

VOLTECH INSTRUMENTS AT SERVER dotNET User Manual

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AT SERVER dotNET

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1. Introduction

1.1. AT Server dotNET New Features

The AT SERVER dotNET is a complete rewrite of the AT SERVER program.

This has allowed us to take advantage of native MS libraries for communications, to speed up results saving and to better support the Ethernet functionality on the AT5600, as well as implement new and exciting features quickly as the AT5600 and AT Server develop in the coming months.

The latest version still supports the AT3600 and ATi as well as the AT5600.

As before, multiple units, of different models, using RS232 or Ethernet, can be connected simultaneously to one AT SERVER.

Or if you prefer, several AT SERVER programs can be run on separate PCs, but still using the same central programs storage folder, central results storage folder and Database store.

What's New?

1.2. Database Connectivity

Connection to your own external MS SQL/ MS ACCESS database is now a free feature of the AT SERVER for all users, whereas as before it was a purchased option.

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Object Explorer · 귀 × ·	/dh7y7rnm4.ATServtblVoltechATUn	itID +⊨ ×	
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database.windows.net (SQL Server 12.0.2000.8	I2173434575313A0	AT5600	0062
🖃 🗐 Databases	02201902121807505C192ECC	AT5600	0062
🕀 💼 System Databases	052018121211205737FA1859	AT5600	0060
· ·	05201901041517197253016D	AT5600	0042
ATServerResultsDB	052019011414011545384F4A	AT5600	0060
	052019012809375241A37927	AT5600	0064
🕀 💼 System Tables	0520190211093004017711F9	AT5600	0064
🕀 🗰 External Tables	05201904021125066E226D85	AT5600	0064
GraphTables	05201904241628220D4F495D	AT5600	0064
ItblVoltechATUnitID	052019062511341317C51D78	AT5600	0064
dbo.tblVoltechResults	052010070/1611382/01/0615/	AT5600	0064
	052019071611335600103043	ATEGOO	0004
Tiews	0520190710113250001B3842	A13000	0004
External Resources	0520190812151052645E3A0C	A15600	0064

See 2.5.4 for more details.

1.3. Results

Enhanced results display, and batch statistics is now free for all users, whereas before it was a purchased option.

Customizable file names for CSV results, allowing for easier identification of results files.

🛎 Settings 🛛 🗙									
COM Ports Network Programs Results Groups									
CSV Configuration Results Directory									
C:\Users\F	C:\Users\Richard\Desktop\AT RESULTS Browse								
File Name C	File Name Configuration								
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<unitsn>_<date>_<partnumber></partnumber></date></unitsn>									
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See 2.4.4.1 for more details.

1.4. Interface

Results columns and positions are now configurable to allow you flexibility in the results displayed.

Font size is changeable to make results easier to see on screen.

AT AT	Server							2	- 🗆 X
File	Setup	View Help							
CO	M15] [0	COM16] 1	018						
Unit Seria	al #	AT5600 1018					Last Part	FAIL	
Part	Number	10 CT100-5 L		AQL (%)	None	1	AQL (#)	None	
Oper Batcl Part	ator # h # Serial #	N/A 76FD4 N/A		Passes Fails Retries	0 1 0		% Fail Last 10 TX Date and Time	100.000% 1 Failed 2020-07-21 13:38:45	
	#	Test Name	Minimum	Maximum	Result	Failure Count	Polarity	Polarity Failure Count	Errors
*	1	R		600.00 mΩ	18.833 mΩ	0		0	0000
	2	R		50.000 mΩ	15.083 mΩ	0		0	0000
	3	LS	18.000 mH	20.000 mH	20.209 mH	1		0	0000
	4	TR	1.8571	2.1579	2.0027	0	Positive	0	0000

See 2.5.2 for more details.

1.5. Built-In LocalDB and Reports

The AT SERVER now also comes free with a built in Microsoft LocalDB database.

This saves a copy of all results locally on the PC to a MS LocalDB database.

