.3
precise_email OBJECT-TYPE
  SYNTAX OCTET STRING
  ACCESS read-only
  STATUS mandatory
  ::= { preciseinc 3 }

-- So it goes private-enterprises-preciseinc - ptfproduct -producttype
-- assume only one 'product' or device  handled by one resident snmp agent
-- on that product
-- 1.3.6.1.4.1.18507.6.1
product_type OBJECT-TYPE
  SYNTAX OCTET STRING
  ACCESS read-only
  STATUS mandatory
  ::= { ptfproduct 1 }

-- 1.3.6.1.4.1.18507.6.2
product_version OBJECT-TYPE
  SYNTAX OCTET STRING
  ACCESS read-only
  STATUS mandatory
  ::= { ptfproduct 2 }

-- 1.3.6.1.4.1.18507.6.3
product_location OBJECT-TYPE
  SYNTAX OCTET STRING
  ACCESS read-write
  STATUS mandatory
  ::= { ptfproduct 3 }

-- 1.3.6.1.4.1.18507.6.4
location_support_phone OBJECT-TYPE
  SYNTAX OCTET STRING
  ACCESS read-write
  STATUS mandatory
  ::= { ptfproduct 4 }

-- 1.3.6.1.4.1.18507.7.1
has_sntp OBJECT-TYPE
  SYNTAX OCTET STRING
  ACCESS read-only
  STATUS mandatory
```

```
    ::= { ptfmodules 1 }

  -- 1.3.6.1.4.1.18507.7.2
  has_telnet OBJECT-TYPE
    SYNTAX OCTET STRING
    ACCESS read-only
    STATUS mandatory
    ::= { ptfmodules 2 }

  -- 1.3.6.1.4.1.18507.7.3
  has_snmp OBJECT-TYPE
    SYNTAX OCTET STRING
    ACCESS read-only
    STATUS mandatory
    ::= { ptfmodules 3 }

  -- 1.3.6.1.4.1.18507.7.4
  has_http OBJECT-TYPE
    SYNTAX OCTET STRING
    ACCESS read-only
    STATUS mandatory
    ::= { ptfmodules 4 }


  -- 1.3.6.1.4.1.18507.7.5
  has_fastswitch OBJECT-TYPE
    SYNTAX OCTET STRING
    ACCESS read-only
    STATUS mandatory
    ::= { ptfmodules 5 }

--
--
--

  -- 1.3.6.1.4.1.18507.8.1
  up_time OBJECT-TYPE
    SYNTAX   TimeTicks
    ACCESS read-only
    STATUS mandatory
    ::= { ptfdata 1}

  -- 1.3.6.1.4.1.18507.8.2
  last_status_change OBJECT-TYPE
    SYNTAX OCTET STRING
    ACCESS read-only
    STATUS mandatory
    ::= { ptfdata 2}
```

```
    -- 1.3.6.1.4.1.18507.8.3
    num_mode_changes OBJECT-TYPE
      SYNTAX   Counter
      ACCESS read-only
      STATUS mandatory
      ::= { ptfdata 3 }

    -- 1.3.6.1.4.1.18507.8.4
    num_channel_changes OBJECT-TYPE
      SYNTAX   Counter
      ACCESS read-only
      STATUS mandatory
      ::= { ptfdata 4 }

    -- 1.3.6.1.4.1.18507.8.5
    num_faults_detected OBJECT-TYPE
      SYNTAX   Counter
      ACCESS read-only
      STATUS mandatory
      ::= { ptfdata 5 }


    -- 1.3.6.1.4.1.18507.8.6
    num_traps_sent OBJECT-TYPE
      SYNTAX   Counter
      ACCESS read-only
      STATUS mandatory
      ::= { ptfdata 6 }


--
-- Command and Control
--

    -- 1.3.6.1.4.1.18507.8.7
    send_traps_if_1 OBJECT-TYPE
      SYNTAX   Counter
      ACCESS read-write
      STATUS mandatory
      ::= { ptfdata 7 }

