



Precise Time and Frequency PTF 3207A Series Telnet Serial Driver FS-8705-58

Chipkin - Enabling Integration

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NOTICE :

1. The General Configuration Manual provides supplemental information
2. Instructions on loading firmware, setting IP and taking a Diagnostic are found at this URL
- <https://store.chipkin.com/support/chipkin-simplified-support>

1 PTF 3207A Series Driver Description

The PTF 3207A Series Driver protocol can be used to connect to the serial port on PTF 3207A Series Instruments (Clocks). The Driver can read and write data, change settings and issue commands to the instrument. A single gateway can connect to a single instrument using this driver.

The Gateway will be an active client in communications with the Instrument. This means that the gateway will issue messages to read/write data. The Instrument will be a passive server, waiting silently for messages from the gateway to which it will respond. The data read will be cached for serving via a 2nd protocol such as SNMP or Modbus / BACnet or any of the other drivers available for a building management system. Any of the approx. 200 protocols in the gateway library may be connected to the PTF 3207A Series Instrument's data.

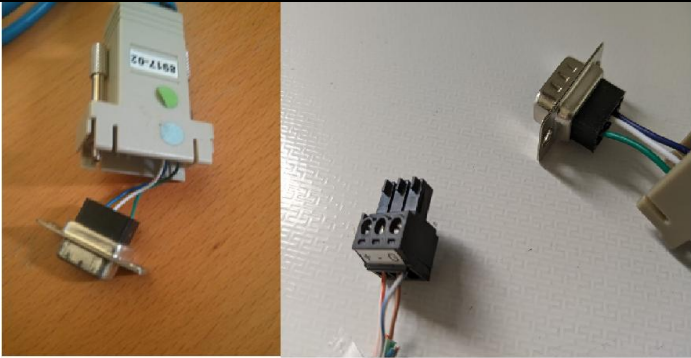
The gateway requires minimal configuration and can be considered a plug and play component of a system, in that it is ready to operate out of the box with the default configuration.

Max Nodes Supported

FIELD SERVER MODE	NODES	COMMENTS
Client	1	One Gateway can connect to a single 3207A Instrument.
Server	0	This driver cannot be used to simulate 3207A Instrument.

2 Driver Scope of Supply

2.1 Supplied by Chipkin Automation for this driver

PART #	DESCRIPTION
3x terminal block is contained in the FieldServer box. Usual color is green DB9 Male connector is to be made up as part 8917-02	
-	A DB9 MALE -patch cable connector and a patch cable 
FS-8705-58	Driver Manual.