This then, allows users to use the free built-in reporting function to quickly analyze data, without any need for expertise in databases.

Also provides a silent back up, that will update your CSV results storage or MDB/SQL external database if a communications or network failure temporarily make these inaccessible to the PC.

Summary	Results											
Overall Passed	10	(8:	3.333%)									
Failed	2	(11	6.667%)									
By Test												_
	Test #	*	Test Type	Run Count	Min Limit	Max Limit	Min Result	Max Result	Mean	Std. Dev.	Failure Rate	P
		1	R	12	1.1700E-01	1.4300E-01	1.2826E-01	4.1666E-01	1.5292E-01	7.9521E-02	8.333%	
		2	R	12	4.0500E-01	4.9500E-01	4.6042E-01	4.7810E-01	4.6271E-01	4.9965E-03	0%	
		3	R	12		1.0000E-01	8.0739E-02	8.0839E-02	8.0802E-02	2.9611E-05	0%	
		4	R	12		1.0000E-01	8.0545E-02	8.0665E-02	8.0613E-02	3.5717E-05	0%	
		5	LS	12	1.1430E-04	1.3970E-04	1.2337E-04	1.2356E-04	1.2348E-04	6.2511E-08	0%	
		6	LL	12		7.0000E-06	5.7839E-06	6.6857E-06	6.1599E-06	2.3024E-07	0%	
		7	TR	12	4,6191E+00	4.9048E+00	4.6908E+00	5.0692E+00	4.7232E+00	1.0430E-01	8.333%	
		8	TR	12	3.3448E+00	3.5517E+00	3.4393E+00	3.4418E+00	3.4408E+00	7.1510E-04	0%	
		9	TR	12	3.3448E+00	3.5517E+00	3.4320E+00	3.1971E+02	2.9789E+01	8.7413E+01	8.333%	1
	8	10	HPAC	12		5.0000E-03	4.3145E-05	4.4018E-05	4.3708E-05	2 5184E-07	0%	

See 2.6 for more details.

1.6. History of AT Server Versions

	AT Server	AT Server	AT Server
	Legacy Version		dotNET
Version	V 3.26.05	V 3.40.04	V 4.00.00
PC O/S	WINDOWS XP, 2000, VISTA,	WINDOWS 7,8,10.	WINDOWS 7,8,10.
	7,8,10.	32-bit and 64-bit	32-bit and 64-bit
	32-bit and 64-bit		
AT Testers		AT5600	AT5600
Supported	AT3600	AT3600	AT3600
	ATi	ATi	Ati
CSV results	YES	YES	YES
Storage	(As *.ATR)	(As *.ATR)	(As *.CSV)
External	YES	YES	YES
storage	purchased option	purchased option	FREE
Built-in database	NO	NO	YES
results reporting			FREE
OLE commands	YES	NO	NO

2. AT Series Server Software

Centralized data storage for the AT Series Transformer Testers

2.1. Introduction

This chapter will guide you through the operation of the AT Series Server application.

The server program supplied with your AT series tester may be considered as an on-line storage system.

The server will handle two types of data:

Test Programs – providing a central store for *.ATP programs that can then be sent to multiple AT units.

Test Results - Results can be gathered again to a single folder as separate ATR (CSV) files and/or to a single Database file.

Test programs that are created using the AT Editor application should be stored into the (user definable) server program file directory.

All testers connected to the server then have access to the same program file store.

Programs are requested by an AT tester, recalled from the server, and then sent to the AT tester for execution.

Test results are generated from every program execution, and (if the option is set in the program) then sent to the server for display and storage.

The data is then stored in a file or a database for record keeping and analysis.

The features of the server include:

MS Windows application style dialogues and tools

Storage of all previously created test programs

Transfer of test programs to the AT tester on request

Test results may be received and stored in a database ready format for easy offline analysis.

