Application Note

RM-17 Certification using RS-703 with RS-940

Using the RS-703A with RS-940 Data Collection to Certify an RM-17 Portable Automated Test Kit

Hardware and Software Requirements

RM-17-01 Portable Automated Test Kit (Device Under Test - DUT) RS703A Automated Laboratory Test System with RS-940 Data Collection Module RD-23-102 Reference Standard Accuracy 0.01% or Greater RD-TJ Test Adapter RM-TS Test Stand RM-PCA Communications Adapter Syntron Current Output Cable Shorting Adaptor Auxiliary Power Cable Two BNC to BNC Cables RS-933 Control Software v. 1.5 or Greater



Hardware Setup



Make all the necessary hardware connections, as shown in Figure 1 and described below.

Figure 1: Test Hardware Configuration



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- 1. Mount the RM-17-01 Socket Adaptor DUT to the RM-TS.
- 2. Insert the RD-TJ into the RM-17's socket jaws.
- 3. Connect the RD-TJ's current leads to the RD-23's current input ports.
- 4. Connect the Lemo connector from the RM-17 Handheld to the port on the RM-17 socket adaptor.
- 5. Connect the RM-TS auxiliary power cable to the auxiliary power connection on the RD-23.
- 6. Connect the auxiliary power cable to the auxiliary power connection on the RD-23. Do not plug into wall outlet at this time.
- 7. Use cable shorting adaptor and short the current output lead of the RS-733 connection panel.
- 8. Connect the voltage output cable from the RS-733 to the potential input of the RD-23.
- 9. Connect the RD-TJ's potential leads to the RD-23's potential input port.
- 10. Using a BNC Cable, connect the RD-23 BNC port 1 to the RS-940 BNC port 1.
- **11.** Using an RJ-45 communications cable, connect the RD-23 RS-232 port to the RS-940 serial port one on the front panel. (Note: The RD can be attached to any available port of the RS-940 as long as the serial port and RJ-45 communication port connections are matched on the front panel.)
- 12. Using a BNC cable, connect the RM-17 handheld's INPUT / OUTPUT port to the RS-940 BNC port 2.
- **13.** Connect the RM-PCA communications adaptor serial connector to one of the serial ports on the back of the RS-940.
- **14.** Connect the RM-PCA communications adaptor lemo connector to the RM-17's PRINTER / PCA port.
- **15.** Plug in the auxiliary power cable.
- **16.** Ensure that the RM-PCA communications adaptor's version selection switch is set to version 2.
- **17.** Turn on the RM-PCA communications adaptor.
- 18. Turn on the RM-17 Handheld.

Test Procedure

- 1. From the RM-17 handheld's main menu, select 4 PREFERENCES.
- 2. From the preferences menu, select 1 PCA-Mode.
- 3. If not already on, use the key switch and turn on the RS703 system.
- **4.** At power up, the RS-940 begins initializing itself and then continues to initialize the additional modules in the system. This process can take a few minutes.
- 5. Open the RS933 control software application.
- 6. Select the system tab and then the configuration tab.
- 7. Scroll down to System Connection. If not already entered, enter the IP address of the RS-940 Data Collection module.
- **8.** Click the connect button. The word Disconnected should change to Connected and the system is ready to use. If the RS system has not completed its initialization process, the software will not be able to connect to the RS-940 and a prompt will appear. Try to connect again after a short while.
- **9.** Once connected, select the tab Define Channels and then Channel Configuration.
- **10.** Select refresh to have the RS-940 search for connected devices. All known serial attached devices will automatically populate on the Channel Configuration window. Figure 2 shows the devices as they were automatically added to the Channel Configuration window.