2.2 Provided by the Supplier of 3rd Party Equipment

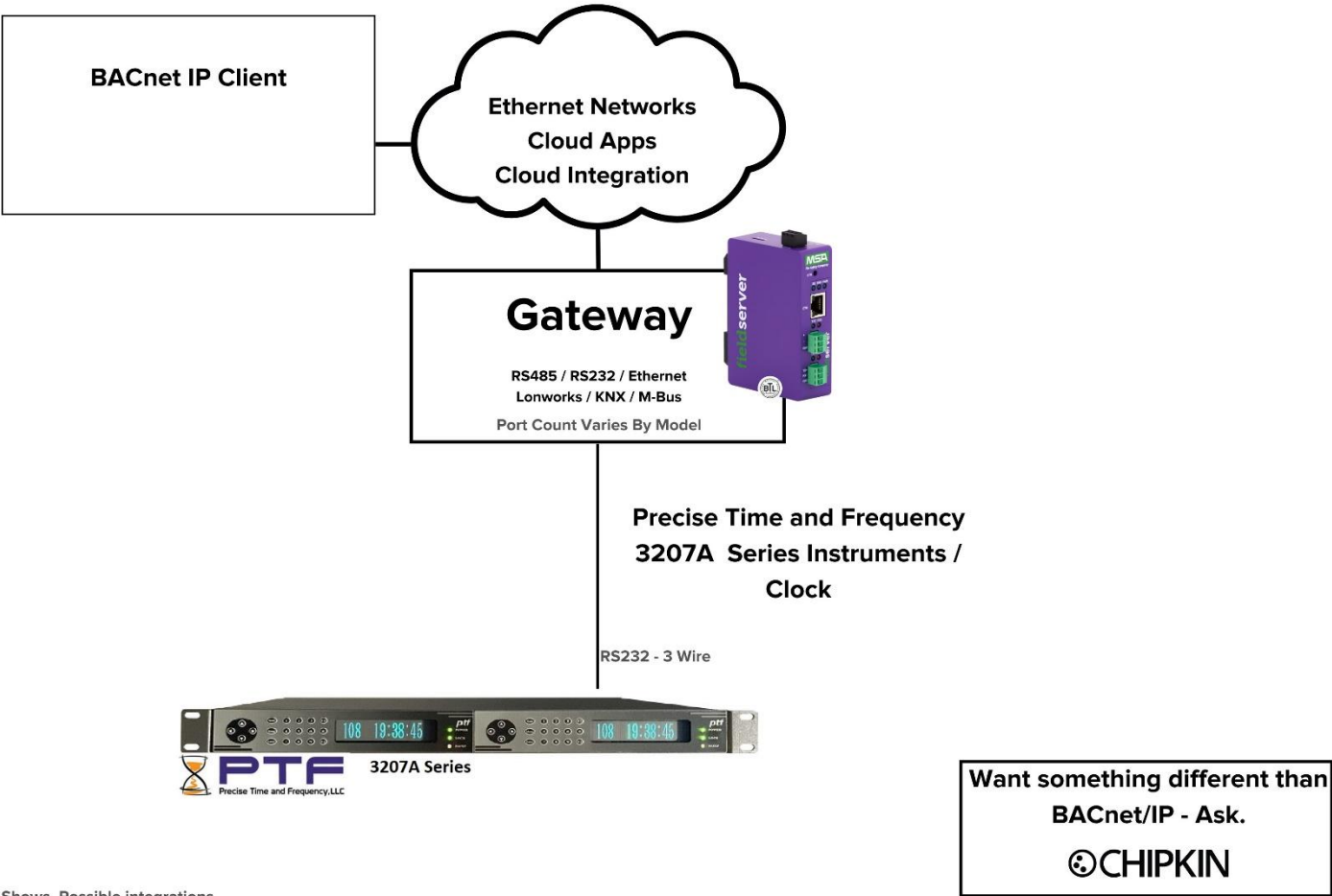
2.2.1 Required 3rd Party Hardware

PART #	DESCRIPTION

3 Hardware Connections

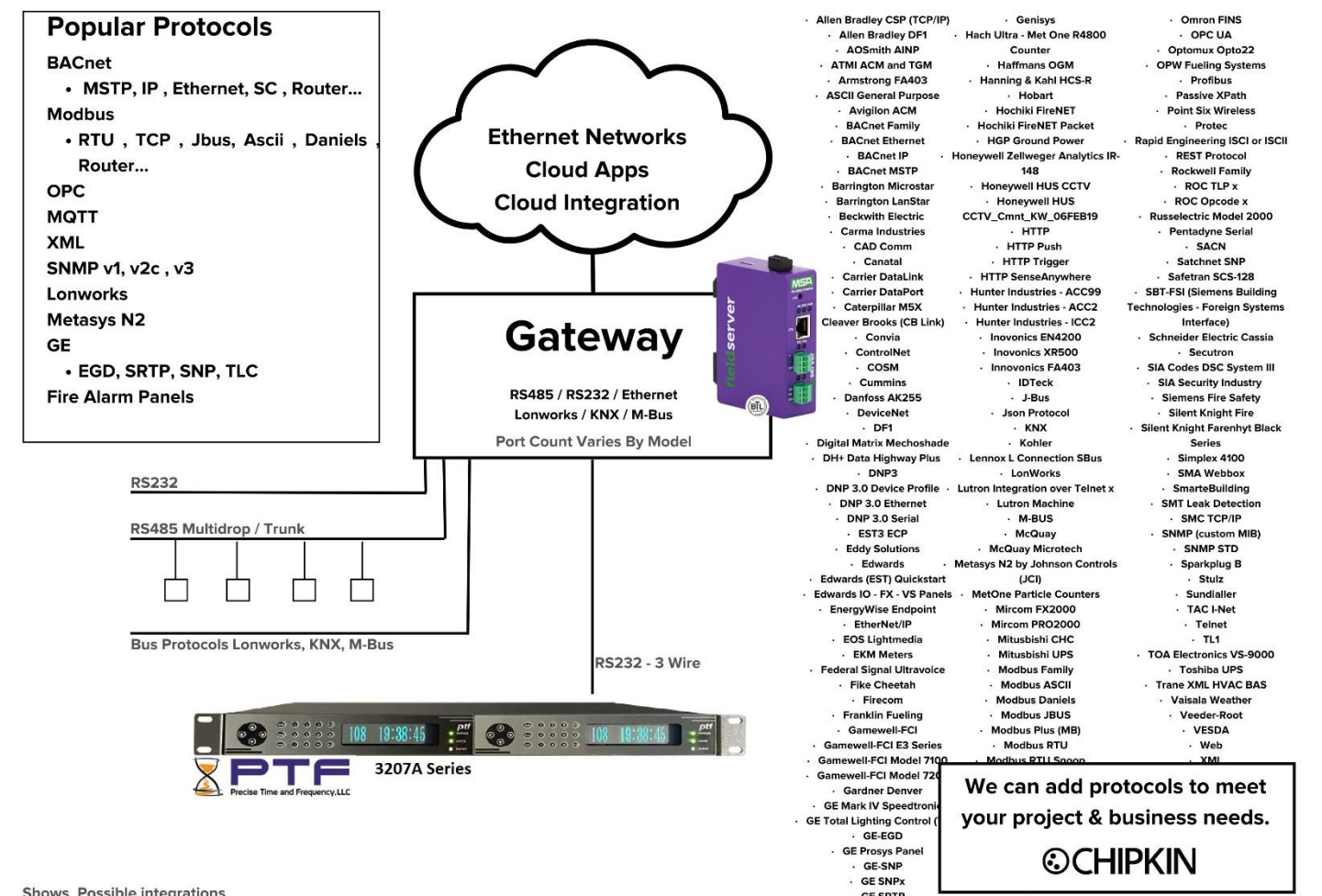