2.2. Installing the Server Software

All software and any free updates are available from the Voltech website www.voltech.com., specifically, on the downloads page www.voltech.com/Support/Downloads

2.2.1. Computer Requirements

Before attempting to install any Windows software, check that the PC satisfies the following hardware requirements:

Operating system:

Windows 7, 8 and 10.

32 or 64 Bit.

2.2.2. Installation Instructions

Download and follow the instructions to install the AT Server software.

The installation program will suggest a folder in which to place the installation files:

This directory will be created if it does not already exist.

If you want to place the files elsewhere, browse to another directory.

If you have a previous version of the Server software already installed on your PC, the procedure outlined above may also be used to install an updated version.

None of your program files will be lost.

2.3. Starting for the first time

2.3.1. Running the software

When the installation of the software has been completed, you will see the Server icon in the program group 'Voltech Instruments'

Double-click this icon to start the program.

The first time the program runs it will show the communications configuration screen.

	X Settings						
XM Ports Network Enabled COM Ports	Programs Resu	s Groups					

For full details of the communications configuration, please see later in this document.

The check box 'Do not display this dialogue at Startup' exists to prevent it from being displayed each time the Server application is launched. When this option is activated, this dialogue box can be accessed via the Setup > Settings menu.

2.3.2. Initial Configuration

Before starting to use the software, it is recommended to configure the options. Section 2.4 provides a step-by-step instruction to configure the Server software for proper operation.

2.4. Setting up the Options

All Server software options are configured through the Setup menu as shown.

🛎 AT	Server			
File	Setup	View	Help	
	Se	ttings		

2.4.1. COM Ports Tab (RS232 only)

The COM Ports dialog may be displayed when the software starts up or by using the **Setup >Settings** option from the Server menu

There are two methods for communicating with the AT5600. RS232 or Ethernet. The recommended method is using an Ethernet network connection. RS232 communications is also an option (as used for the AT3600 and ATi products.)

Clicking on clicking the COM port setting of the "Configure Server Communications" dialog will show a list of available PC COM ports as shown.

🛎 Settings	5				×
COM Ports Enabled CC COM11 COM12 COM13 COM14 COM15 COM16 COM17 COM17 COM18 COM4	Network DM Ports	Programs	Results		
Show On	Startup		ОК	Ca	ncel

Select a COM port that is connected to the server port of an AT series tester, and then click the check box to add this AT to the list of open channels as shown.

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🛎 AT Server								—		×
File Setup	View	Help								
[COM15]										
Unit	None					Last Part				
Serial #	None									
Part Number	None		AQL (%)		None	AQL (#)			No	one
Operator #	N/A		Passes		0	% Fail			0.00	0%
Batch #	N/A		Fails		0	Last 10 TX			0 Failed	
Part Serial #	N/A		Retries		0	Date and 1	Time 12:	:23:30 UT(C 12-Jul-2	018
#		Test Name	Minimum	Result	Maximum	i Fa	ailure Count	Erro	ors	

If successful, a new results window will be displayed as shown above. The title bar of the results window shows which testers results will be shown in this window (in this case, "AT on COM15").

The Server software is now ready to communicate with the AT tester.

NOTE: So far, no communications will have taken place with the unit. To confirm it is set up correctly, communications must be assessed from the AT series tester.

2.4.2. Network Tab

The recommended method for communicating with an AT5600 is using Ethernet Network Communications

This will communicate over a standard TCP/IP Ethernet network using the Ethernet interface on the computer and AT5600.

To enable network communications, select the option to "Enable network communications"

🛎 Setting	s			×				
COM Ports	Network	Programs	Results					
🗹 Enable	Network Co	ommunicatio	ns					
Networked ATs UDP Port: 1901 TCP Port: 36003 100011200023 - 192.168.2.238								
100011200026 - 192.168.2.229 100011200060 - 192.168.2.52 100011200064 - 192.168.2.94 100011200132 - 192.168.2.124								
Refres	Refresh							
Show On	Startup							
			ОК	Cancel				

The REFRESH button will scan all available IP addresses and report which AT5600 are currently on the network and available for connection. See example above showing five units connected on different IP addresses.

