

Chapter 8

Troubleshooting and Problem Solving

8.1. DataReader Troubleshooting

1. Power LED is red: reader malfunction. Replace reader
2. Power LED is off: verify power connection
3. Reader does not respond to host.
 - 3.1 Verify power LED blinks at power on. LED should then remain steady green.
 - 3.2 Verify cable connections are according to diagram
 - 3.3 Verify reader address is correctly transmitted by host
 - 3.4. Verify terminator present at end of the RS485 chain
4. Reader does not read seal
 - 4.1 Verify seal is within reader communication range
 - 4.2 Verify antenna connections
 - 4.3 Verify SD LED lights up for a short time upon receiving host command (Host request transmitted by reader)
 - 4.4 Verify RD LED lights up for a short time (reader received data from seal)

8.2. Evaluation System Troubleshooting

1. When inserting Reader ID and ADD to the list using the evaluation software the reply: "com port time out" is received.

Possible reasons:

 - a. The Reader is not powered.
 - b. The RS-232 converter is not connected to the PC.
 - c. The RS-232 converter is not powered.
 - d. The PC port definitions are incorrect.
2. "Command Fail" is repeated under Verify & Set option

Possible reasons:

 - a. The Reader is not powered.
 - b. The RS-232 converter is not connected to the PC
 - c. The RS-232 converter is not powered.
 - d. The Reader Address = 0 when connected via RS-485 and more than one Reader is connected

3. Repeated "No Seals" failure when using the Verify command

Possible reasons:

- a. Incompatible parameters between the Seal and the Reader.
The parameters are: ADI, Department, Org ID.
- b. Low power transmission.
- c. Antenna disconnected.
- d. Seals are located too far away.
- e. Number of windows defined greater than 255.

4. Repeated "Seal Does Not Respond" reply using the Add Verify command.

Possible reasons:

- a. Incompatible parameters between the Seal and the Reader.
The parameters are: ADI, Department, Org ID.
- b. Low power transmission.
- c. Antenna disconnected.
- d. Seals are located too far away.
- e. Number of windows defined greater than 255.

5. General All Commands failure - check that ADI, Department, and ORG ID parameters in the Seal and the Reader are compatible.

6. Seal does not respond to Tamper command.

Possible reasons:

- a. Seal is not in Tamper mode.
- b. Open the Seal and re-run the Tamper command. Repeat several times. If Seal still does not respond, follow procedure detailed in section 5.

7. Seal does not respond to Hard Wakeup command:

Possible reasons:

a. The Seal is not in Deep Sleep mode.

8. Set or Reset failure in Reset Status command: Check that the required bit can be changed.

9. Parameter cannot be changed in the Write Parameters command:.

Possible reasons:

a. The Parameter is not in the Parameter Change list.

b. The number of bytes is not compatible with the parameter size.

Chapter 9

Technical Specifications

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Technical Specifications

9.1. 24v Outdoor DataReader

24v Outdoor DataReader					IG-RS-46D-916	IG-RS-46D-433	IG-RS-46D-318	IG-RS-46D-315
Physical Characteristics								
Dimensions (mm)			195X165X95 not including antenna					
Weight (gr)			1000					
Power Requirements - External (volts)			24 Vdc nominal (10 to 35)					
Power Consumption(watts)			1.7W@Tx, 1.1W@Rx					
Performance Characteristics								
Interface			RS-485 optically isolated					
Operating Frequency (MHz)			916.5	433.92	318	315		
Read Range (m)			30 @ open space					
Environmental Conditions								
Operating Temperature (°C)			-40 - +70					
Storage Temperature (°C)			-40 - +70					
Humidity (%)			90 non condensing					
Mechanical Vibration			As per MIL-810D & SAE J1455					
Mechanical Shock			As per MIL-810D & SAE J1455					
Standards								
Designed according to			FCC part 15.249 UL1950	EN300220 EN301489 EN60950	UL1950	UL1950		

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Technical Specifications

9.2. 12v Outdoor DataReader

12v Outdoor DataReader	IG-RS-46D-916/12	IG-RS-46D-433/12	IG-RS-46D-318/12	IG-RS-46D-315/12
Physical Characteristics				
Power Requirements - External (volts)	12 Vdc nominal (10 to 35)			
Power Consumption (watts)	1.7W@Tx, 1.1W@Rx			

* All other specifications are as in section 9.1.

9.3. 48v Outdoor DataReader

12v Outdoor DataReader	IG-RS-46D-916/48	IG-RS-46D-433/48	IG-RS-46D-318/48	IG-RS-46D-315/48
Physical Characteristics				
Power Requirements - External (volts)	48 Vdc nominal (20 to 70)			
Power Consumption (watts)	1.7W@Tx, 1.1W@Rx			

* All other specifications are as in section 9.1.