3.1 As Shipped Block Diagram

Multiple upstream protocols and connection supported. See list of FieldServer Drivers.



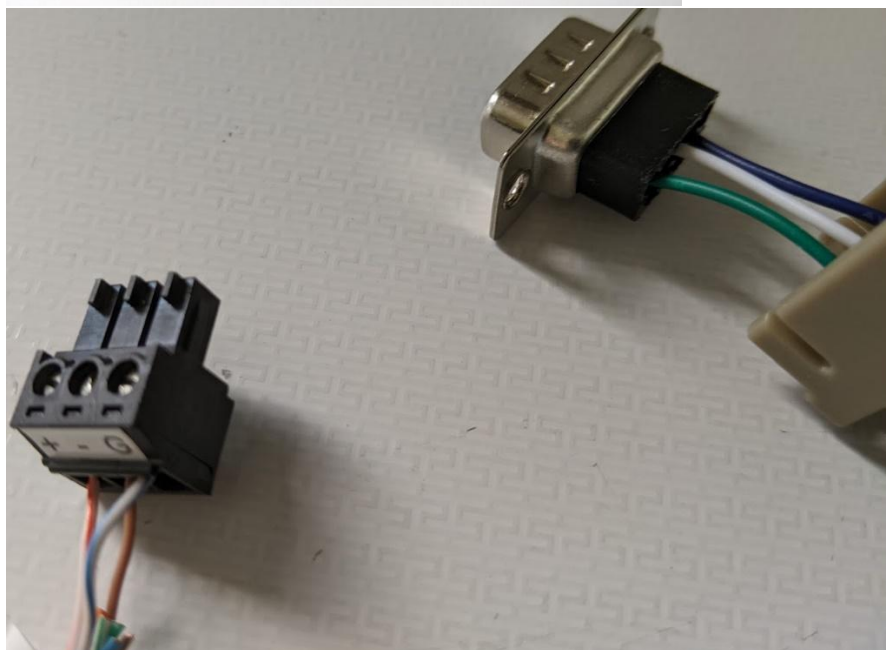
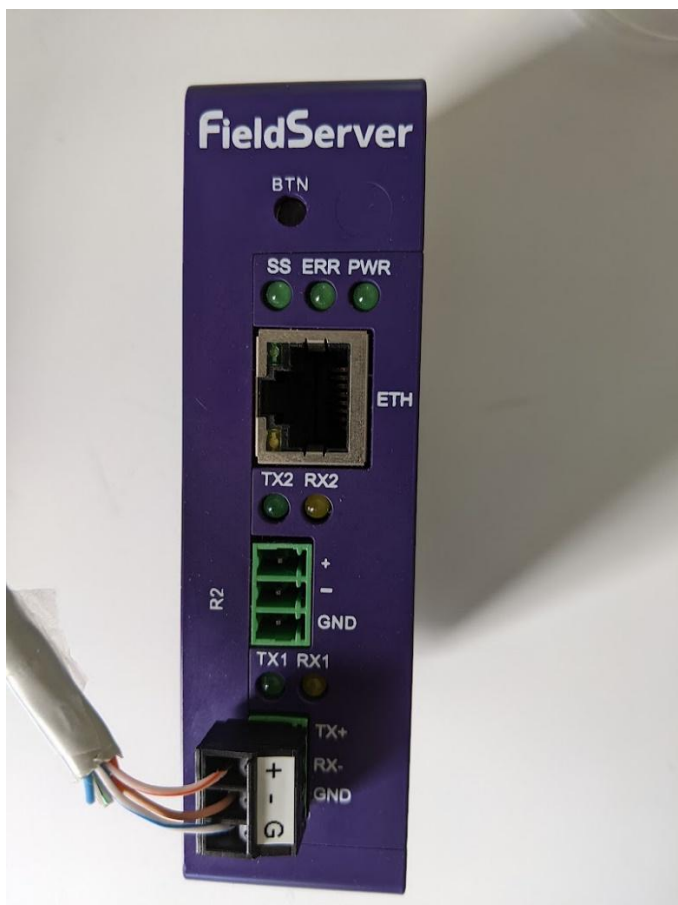
Shows Possible integrations