    -- 1.3.6.1.4.1.18507.8.8
    snmp_mgr_ip OBJECT-TYPE
      SYNTAX OCTET STRING
      ACCESS read-write
      STATUS mandatory
      ::= { ptfdata 8 }

END
```

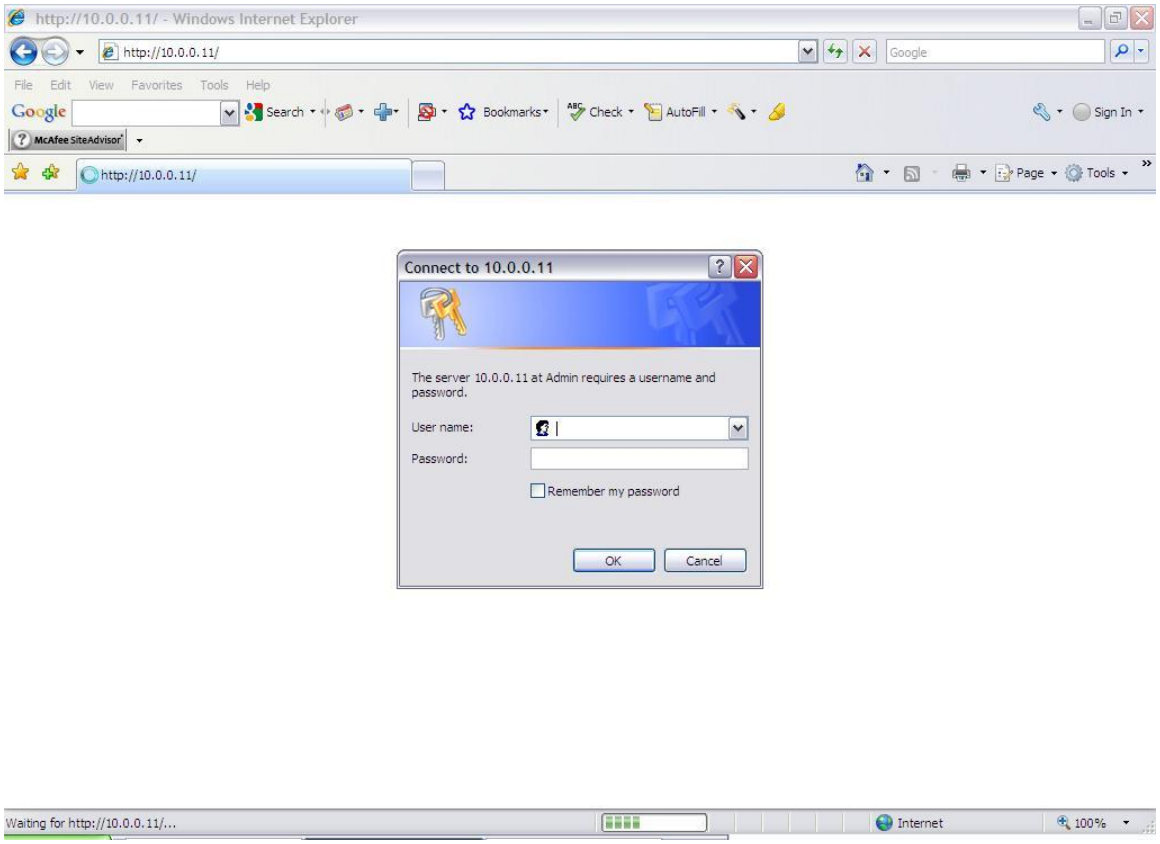
5.5. HTTP, Web Interface

The ptf 1206/7A web interface allows a sub set of the commands to be entered via a web page through a standard web browser. The commands available on the web interface are shown in the table below, and can also be viewed on the web interface “vali commands” page;

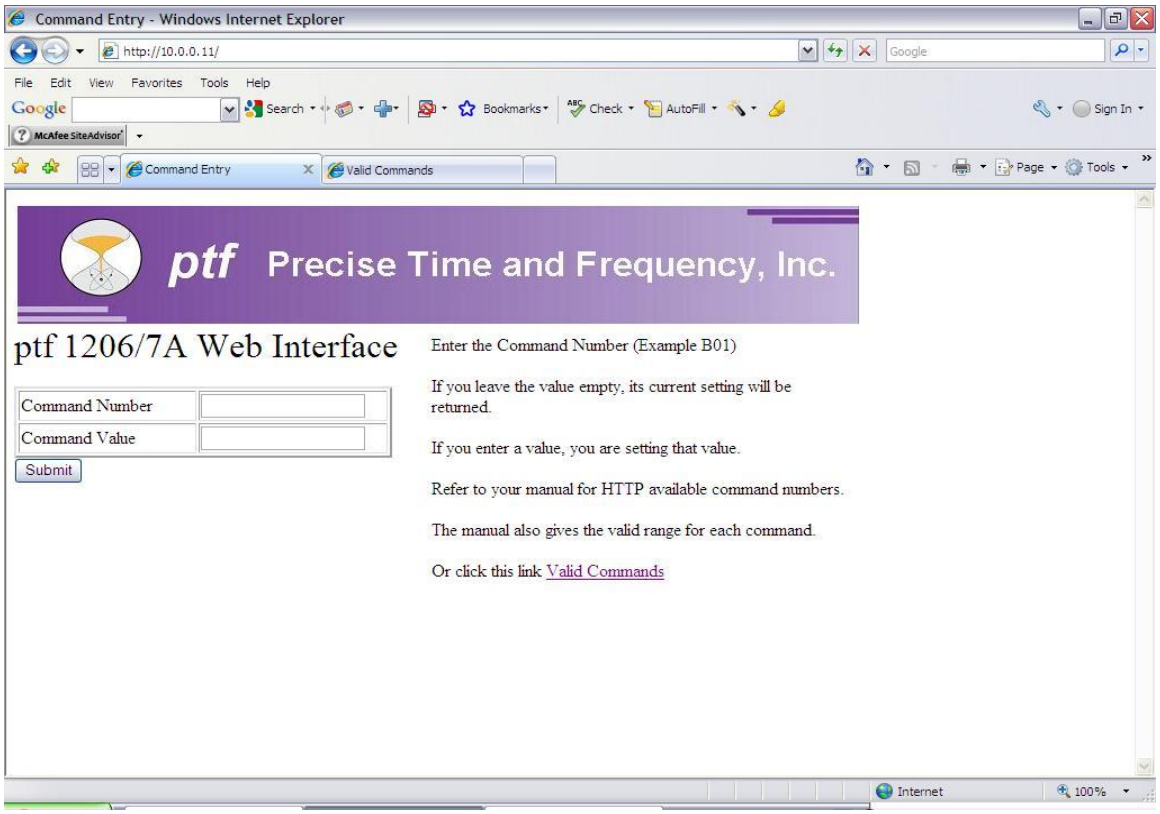
Command	Description	Type	Range	Comments
B01	CH1 Input	String	Primary / Backup	Locked when in Auto
B02	CH1 Mode	String	Auto / Manual	
B03	CH2 Input	String	Primary / Backup	Locked when in Auto
B04	CH2 Mode	String	Auto / Manual	
B05	CH3 Input	String	Primary / Backup	Locked when in Auto
B06	CH3 Mode	String	Auto / Manual	
B07	CH4 Input	String	Primary / Backup	Locked when in Auto
B08	CH4 Mode	String	Auto / Manual	
B09	CH5 Input	String	Primary / Backup	Locked when in Auto