When starting the server after enabling the network communications server, the computer firewall may give a warning and ask for permission for the server to communicate over the network. This must be allowed otherwise communications cannot take place.

With network communications, the results window is not shown UNTIL communication is initiated from the AT5600.

When initiated the results window title bar will identify the AT by the network IP address it has connected from.

🛎 AT Server									_		×
File Setup	View H	elp									
[192.168.2	.94]										
Unit	None					Last Par	rt				
Serial #	None										
Part Number	None		AQL (%)		None	AQI (#)				No	ne
	Home		//d2 (/0)								
Operator #	N/A		Passes		0	% Fail				0.000	%
Batch #	N/A		Fails		0	Last 10	тх			0 Fail	ed
Part Serial #	N/A		Retries		0	Date and	d Time	12:29:1	18 UTC	12-Jul-20	18
#		Test Name	Minimum	Result	Maximur	m	Failure C	ount	Erro	rs	

2.4.3. Programs Tab

This defines the directory where your *.ATP test program files will be fetched from.

These can be on a local PC or a network drive.

Change these settings using the BROWSE button if you wish to nominate your own program and results storage directories.

🛎 Setting	s				×
COM Ports	Network	Programs	Results		
Program Fo C:\Users\F Available P	Network	sktop\AT PF	ROGRAMS	Browse	
Show On	Startup		ОК	Cancel	

The setting of storage path directories may be altered at any time.

The number of valid ATP files in the directory are listed on the dialog box (e.g., 47 as shown above)

2.4.4. Results Tab

This Tab defines how and where the AT Server will save the Test Results.

You can choose these 4 following options independently of each other, by enabling the tick boxes.

🛎 Setting	s				×
COM Ports	Network	Programs	Results	Groups	
CSV St	orage Enab	oled 🛛	TSV Sto	rage Enabled	
CSV/TSV Results Di	Configurati rectory	ion			
C:\Users\	Richard\D	esktop\AT	RESULTS	Browse	
File Name	Configurati	ion			
<date>_<</date>	<partnumb< td=""><td>er>_<unitsn< td=""><td>۷></td><td>~</td><td></td></unitsn<></td></partnumb<>	er>_ <unitsn< td=""><td>۷></td><td>~</td><td></td></unitsn<>	۷>	~	
Database	Configurati	on			•
	Bu	iild Connecti	on String		
		Test Conne	ection		
🗹 Local D	atabase En	abled			
Show On	Startup		ок	Cancel	

2.4.4.1. CSV Storage Enabled

This will save the results as CSV files in the nominated directory.

As with programs this can be on the local PC or a network drive.

The results directory can only be changed when there is no communication. Close any open COM channels before attempting to change the results directory.

NOTE – The old legacy versions of AT SERVER store these as *.ATR (At results) but are in fact just CSV files with a different file extension.

To make these easier to work with (and automatically open in EXCEL or similar) the dotNET SERVER now saves as native CSV files.

The file names for the CSV files can be customized to your preference using the dropdown box to one of the three following formats.

<UnitSN>_<Date>_<PartNumber>.CSV <Date>_<PartNumber>_<UnitSN>.CSV <PartNumber>_<<Date>_<UnitSN>.CSV <Date>.CSV

Where UnitSN last 4 digits of serial of AT

Date yyyymmddhhmmss

ParrtNumber The Test program name used on the AT.

This allows for much simple alpha sorting using windows on the results directory and allows results to be found without the need to search WITHIN the file contents, as with the old legacy AT SERVER results files.

2.4.4.2. TSV Storage Enabled

NEW IN V 4.1.8440

If enabled, this will save the results as a TXT "Tab Separated Values" file in the nominated directory.

This has been added for better user experience for European customers who may wish to use the comma "," as their decimal delimiter.

The TSV/TXT files are created using the PC settings, so if you have comma set as decimal character, this will be used.