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Technical Specifications

9.4. 24v Indoor DataReader

DataReader	IG-RS-46-315	IG-RS-46-318	IG-RS-46-433	IG-RS-46-916
Physical Characteristics				
Dimensions (mm)	195X165X95 not including antenna			
Weight (gr)	1000			
Power Requirements - External (volts)	24 Vdc nominal (10 to 35)			
Power Consumption(watts)	1.7W@Tx, 1.1W@Rx			
Performance Characteristics				
Interface	RS-485 optically isolated			
Operating Frequency (MHz)	315	318	433.92	916.5
Read Range (m)	30 @ open space			
Environmental Conditions				
Operating Temperature (°C)	0 - +70			
Storage Temperature (°C)	-20 - +70			
Standards				
Designed according to	UL 1950	UL 1950	EN300220 EN301489 EN60950	FCC part 15.249 UL 1950

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Technical Specifications

9.5. 12v Indoor DataReader

12v Outdoor DataReader	IG-RS-46-315/12	IG-RS-46-318/12	IG-RS-46-433/12	IG-RS-46-916/12
Physical Characteristics				
Power Requirements - External (volts)	12 Vdc nominal (10 to 35)			
Power Consumption(watts)	1.7W@Tx, 1.1W@Rx			

* All other specifications are as in section 9.4.

9.6. 48v Indoor DataReader 8

48v Outdoor DataReader	IG-RS-46-315/48	IG-RS-46-318/48	IG-RS-46-433/48	IG-RS-46-916/48
Physical Characteristics				
Power Requirements - External (volts)	48 Vdc nominal (20 to 70)			
Power Consumption(watts)	1.7W@Tx, 1.1W@Rx			

* All other specifications are as in section 9.4.

9.8. DataSeal

DataSeal	IG-RS-40-916	IG-RS-40-433	IG-RS-40-318	IG-RS-40-315
Physical Characteristics				
Dimensions (mm)	49X37X85			
Weight (gr)	100			
Housing	Plastic reinforced with fiberglass			
Power Requirements (volts)	3.6 internal battery			
User Memory (Bytes)	2048			
Events Memory (events)	10			
Performance Characteristics				
Interface	Mounting Cradle P.N. IG-DH-40			
Operating Frequency (MHz)	916.5	433.92	318	315
Read Range (m)	30 @ open space			
Operating Frequency (kHz)	125			
Read Range (cm)	50			
Environmental Conditions				
Operating Temperature (°C)	-40 - +70			
Storage Temperature (°C)	-40 - +70			
Humidity (%)	90 non condensing			
Mechanical Vibration	As per MIL-810D & SAE J1455			
Mechanical Shock	As per MIL-810D & SAE J1455			
Standards				
Designed according to	FCC part 15.249	EN300220 EN301489		
Antenna Characteristics				
Beam Divergence	Omni-directional on non-metal wall. Hemisphere on metal wall.			
Polarization	Vertical			

9.9. Magnetic DataSeal

Magnetic DataSeal	IG-RS-40M-916	IG-RS-40M-433	IG-RS-40M-318	IG-RS-40M-315
Physical Characteristics				
Dimensions (mm)	49X37X65			
Weight (gr)	100			
Housing	Plastic reinforced with fiberglass			
Power Requirements (volts)	3.6 internal battery			
User Memory (Bytes)	2048			
Events Memory (events)	10			
Performance Characteristics				
Operating Frequency (MHz)	916.5	433.92	318	315
Read Range (m)	30 @ open space			
Operating Frequency (kHz)	125			
Read Range (cm)	50			
Environmental Conditions				
Operating Temperature (°C)	-40 - +70			
Storage Temperature (°C)	-40 - +70			
Humidity (%)	90 non condensing			
Mechanical Vibration	As per MIL-810D & SAE J1455			
Mechanical Shock	As per MIL-810D & SAE J1455			
Standards				
Designed according to	FCC part 15.249	EN300220 EN301489		
Antenna Characteristics				
Beam Divergence	Omni-directional on non-metal wall. Hemisphere on metal wall.			
Polarization	Vertical			

9.10 FCC approved products:

Product	P/N	FCC ID
DataReader	IG-RS-46D-916	OB6-IGRS46D916
DataSeal	IG-RS-40-916	OB6-IGRS40916

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications to this equipment not expressly approved by Hi-G-Tek Ltd. could void the user's authority to operate the equipment.

WARNING: It is the responsibility of the installer to ensure that when using the outdoor antenna kits in the United States (or where FCC rules apply), only those antennas certified with the product are used. The use of any antenna other than those certified with the product is expressly forbidden in accordance with FCC rules CFR47 part 15.204.

Chapter 10

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