B10	CH5 Mode	String	Auto / Manual	
B11	CH6 Input	String	Primary / Backup	Locked when in Auto
B12	CH6 Mode	String	Auto / Manual	
B13	CH7 Input	String	Primary / Backup	Locked when in Auto
B14	CH7 Mode	String	Auto / Manual	
B15	CH8 Input	String	Primary / Backup	Locked when in Auto
B16	CH8 Mode	String	Auto / Manual	
B17	Date (UTC)	String	MM/DD/YYYY	Only valid dates (Manual or NTP)
B18	Time (UTC)	String	HH:MM:SS	24 hour format (Manual or NTP)
B19	IP	xxx.xxx.xxx.xxx	IP address	
B20	NET MASK	xxx.xxx.xxx.xxx	Net Mask	
B21	GATEWAY	xxx.xxx.xxx.xxx	Gateway	
Status	Status	String	Status	Give channel status

5.5.1. Web pages

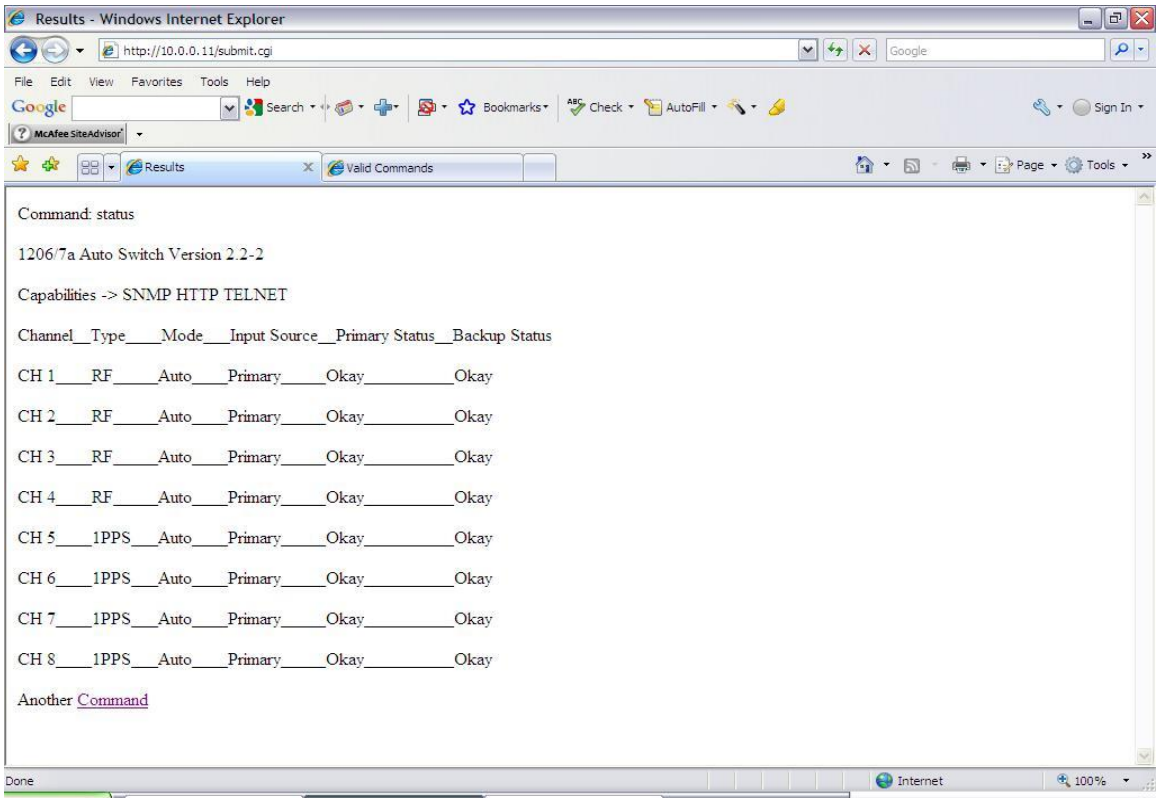
To log onto the web pages the user must enter a user name and the system password. User name for the web interface is “admin” (all lower case).The log in screen and web pages are shown below;



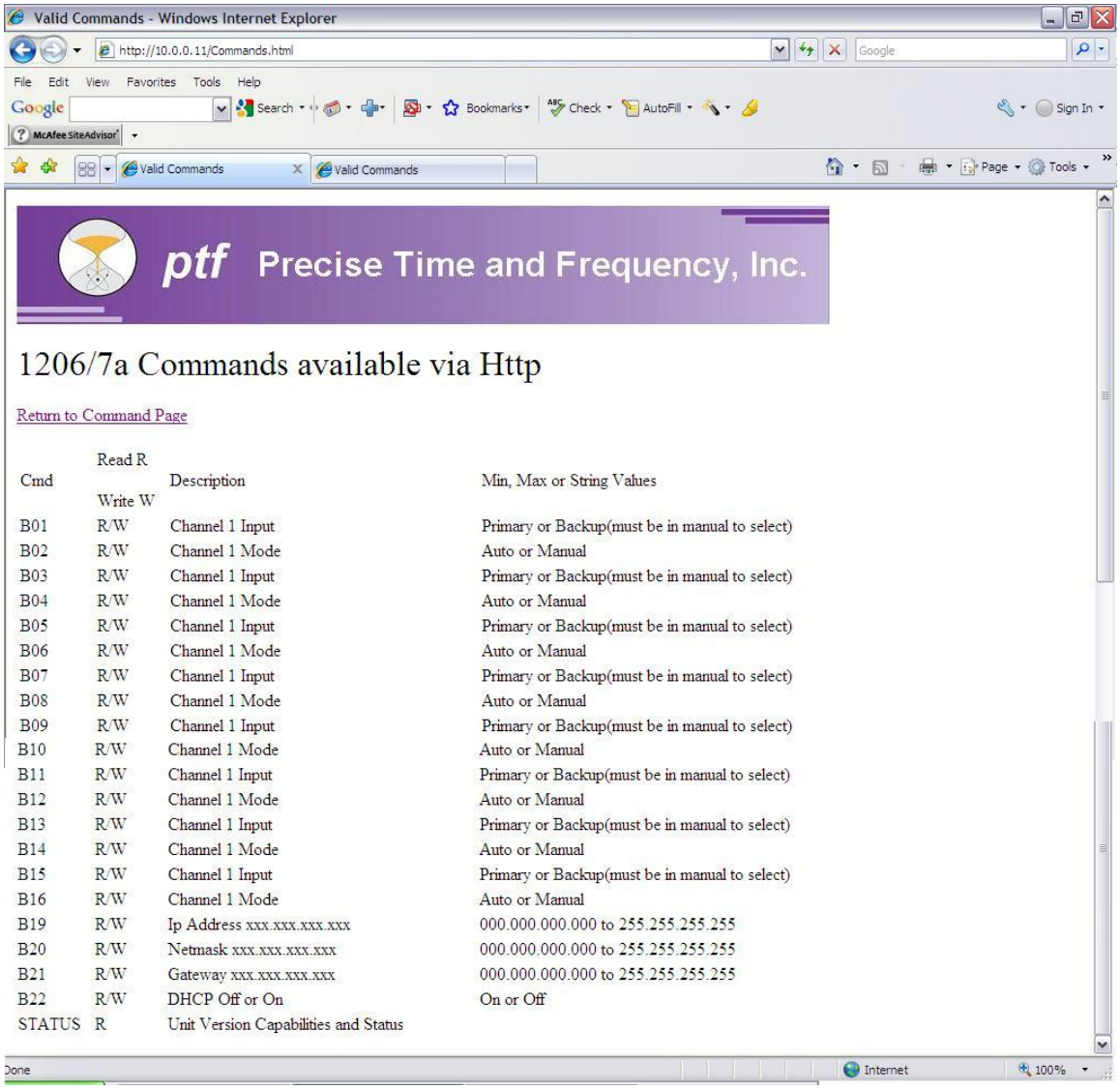
Login Screen



Command Entry Page



Status Response Page

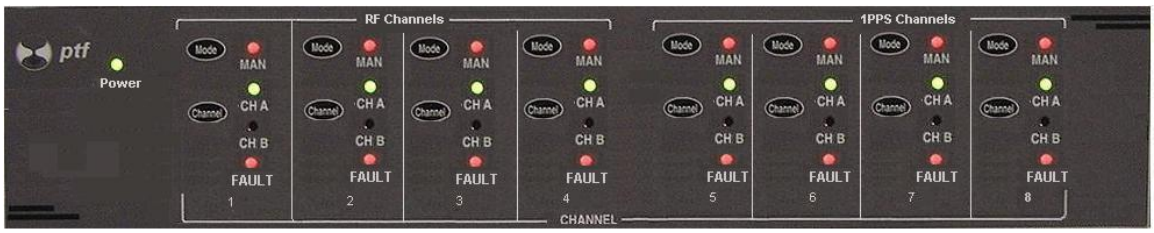