	001 R Minimum	Maximum	Reading		002 R Minimum	Maximum	Reading		003 R Minimum
C	0,077	0,143	0,12099	Pass	0,176	0,264	0,185117	Pass	0,198

As with programs and CSV results this can be on the local PC or a network drive. The results directory can only be changed when there is no communication. Close any open COM channels before attempting to change the results directory.

The file names for the TXT files can be customized to your preference using the dropdown box to one of the three following formats.

<UnitSN>_<Date>_<PartNumber>.TXT

<Date>_<PartNumber>_<UnitSN>.TXT

<PartNumber>_<<Date>_<UnitSN>.TXT

<Date>.TXT

Where	UnitSN	last 4 digits of serial of AT
	Date	yyyymmddhhmmss
	ParrtNumber	Test program name used on the AT

This allows for much simple alpha sorting using windows on the results directory and allows results to be found without the need to search WITHIN the file contents, as with the old legacy AT SERVER results files.

2.4.4.3. External Database Enabled

This allows you to select and external database to connect to, and automatically send your results to

Full details of the database schema are in 2.5.4

To enable this

- 1, click the Database Enabled tick box
- 2, Click Build connection string
- 3, Choose your database type

Choose Data Source	? >	<
Data source: Microsoft Access Database File Microsoft SQL Server Oracle Database	Description Use this selection to connect to Microsoft SQL Server 2005 or above using the .NET Framework Data Provider for SQL Server.	
Data provider:		
.NET Framework Data Provider for SC $ \smallsetminus $		
.NET Framework Data Provider for OLE D .NET Framework Data Provider for SQL Sector	B Inver OK Cancel	

Either Microsoft Access / MS SQL

4, Choose data provider

Choose Data Source	? ×
Data source: Microsoft Access Database File Microsoft SQL Server Oracle Database	Description Use this selection to connect to a Microsoft Access database file through the .NET Framework Data Provider for OLE DB.
Data provider:	
.NET Framework Data Provider for OI $ \sim $	
Always use this selection	OK Cancel

5 Click OK

6 You can then enter to specific credentials to connect to your chosen database.

7 Once completed use the TEST CONNETION button to verify that the AT SERVER and communicate to your database.

8 At this point the AT Server will automatically create the 4 required database tables if they do not already exist.

2.4.4.4. Local Database Enabled

This allows you to enable or disable your results being sent to the Microsoft LocalDB database on the AT server PC

If this is disabled, then no new results will be visible in the Report viewer (see 2.6)

2.5. Test Results

2.5.1. Receiving Test Results

By default, the AT series tester does not automatically send test results back to the server.

Results will only be sent back for test programs (*.ATP) that have been set up with the 'Send Results to Server' option enabled.

The server receives test results from the tester via the same serial or Ethernet connection used for transferring test programs to the tester.

Where more than one tester is connected to your server PC, the one server program handles all the transformer tester results as well as acting as the central program server.

2.5.2. Real-Time Monitoring

Each time a COM port to an AT series tester connection is opened (using the SETUP, COMMUNICATION menu), an accompanying result monitoring window will be created.

One result monitoring window will be present for each open AT or channel.

When results are sent from the tester (either RS232 or ETHERNET) they will be displayed in the monitoring window before passing to the CSV or DB results file (if enabled).

The most recent result for each channel will be visible in the window.

For ease of viewing, the font size can be changed via the View Menu> Font Size settings.

