

Alpha 4314 Series – Safety Isolated RS-232 Interface Datasheet

2.5kV fully Isolated (Power and Data)

Introduction

The RS-232 interface of the 4314 Series Igniter Testers is an ultra-safe isolated serial Interface. The digital signals are transmitted across the isolation barrier using iCoupler technology. The interface provides a safe way to communicate with device via a computer or PLC and allows the transfer of single reading or continues transmission of data.

Connecting the Alpha 4314 via RS232

The RS232 interface capabilities:

The RS232 interface provides a point-to-point connection between two items of equipment such as a computer and the Alpha 4314. There are some parameters you need to set on the both sides. Once you have set these parameters, you can communicate with the Alpha 4314 through the RS232 interface.

- Baud rate: 115200 baud.
- Parity bit: none.
- Data bit: 8 bits.
- Stop bit: 1 stop bit.
- Data flow control: none.

Notes for RS232 installation

The Alpha 4314 is a DCE (Data Channel Equipment) device with a 9-pin D-type shell RS232 connector located on the rear panel. Table 1 shows the 9-pin connector (Female) with its pin number assignments.

Pin #	Pin Function
1	No Connection
2	Receive Data (RxD) (input)
3	Transmit Data (TxD) (output)
4	No Connection
5	Signal Ground
6	No Connection
7	No Connection
8	No Connection
9	No Connection

Table 1 - RS-232 Connector Pin Configuration

Checking Connections

To test whether the RS232 connection is working, you can send a command from the computer. For instance, using a terminal program send the query command

Idn?

The device should return the Manufacturer, model number, firmware version in the following format:

```
Valhalla Scientific Alpha4314 V2.0
```

If you do not receive a proper response from the Alpha 4314, please check if the power is on, and all cable connections are active.



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COMMANDS AND SYNTAX

RS232 message terminators

As there is no signal of end message on RS232 bus, therefore, use LF, CR, or CR/LF as message terminator. After the Alpha 4314 processes a command a CR/LF is placed in the output buffer and delivered. As for query command, the return message of the instrument is also added a LF for PC to judge message terminator.

Entering Commands

The standards that govern the command set for the Alpha 4314 allow for a certain amount of flexibility when you enter commands. The Alpha 4314 does not adhere to any friendly listening standards so the commands and queries must be typed as specified. The Alpha 4314 are sensitive to the case of command characters. Specifically the device uses Camel Case.

DETAILS OF COMMAND REFERENCE

Each command in this chapter will give a detailed description. The examples of each command will be provided and what query form might return.

Remote mode is entered when a valid printable character is received and is exited with the LOCAL front panel key or LOCAL command.

Command Index

Idn?	Ohm?
Local	Ohms?
LogOn	RangeN?
LogOn0	RangeV?
LogOn1	Reset
LogOn2	Screen?
LogOff	

Idn? QUERY

Returns the RS-232 identification string from non-volatile.

Syntax: Idn?<crLf>

Response: ID string "Valhalla Scientific Alpha4314 v2.0"

Example: Idn? "Valhalla Scientific Alpha4314 v2.0"

ID_STRING : "Valhalla Scientific"

MODEL : "Alpha4314"

VERSION : "V2.0"



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Local COMMAND

Returns meter to local mode.

Syntax: Local<crLf>

Returns: <crLf>

Power-on default = LOCAL mode

Notes: REMOTE mode is selected when the meter receives a valid character (not <crLf>).

LogOn COMMAND

Turns on continues reading mode synonymous with "Ohms?". Note: if the devices is already Logging, the LogOn command will return "Invalid Command"

Syntax: LogOn<crLf>

Returns: Measurement Value + Multiplier every 300ms.

Example for 2Ω Range: 1.2345
Example for 20Ω Range: 12.345
Example for 200Ω Range: 123.45
Example for 2kΩ Range: 1.2345k
Example for 20kΩ Range: 12.345k
Example for 200kΩ Range: 123.45k
Example for 2MΩ Range: 1.2345M
Example for 20MΩ Range: 12.345M
Example for 200MΩ Range: 123.45M

LogOn0 COMMAND

Turns on continues reading mode synonymous with "Ohms?". Note: if the devices is already Logging, the LogOn0 command will return "Invalid Command"

Syntax: LogOn0<crLf>

Returns: Measurement Value + Multiplier every 500ms.