Valid Commands

To logout of the web interface close the browser.

5.6. Local (Front Panel)

The ptf 1207A Auto switch unit front panel layout is shown below;



Front Panel Layout

5.6.1. Commands

Each channel of the unit can be configured as either in Auto or Manual mode.

If a channel is in Auto mode, the Auto switch monitors the health of the selected input and if the selected input goes unhealthy, the channel will automatically switch to the other input.

Each channel of the unit can be toggled between Auto and Manual mode by momentarily depressing the MODE membrane switch for that channel.

If a channel is in Manual mode, the input channel can be switched by momentarily pressing the CHANNEL membrane switch. Pressing the CHANNEL switch again will toggle the channel back to the original input. In Auto mode the CHANNEL switch is not operational.

5.6.2. Monitors

Each channel includes indicators for channel mode (red LED illuminates when channel mode is selected as Manual) and green LEDs for channel input selected. If both input signals (primary and backup) are healthy, then only the selected input LED illuminates (green). If either input is in fault mode, the fault LED will illuminate (red) whether that input is selected or not. In this way it is immediately obvious if an input is faulty.

When in Auto mode, the unit will not switch to a faulty input, even if the currently selected input goes into fault. In Manual mode, the input can be switched regardless of whether or not the destination input is in a fault mode. A local summary alarm monitor is also provided on a 9 pin D type connector located on the unit rear panel. The output is on clean relay contacts.

6. Maintenance

6.1. Overview

The ***ptf*** 1207A Auto Switch units 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 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.

6.2. CAUTION: DOUBLE POLE/NEUTRAL FUSING

Please note:

When disconnecting the equipment note that there are two fuses with type T3.15AL 250V each installed on Line and Neutral.