Font Size: Small



Font Size: Medium

👗 AT:	Server										- o	×
File	Setup	View Help										
101	8											
Unit Seria	a #	AT5600 1018						Last Part	PASS			
Part	Number	09 POE 7491199212 L		AQL	. (%) None			AQL (#)	None			
Oper Batcl Part	ator # n # Serial #	J 5 N/A		Pas Fail Ret	ses 1 s 0 nies 0			% Fail Last 10 TX Date and Time	0.000% 0 Failed 2020-07-20 17:17:49			
	#	Test Name	Minimum	Result	Maximum	Failure Count	Polarity	Polarity Fa	ailure Count	Errors		
۶.	1	R	117.00 mΩ	128.05 mΩ	143.00 mΩ	0			0	0000		
	2	R	405.00 mΩ	460.56 mΩ	495.00 mΩ	0			0	0000		
	3	R		80.341 mΩ	100.00 mΩ	0			0	0000		
	4	R		79.993 mΩ	100.00 mΩ	0			0	0000		
	5	LS	114.30 uH	123.45 uH	139.70 uH	0			0	0000		
	6	LL		2.7572 uH	7.0000 uH	0			0	0000		
	7	TR	4.6191	4.6886	4.9048	0	Positive		0	0000		
	8	TR	3.3448	3.4464	3.5517	0	Positive		0	0000		
	9	TR	3.3448	3.4423	3.5517	0	Positive		0	0000		
	10	HPAC		44.253 uA	5.0000 mA	0			0	0000		

Font Size: Large

👗 AT	Server							- ø ×
File	Setup	View Help						
10	18							
Unit	al #	AT5600 1018				Last Part PAS	S	
Part	Number	09 POE 7491199212 L	AQL	. (%) None		AQL (#) None		
Ope	rator #	J	Pas	ses 1		% Fail 0.000%		
Part	h# Serial#	N/A	Fail	s 0 ries 0		Date and Time 2020-07-20 17	:17:49	
	#	Test Name	Minimum	Result	Maximum	Failure Count	Polarity	Polarit
•	1	R	117.00 mΩ	128.05 mΩ	143.00 mΩ	0		
	2	R	405.00 mΩ	460.56 mΩ	495.00 mΩ	0		
	3	R		80.341 mΩ	100.00 mΩ	0		
	4	R		79.993 mΩ	100.00 mΩ	0		
	5	LS	114.30 uH	123.45 uH	139.70 uH	0		
	6	LL		2.7572 uH	7.0000 uH	0		
	7	TR	4.6191	4.6886	4.9048	0	Positive	
	8	TR	3.3448	3.4464	3.5517	0	Positive	
	9	TR	3.3448	3.4423	3.5517	0	Positive	
	10	HPAC		44.253 uA	5.0000 mA	0		~