3.2 Capabilities Block Diagram



3.3 Hardware connections and setting on the Gateway





4 Configuring the FieldServer as a PTF 3207 Client

For a detailed discussion on FieldServer configuration, please refer to the FieldServer Configuration Manual. The information that follows describes how to expand upon the factory defaults provided in the configuration files included with the FieldServer (See “.csv” sample files provided with the FS).

This section documents and describes the parameters necessary for configuring the FieldServer to communicate with a 3207A Instrument / Clock.

4.1 Data Arrays/Descriptors

The configuration file tells the FieldServer about its interfaces, and the routing of data required. In order to enable the gateway for Hunter ACC Driver communications, the driver independent FieldServer buffers need to be declared in the “Data Arrays” section, the destination device addresses need to be declared in the “Client Side Nodes” section, and the data required from the servers needs to be mapped in the “Client Side Map Descriptors” section. Details on how to do this can be found below.

Note that in the tables, * indicates an optional parameter, with the bold legal value being the default.

SECTION TITLE		
Data_Arrays		
COLUMN TITLE	FUNCTION	LEGAL VALUES
Data_Array_Name	Provide name for Data Array	Up to 15 alphanumeric characters
Data_Array_Format	Provide data format. Each Data Array can only take on one format.	Float, Bit, UInt16, UInt32, Sint16, Packed_Bit, Byte, Packed_Byte, Swapped_Byte
Data_Array_Length	Number of Data Objects. Must be larger than the data storage area required by the Map Descriptors for the data being placed in this array.	1-10,000

Example

Data_Arrays		
Data_Array_Name,	Data_Format,	Data_Array_Length,
DA_ALL,	FLOAT,	300*
*Note – Must be 300 or more		

4.2 Client Side Connection Descriptions

Create one adapter for each Ethernet port. Each connection can only be used to connect to a single PRO2000 interface/port.

SECTION TITLE		
Adapters		
COLUMN TITLE	FUNCTION	LEGAL VALUES
Port	Specify which serial port the device is connected to on the gateway	R1 Mandatory. Only port R1 is available as a RS232 Port. Micro switches for port R1 must be set as indicated on the gateway. Out of the box the switches are set for RS232 and thus they require changing
Protocol	Specify protocol used	PTF3207
Baud	Set the configuration file to the Baud rate set on the 3207	Gateway - 4800, 9600 , 19200, 38400 , 57500 3207 Instrument - 4800, 9600 , 19200, 38400 , 57500
Data_bits		8
Stop_bits		1
Parity		None
IC_timeout	Inter byte timeout. If bytes in the response to a poll have a gap more than this time setting then the message will be discarded	1.0
Timeout	If no response to a poll is received at all during this period then the Poll then there will be a retry based on the retry settings	3.0
ptf3207_poll_ict	The time between the transmission of each byte of	0.05

	the Poll message sent by the gateway	
--	--------------------------------------	--

Example

```
//      Client Side Connections

Connections

Port , Baud , Data_Bits , Stop_Bits , Parity , Protocol ,IC_timeout , timeout , ptf3207_poll_ict
R1   , 9600 , 8           , 1           , None   , PTF3207 ,0.5s           , 3s           , 0.05s
```

4.3 Client Side Node Descriptors

Create one Node per Hunter ACC2 Controller.