7. 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
   Wakefiel, MA 01880
   USA

   Attn: Service Manager

   Billing address is:

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

   Attn: Accounts

Precise Time and Frequency, LLC

ptf 1207A Auto Switch

Operation and Maintenance Manual

Configuration Supplement

Document # 12032
Revision A
(supplement for 11493 rev D)

This manual is a supplement to the ptf 1207A
User's guide / Operation manual document number 11493 rev D

CONTENTS

5. *ptf* 1207A Auto Switch - Technical Overview

There are 2 inputs to each individual channel and one output each. The ptf 1207A can accommodate up to 8 channels in one, 2U high rack mounting unit.

The input signals accommodate either a 13dbm RF sine wave (1volt RMS), or a TTL digital input (usually 1PPS) which are factory configured before shipment.

Each Switching Channel selects the primary input and routes it to a single output. Detection logic embedded in an on-board CPLD determines if there is a fault condition on the primary input and then, if so, automatically switches to the backup input, provided the backup input is in a “healthy” condition.

In addition, the unit continuously monitors the all switching channel inputs and provides a summary fault indication (change over relay contacts) if any one of the primary or backup inputs is reporting a fault.

The Auto Switch normally outputs the primary channel input signals, and automatically switches to the back-up channel based on health status of the measured inputs. In the event of power failure to the unit the unit “fails safe” to leave the current channel input switched onto the outputs

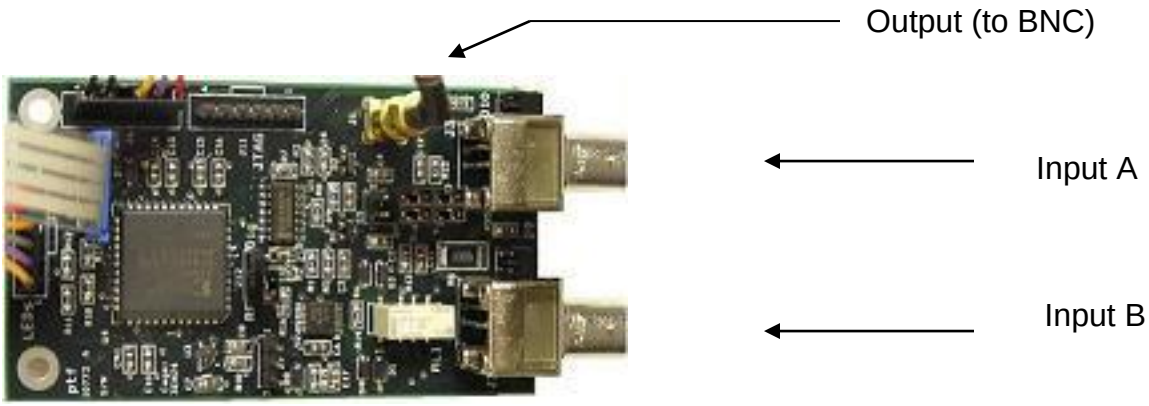
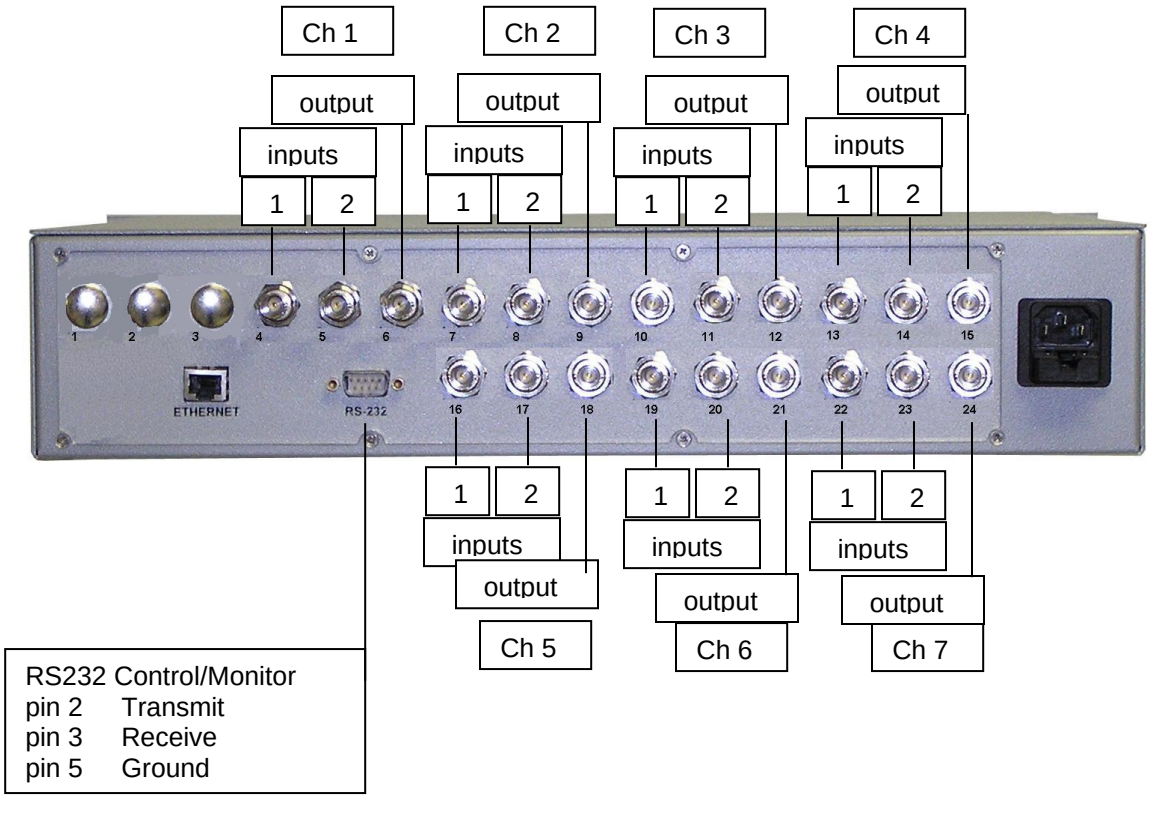


Figure 1. Photograph of internal Auto Switch Module

6. ***ptf*** 1207A – Standard Configuration

Operation of the ***ptf*** 1207A is extremely straightforward. Once all of the required input and output connections have been made power can be applied for the unit.