For ease of indication, any FAILED tests will be highlighted in red as below

👗 AT	Server								
File	Setup	View Help							
[192	.168.1	1.152]							
Unit		AT5600							
Seria	1#	1018							
Part I	Number	09 POE 74	91199212 L			AQL (%)	None		
Opera	ator #	J				Passes	1		
Batch	n #	5				Fails	1		
Part \$	Serial #	N/A				Retries	0		
	#	Test Name	Minimum	Dogult	Mawimum	Enilum Count	Polority	Palarity Eailura Count	Eman
		reachante	Mill III III III	nesuit	Maximum	Failure Count	Foldiny	Foldiny Fallure Count	Citors
•	1	R	117.00 mΩ	127.85 mΩ	143.00 mΩ	Pailure Count 0	roidity	0	0000
•	1	R	117.00 mΩ 405.00 mΩ	127.85 mΩ 459.09 mΩ	143.00 mΩ 495.00 mΩ	0 0	Polanty	0	0000
•	1 2 3	R	117.00 mΩ 405.00 mΩ	127.85 mΩ 459.09 mΩ 80.100 mΩ	143.00 mΩ 495.00 mΩ 100.00 mΩ	0 0	rolanty	0 0 0 0	0000 0000 0000
•	1 2 3 4	R R R	117.00 mΩ 405.00 mΩ	127.85 mΩ 459.09 mΩ 80.100 mΩ 79.789 mΩ	143.00 mΩ 495.00 mΩ 100.00 mΩ 100.00 mΩ	0 0 0 0	Polaity	0 0 0 0 0 0 0	0000 0000 0000 0000
•	1 2 3 4 5	R R R R LS	117.00 mΩ 405.00 mΩ 114.30 uH	127.85 mΩ 459.09 mΩ 80.100 mΩ 79.789 mΩ 123.41 uH	143.00 mΩ 495.00 mΩ 100.00 mΩ 100.00 mΩ 139.70 uH	Count C	Polaity	0 0 0 0 0 0 0 0 0 0 0 0 0	0000 0000 0000 0000 0000
A matrix A matrix	1 2 3 4 5 6	R R R R LS LL	117.00 mΩ 405.00 mΩ 114.30 uH	127.85 mΩ 459.09 mΩ 80.100 mΩ 79.789 mΩ 123.41 uH 3.5321 uH	143.00 mΩ 495.00 mΩ 100.00 mΩ 100.00 mΩ 139.70 uH 7.0000 uH	Parlue Count 0 0 0 0 0 0 0 0	Polaiky	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0000 0000 0000 0000 0000 0000
•	1 2 3 4 5 6 7	R R R LS LL TR	117.00 mΩ 405.00 mΩ 114.30 uH 4.6191	127.85 mΩ 459.09 mΩ 80.100 mΩ 79.789 mΩ 123.41 uH 3.5321 uH 3.9483	143.00 mΩ 495.00 mΩ 100.00 mΩ 100.00 mΩ 139.70 uH 7.0000 uH 4.9048	Pancie Count 0 0 0 0 0 0 1	Positive	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0000 0000 0000 0000 0000 0000 0000
	1 2 3 4 5 6 7 8	R R R LS LL TR TR	117.00 mΩ 405.00 mΩ 114.30 uH 4.6191 3.3448	127.85 mΩ 459.09 mΩ 80.100 mΩ 79.789 mΩ 123.41 uH 3.5321 uH 3.9483 2.8842	143.00 mΩ 495.00 mΩ 100.00 mΩ 100.00 mΩ 139.70 uH 7.0000 uH 4.9048 3.5517	Pancie Count 0 0 0 0 0 1 1 1	Positive Positive	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0000 0000 0000 0000 0000 0000 0000
	1 2 3 4 5 6 7 8 9	R R R R LS LL TR TR TR	117.00 mΩ 405.00 mΩ 114.30 uH 4.6191 3.3448 3.3448	127.85 mΩ 459.09 mΩ 80.100 mΩ 79.789 mΩ 123.41 uH 3.5321 uH 3.9483 2.8842 2.8842 2.8821	143.00 mΩ 143.00 mΩ 495.00 mΩ 100.00 mΩ 139.70 uH 7.0000 uH 4.9048 3.5517 3.5517	Parkie Count 0 0 0 0 0 1 1 1	Positive Positive Positive	Commy Pailure Count	0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000

2.5.3. Saving results as CSV

CSV results will be saved automatically to your chosen results folder as specified in 2.4.4.1, if the Server CSV option is enabled AND the ATP test program also has the "Send results to Server" option enabled.

These can then be opened in EXCEL, Notepad, or any CSV viewer as below.

Please note that if a batch is still being run, and the results file still being used by the AT SERVER, then the file will be locked and only open as read only, until the AT Server releases the file.