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		Add Device	RD-21-302 •			Add Derived Result		Remove All	
Devi Serial Number	ce Name	Enabled		Connections	Enabled	Name	asurements I-Tums	Stimulus Seen	
205298		Ø	Comm Port 1 • Pulse Port 1 •			206298	Ref 1.0000	123]
803066		Z	Comm Port Aux 2 * Pulse Port None *			803066	Ref 1.0000	123	1
	Sens fumer Dec 200280 40306	Benti Numer	ABCDevia Senial Number 2005/99 403006 70 70	Add Device RD-21-302 • Senial Number Control Name Enabled Control Name Control	ASDevis RD-21-502 • Contractions Sensit Name Contractions	Ass Denks RD-21-302 • Senial Number Enabled Connections Enabled 200598 V Pater Fride Image: Pater Fride Im	ASD Device PED-21-302 ASD Device Result ASD Device Result Seniol Number Enabled Connections Enabled Name Name <td>ASS Device RC - 21-302 ASS Center Result Seniol Number Exabled Connections Exabled 305599 - Connections Exabled 4053060 - Connections Exabled 4053060 - Connections Exabled 4053060 - Connections Exabled 4053060 - Patter Patt -</td> <td>Add Davids Ind Davids Ind Davids Remove All Senal Name Rame Rame Rame Massaments 200398 Image: All Image: All</td>	ASS Device RC - 21-302 ASS Center Result Seniol Number Exabled Connections Exabled 305599 - Connections Exabled 4053060 - Connections Exabled 4053060 - Connections Exabled 4053060 - Connections Exabled 4053060 - Patter Patt -	Add Davids Ind Davids Ind Davids Remove All Senal Name Rame Rame Rame Massaments 200398 Image: All

Figure 2: Channel Configuration Window Automatically populated

- **11.** In the connections section of the Channel Configuration, select the BNC pulse port that is connected to the BNC input/output port of the RM-17 hand held controller. In this example it is attached to port 2.
- **12.** In the Measurements section, select 1 for both devices under the stimulus seen. This configures the software to use only the phase 1 signal source.
- 13. In the Measurements section, change the I-turns for the RD-23 to 2.0000.
- **14.** In the Measurements section, select the Ref button next the Name of the RM-17. Below the name a dropdown box appears. Select Measured Value. See figure 3 for an example.



Figure 3



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15. Under the Measured Value selection, another drop down box appears. Select the name/serial number of the RD-23 reference standard being used with this RM-17 under test. See Figure 4. The Channel Configuration is now complete for this test.

			Add Device	RD-21-302 •		Add Denied Result Remove All				
Model	Serial Number	Name	Enabled	Connections	Enabled	Name	I-Tums	Stimulus Seen		
RD-21-302	206298		Z	Comm Port 1 Pulse Port 1		206298 Re	2.0000	123		
RM-17-01	803066		×	Comm Pott Aur 2 + Pulse Pott 2 +	Measu 20129	803066 Re red Value •	1.0000	123 XIII		

Figure 4

Figure 5: Certify RM-17 60Hz test sheet

16. Select the Test tab and then Load test. If not already there, browse to C:\Documents and Settings\All Users\Application Data\Radian Research\RS-933 Control Application\Tests and load the test Certify RM-17 60 Hz.tst. See figure 5.

Name: Cert	tify RM-17	60 Hz		_							
hase 1 hase 1	Voltage Phase	120.000000	120.000000	240.000000	240.000000	480.000000	480.000000	600.000000	600.000000	1	205298
arrent	Average										
0.25000	0										
0.50000	0										
1.00000	0										
2.00000	0										
2.500000	0										
3.00000	0										
5.00000	0										
10.00000	0										
12.00000	0										
15.00000	0	-									
20.000000	0										
25.00000	0										
30.00000											
40.00000	0										
45.00000	0										
10.00000	0										
Function	KFadi	r Frequenc	y Stab Tin	10 Test T	me View	Default Vie	w Source			Show Phase Point Order	
Wh	• 0.000	010 60.0000	5.000	000 15.00	0000 Default	% Error	Pulse +			1.2.3 Default	•
										V Default: By Column(d	(own/up)

- **17.** On the right hand side the Name of each device from the channel table appears. Since we did not enter a Name for the devices, by default the software uses the serial number of the device.
- 18. Select Run to run the test.



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