SECTION TITLE		
Nodes		
COLUMN TITLE	FUNCTION	LEGAL VALUES
Node_Name	Provide name for node	Up to 32 alphanumeric characters
Node_ID	Not Required	Whole Numbers 0,1,2,...
Acc2_SideID		Whole Numbers 0,1,2,...
Protocol	Specify protocol used	PTF3207
Port	Specify which serial port the 3207A device is connected to the gateway	R1

Example

<u>Nodes</u>			
<u>Node Name</u>	<u>,</u>	<u>Node ID</u>	<u>,</u>
<u>Protocol</u>	<u>,</u>	<u>Port</u>	
<u>Instrument</u>	<u>,</u>	<u>1</u>	<u>,</u>
<u>PTF3207</u>	<u>,</u>	<u>R1</u>	

4.4 Client Side Map Descriptors

4.4.1 FieldServer Related Map Descriptor Parameters

COLUMN TITLE	FUNCTION	LEGAL VALUES
Map_Descriptor_Name	Name of this Map Descriptor	Up to 32 alphanumeric characters
Data_Array_Name	Name of Data Array where data is to be stored in the FieldServer Example DA_ALL	One of the Data Array names from “Data Array” section above We recommend that you use a ‘FLOAT’ Data Array since the temperatures are reported as floating point numbers.
Data_Array_Offset	Starting location in Data Array	0 to maximum specified in “Data Array” section above
Function	Function of Client Map Descriptor..	RDBC Read Continuously

4.4.2 Driver Related Map Descriptor Parameters

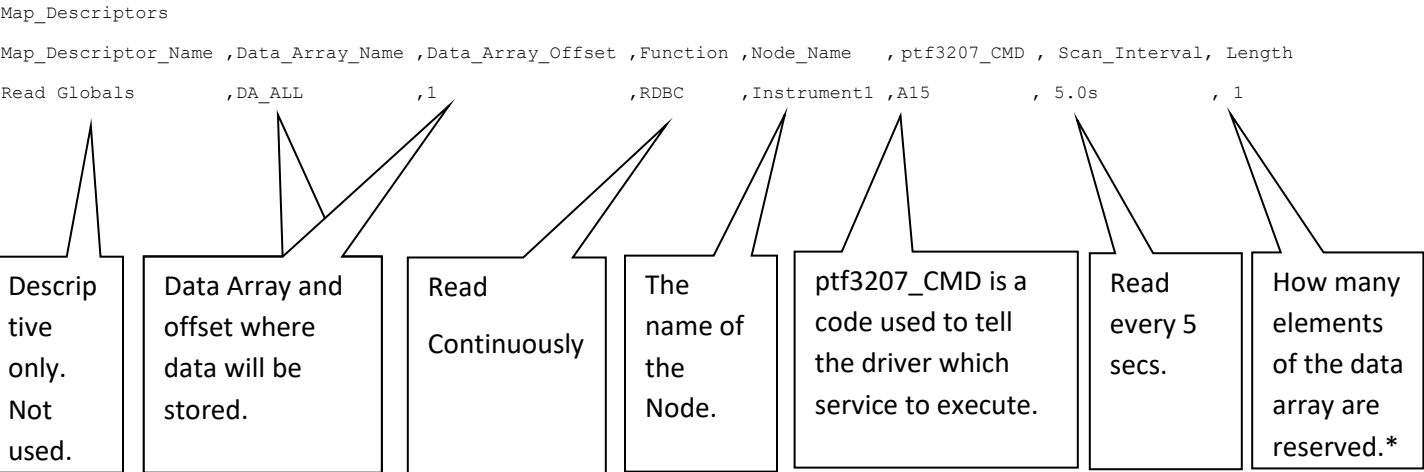
COLUMN TITLE	FUNCTION	LEGAL VALUES
Node_Name	Name of Node to fetch data from	The node names specified in "Client Node Descriptor" above
Data_Type	This commonly used parameter is not used by this driver.	
Length	Length of Map Descriptor See the example configuration	1,2,3...
Address	This commonly used FieldServer parameter is not used by this protocol.	
ptf3207_CMD		A15, A16, A21, A23, A36, A41, SERVO