Example for 2Ω Range: 1.2345
Example for 20Ω Range: 12.345
Example for 200Ω Range: 123.45
Example for 2kΩ Range: 1.2345k
Example for 20kΩ Range: 12.345k
Example for 200kΩ Range: 123.45k
Example for 2MΩ Range: 1.2345M
Example for 20MΩ Range: 12.345M
Example for 200MΩ Range: 123.45M



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LogOn1 **COMMAND**

Turns on continues reading mode synonymous with "Ohm?". Note: if the devices is already Logging, the LogOn1 command will return "Invalid Command"

Syntax: LogOn1<crLf>

Returns: Measurement Value expressed in Ohms every 500ms.

Example for 2Ω Range: 1.2345
Example for 20Ω Range: 12.345
Example for 200Ω Range: 123.45
Example for 2kΩ Range: 1234.5
Example for 20kΩ Range: 12345
Example for 200kΩ Range: 123450
Example for 2MΩ Range: 1234500
Example for 20MΩ Range: 12345000
Example for 200MΩ Range: 123450000

LogOn2 **COMMAND**

Turns on continues reading mode synonymous with "Screen? + RangeV?". Note: if the devices is already Logging, the LogOn2 command will return "Invalid Command"

Syntax: LogOn2<crLf>

Returns: Screen data + the value of the range every 500ms.

Example for 2Ω Range: 1.2345<crLf>2
Example for 20Ω Range: 12.345<crLf>20
Example for 200Ω Range: 123.45<crLf>200
Example for 2kΩ Range: 1.2345<crLf>2k
Example for 20kΩ Range: 12.345<crLf>20k
Example for 200kΩ Range: 123.45<crLf>200k
Example for 2MΩ Range: 1.2345<crLf>2M
Example for 20MΩ Range: 12.345<crLf>20M
Example for 200MΩ Range: 123.45<crLf>200M

LogOff **COMMAND**

Stops continues measurement mode.

Syntax: LogOff<crLf>

Response: <crLf>

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Ohm? QUERY

Responds with the front panel reading formatted in ohms. No leading zeros.

Syntax: Ohm?<crLf>

Returns: Display data in Ohms.

Example for a 1.1 ohm reading on:

2Ω Range:	1.1000
20Ω Range:	1.100
200Ω Range:	1.10
2kΩ Range:	1.1

Ohms? QUERY

Responds with the front panel reading formatted in ohms with multiplier. No leading zeros.

Syntax: Ohms?<crLf>

Returns: Display data in Ohms with multiplier.

Example for a 1.1 ohm reading on:

2Ω Range:	1.1000
20Ω Range:	1.100
200Ω Range:	1.10
2kΩ Range:	0.0011k

RangeN? QUERY

Responds with the range number from 0 to 8

Syntax: RangeN?<crLf>

Returns: R# (0-8)

R0	-	2 Ohms Range
R1	-	20 Ohms Range
R2	-	200 Ohms Range
R3	-	2k Ohms Range
R4	-	20k Ohms Range
R5	-	200k Ohms Range
R6	-	2M Ohms Range
R7	-	20M Ohms Range
R8	-	200M Ohms Range



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RangeV? **QUERY**

Responds with the range value from 2 to 200M

Syntax: RangeV?<crLf>

Returns: 2 - 200M

2 - 2 Ohms Range
20 - 20 Ohms Range
200 - 200 Ohms Range
2k - 2k Ohms Range
20k - 20k Ohms Range
200k - 200k Ohms Range
2M - 2M Ohms Range
20M - 20M Ohms Range
200M - 200M Ohms Range

Reset **COMMAND**

Executes a soft reset of the system.

Syntax: Reset<crLf>

Response: <crLf>

Screen? **QUERY**

Responds with the screen image.

Syntax: Screen?<crLf>

Returns: Display data formatted exactly to the screen.

Example for a 1.1 ohm reading on:

2Ω Range: 1.1000
20Ω Range: 01.100
200Ω Range: 001.10
2kΩ Range: 0001.1