The drawing below shows the standard configuration of the unit.

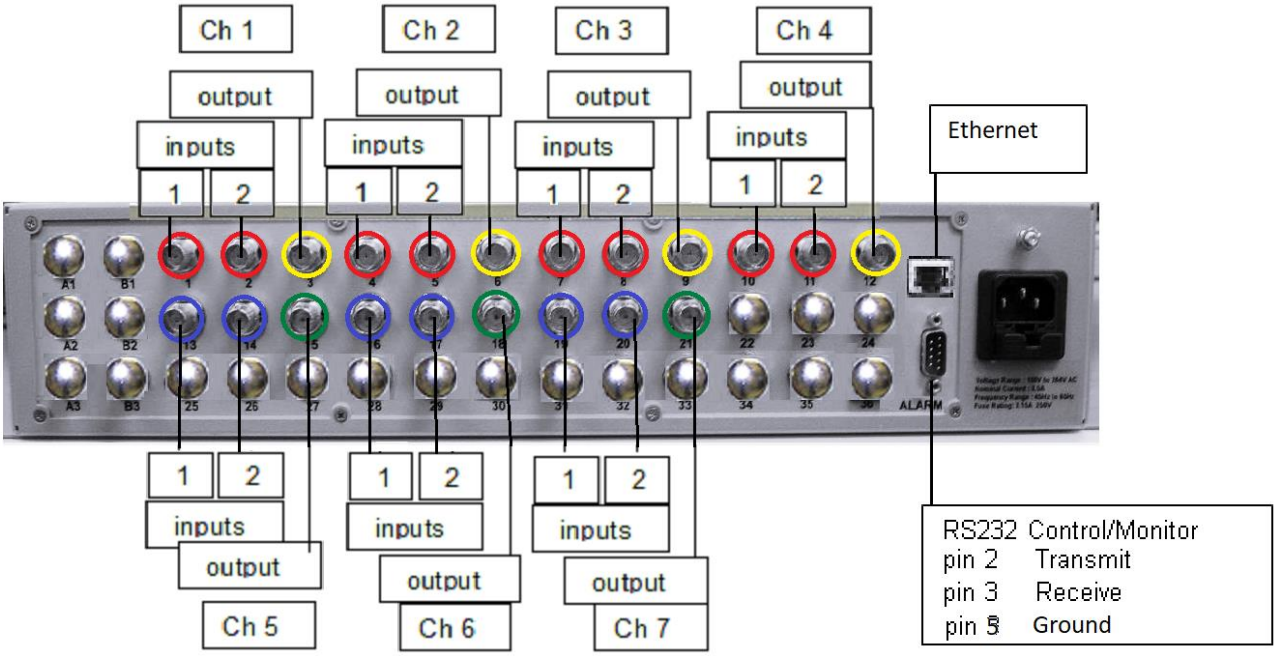


Rear Panel Port Connections ptf 1207A

7. ***ptf*** 1207A – Alternative Configuration

In some instances an alternative configuration has been supplied. Operation of the alternative configuration is identical to operation of the standard configuration, however the appearance of the rear panel is slightly different.

The drawing below shows the alternative configuration of the unit.



Alternative Rear Panel Port Connections ptf 1207A

4 Contact Information – Technical Assistance

The Precise Time and Frequency, LLC 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.

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Wakefield, MA 01880
USA

Attn: Service Manager

Billing address is:

Precise Time and Frequency, LLC
50L Audubon Road
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USA

Attn: Accounts