4.4.3 Timing Parameters

COLUMN TITLE	FUNCTION	LEGAL VALUES
Scan_Interval	Rate at which data is polled	≥0.001s

4.4.4 Map Descriptor Example 1 – A15 - TIME-MODE

In this example the driver reads the 3207A Time Mode. This task is executed at best every 5 seconds. The data read by the command is stored in the data array named “DA_ALL” starting at offset zero in the array. Exactly what data is stored is dependent on the Acc2_CMD. For command and services that write data, the Data Array/Offset as well the the 2x Acc2_options define the data that will be sent to the controller.



Note *

Required values shown in configuration example

5 Configuring the FieldServer as a PTF 3207A Server

This driver cannot be used to emulate a 3207A series instrument.

6 Sample Configuration

```
//=====
===
//
//      Common Information
//

Bridge
Title
PTF3207 Client

//=====
//
//      Data Arrays
//

Data_Arrays
Data_Array_Name , Data_Format , Data_Array_Length
DA_ALL          , FLOAT        , 1000
DA_A15          , UINT16       , 100
DA_A16          , UINT16       , 100
DA_A21          , UINT16       , 100
DA_A23          , UINT16       , 100
DA_A36          , FLOAT        , 1000
DA_A41          , UINT16       , 100
DA_A77          , FLOAT        , 100
DA_SERVO        , FLOAT        , 100
```

Aa

```
//=====
//
//      Client Side Connections
//

Connections
Port , Baud , Data_Bits , Stop_Bits , Parity , Protocol      ,IC_timeout , timeout , ptf3207_poll_ict
R1   , 9600 , 8           , 1           , None   , PTF3207   ,0.2s      , 2,0s     , 0.05

//=====
//
//      Client Side Nodes
//

Nodes
Node_Name , Node_ID , Protocol      , Port ,
Instrument , 1         , PTF3207      , R1   ,
```

```
//=====
//
//      Client Side Map Descriptors
//

Map_Descriptors
Map_Descriptor_Name , Scan_Interval , Data_Array_Name ,Data_Array_Offset , Function , Node_Name , ptf3207_CMD , Length
a15 , 60s , DA_ALL ,1 , rdbc , Instrument , a15 , 1
a16 , 60s , DA_ALL ,2 , rdbc , Instrument , a16 , 1
a21 , 10s , DA_ALL ,3 , rdbc , Instrument , a21 , 1
a23 , 0s , DA_ALL ,4 , rdbc , Instrument , a23 , 1
a36 , 0s , DA_ALL ,5 , rdbc , Instrument , a36 , 150
a41 , 1 , DA_ALL ,155 , rdbc , Instrument , a41 , 1
a77 , 0s , DA_ALL ,156 , rdbc , Instrument , A77 , 21
Servo , 0s , DA_ALL ,177 , rdbc , Instrument , Servo , 2
```

7 Where data is stored

Service	DA_ALL Offset	DA_15 Offset	Possible Values	
A15 - TIME-MODE	1	0 = Mode 1 = reports success / failure of sending a new value Saved Value = 1 Not Saved Value = 0	Local = 0 UTC = 1 GPS = 2	R/W

Service	DA_ALL Offset	DA_16 Offset	Possible Values	
A16 – TIME-OFFSET	2	0 = Time 1 = reports success / failure of sending a new value	+- Number of minutes Max=+960 Min=-960	R/W

Service	DA_ALL Offset	DA_21 Offset	Possible Values	
A21 - 1PPS-SRCE	3	0 = PPS Source Value 1 = reports success / failure of sending a new value	None = 0 Rcvr-1 = 1	R/W

Service	DA_ALL Offset	DA_23 Offset	Possible Values	
A23 - CNST-SEL	4	0 = Constellation Value 1 = reports success / failure of sending a new value	GALI = 0 GPS = 1	R/W

Service	DA_ALL Offset	DA_A36 Offset Is same as DA_ALL_Offset	Parameter	All params Read Only
A36 - STATUS	5		Time Hrs	
	6		Time Mins	
	7		Time Secs	
	8		Date Month	
	9		Date Day	
	10		Date Year	
	11		Position Lat. (Deg)	
	12		Position Long. (Deg)	
	13		Position Hight	
	14		Position Initializing=0 Complete=1	
	15		Locked No=0 Yes=1	
	16		Satellites In View	
	17		Satellites Tracked	
	18		Constellation GALI = 0 GPS = 1	
	19		Signal 00=	
	20		Signal 01=	
	21		Signal 02=	
			etc	
	118		Signal 99=	
	119		Survey Fixes	
	120		Survey Fixes Status	

			Initializing=0 Complete=1	
	121		UTC Offset seconds	
	122		Mask Angle Degrees	
	123		Sys Time Hours	
	124		Sys Time Mins	
	125		Sys Time Secs	
	126		Sys Date Month	
	127		Sys Date Day	
	128		Sys Date year	
	129		Temp Deg C	
	130		ptf3207A-GNS	
	131		S/W version	
	132		FPGA version	
	133		ID	
DA_STATIC_IP*	0-20		Static IP	Display String
DA_STATIC_MASK*	0-20		Static Mask	Display String
DA_STATIC_GW*	0-20		Static Gateway	Display String
	137		Jamming Status Alarm=0 Okay = 1	
	138		Jamming Level	
	139		Spoofing Status Alarm=0 Okay = 1	
DA_DYN_IP*	0-20			
DA_DYN_MASK*	0-20			
DA_DYN_GW*	0-20			

Service	DA_ALL Offset	DA_ A41 Offset	Possible Values	
A41 - RF-GAIN	155	0 = Gain Value 1 = reports success / failure of sending a new value	Gain Value Enumeration 0 = 0.42 1 = 0.46 2 = 0.51 3 = 0.56 4 = 0.63 5 = 0.72 6 = 0.84 7 = 1.00 8 = 1.07 9 = 1.15 10 = 1.22 11 = 1.29 12 = 1.36 13 = 1.43 14 = 1.50	R/W Max value = 14

Service	DA_ALL Offset	DA_ A77 Offset Is same as DA_ALL_Offset	Parameter	
A77 - PRINTMON	156		DAC	R
	157		10MHz(Vrms)	
	158		PRI 5V	
	159		BUP 5V	
	160		IRIG-AM	
	161		Temp Deg C	
	162		ANT1 (mA)	

	163		ANT2(mA)	
	164		Digital-OP1 Alarm=0 Ok=1	
	165		Digital-OP2 Alarm=0 Ok=1	
	166		Digital-OP3 Alarm=0 Ok=1	
	167		Digital-OP4 Alarm=0 Ok=1	
	168		10MHz-OP Alarm=0 Ok=1	
	169		IRIGB-OP Alarm=0 Ok=1	
	170		EXTRF/PPS-IP Alarm=0 Ok=1	
	171		IRIG/DIG-IP Alarm=0 Ok=1	
	172		IRIG/AM-IP Alarm=0 Ok=1	
	173		RB1 Lock Alarm=0 Ok=1	
	174		RB2 Lock Alarm=0	

			Ok=1	
	175		10Mhz Source Alarm=0 Ok=1	
	176		O/Put Alarm Alarm=0 Ok=1	

Service	DA_ALL Offset	DA_SERVO Offset Is same as DA_ALL_Offset	Possible Values	Params are Read Only
Servo Status	177		Initial Loc 0 = No 1 = Yes	
	178		Loop 0=Undefined 1= Fast 2=Medium 3 = S;pw	

Note *

These data arrays must be present in the config. The driver expects all 6 of them. The DA names are hardcoded into the driver.

8 Errors

The Value 999 is used to report errors.

For example in the 'Alarm' enumeration there are 2 valid values

0 = Alarm

1 = Ok

But there is always an extra element to the enumeration

999 = Some sort of error

999 = Data not Available-

Applies to the PRN/Signal – where 100 items are possible but only a limited number are reported. The un-reported slots are set the value 999

When this occurs

Take a diagnostic while the error condition is active. Instructions are found at this URL

<https://store.chipkin.com/support/chipkin-simplified-support>

Record the "FSExxxx" reference number on the gateway and contact support@chipkin.com

9 Revision History

This table summarizes the update history for this document. Please contact Chipkin for an updated version of this document if required.

DATE	RESP	DRIVER VER.	DOC. REV.	COMMENT
2024Jun12	PMC	1.00	1	Released
2024Jul09	PMC	1.00	2	A16 changed secs to minutes
2024Aug02	PMC	1.02bA	3	Changes for IP Addresses.