	AutoSave 💽 🕅 📙	?・ ୯ · ▼	20200720154204_	09 POE 7491	1199212 L	_SN1018 -		⊖ Searc	:h							Ric	chard
F	ile Home Insert	Page Layout	Formulas [Data R	eview	View	Help	Acrobat									
P	Calibri	~ 11 ~ A	A	= **	eb w	rap Text		General	•	✓	Conditio	onal Form	at as	Cell	Insert De	🛃 苗 lete Format	t 2
	~ 🍕 📴		<u> </u>	= = 4		erge & Cer	nter *	E . 10		.00 →0	Formatti	ng∼ Tabl	e∼ S	tyles ~	~	~ ~	
С	lipboard 🕠	Font	F3	Alig	nment		F2	Nu	nber	۲ <u>م</u>		Styles			C	ells	
A	28 • : ×	√ f _x															
4	A	В	с	D	Е	F	G	н	1	J	к	L	м	N	0	Р	Q
1	VOLTECH AT5600 RESULTS F	ILE															
2	AT Server .Net Version: 4.0.	7506.40606															
3	Communication Channel: 1	92.168.1.152															
4	AT5600 ID: 1018																
5	AT5600 Firmware Version: :	1.002.039															
6	File Name: 20200720154204	1_09 POE 7491199212 L	SN1018.csv														
7	Test Date: 2020-07-20 15:42	:04															
8																	
9																	
10																	
11																	
12																	
13	Part #	09 POE 7491199212 L															
14	Fixture ID	FIXTURE 289															
15	Operator	RR															
16	Batch #	202007201BTEST															
17	No Fixture Compensation																
18																	
19																	
20	Result #	Serial #	Time	Pass/Fail		001 R				002 R				003 R			
21						Minimum	Maximum	Reading		Minimum	Maximum	Reading		Minimum	Maximum	Reading	
22																	
23	1		20/07/2020 15:42	Pass		0.117	0.143	0.128895	Pass	0.405	0.495	0.463402	Pass		0.1	0.0811677	Pass
24	2		20/07/2020 15:42	Pass		0.117	0.143	0.128945	Pass	0.405	0.495	0.463469	Pass		0.1	0.0810398	Pass
25	3		20/07/2020 15:43	Pass		0.117	0.143	0.128873	Pass	0.405	0.495	0.463458	Pass		0.1	0.0809798	Pass
26																	
27																	
28		1															
20		1								1		1					
	< → 20200720	154204_09 POE 749	119921 (+)								- E 🔳					
																	m

2.5.4. Saving Results to an External Database

2.5.4.1. Introduction

The AT Server software can also store test results in an external database (SQL, MS Access).

This provides a powerful and versatile method of recording and analyzing test results historically or on-line.

The AT Server uses standard Windows methods to connect to a variety of databases that conform to these specifications.

Once stored in a database the data may then be analyzed using tools available in the database application or tools provided by specialist software packages such as those available for SPC (Statistical Process Control).

One example of this is to monitor in real time the trend in a winding resistance to identify a defective drum of copper. You would then be able to rectify the fault during production rather than producing a large stock of QA failed transformers all wound with the defective wire.

2.5.4.2. Database Tables

The server software automatically creates the following tables in the selected database (if they do not already exist) and stores data within the tables using the structure defined here.

This is true for ALL test programs, regardless of how many tests are in the programs, or the types of tests used in each individual test program.

The tables store all the information that is available concerning the results (including time, date, limits, operator etc.) in a very compact and efficient structure over 4 tables.

Note that new data is not necessarily appended to the end of a table; it may appear anywhere within.

Table:	tblVoltechATUnitID	
Field	Format	Notes
ATUnitID	Text (25)	Index ID
UnitType	Text (10)	AT5600, AT3600, AT1600, ATi
UnitID	Text (10)	Unit Serial Number
FirmwareID	Text (10)	Unit Firmware Version

Table:	tblVoltechRunID	
Field	Format	Notes
RunID	Text (25)	Index ID
Date	Date/Time (Short Date)	Date of Test Run
Time	Date/Time (Long Time)	Time of Test Run
ATUnitID	Text (25)	As tblVoltechATUnitID.ATUnitID
PartID	Text (25)	Part name
FixtureID	Text (25)	Fixture name

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OperatorID	Text (25)	Operator name
BatchID	Text (25)	Batch name
TransformerSerial No	Text (25)	Transformer serial number
OverallResult	Text (10)	PASS/FAIL/RE-RUN/ABORT Overall test pass or fail result and Re-Run result.

Table:	tblVoltechResults	
Field	Format	Notes
ResultID	Text (25)	Index ID
RunID	Text (25)	As tblVoltechRunID.RunID
TestID	Text (25)	As tblVoltechTestID.TestID
TestNo	Number (Long Integer)	Test number as in test program
OC_Comp	Text (5)	YES, NO, N/A Open Circuit Compensation status
SC_Comp	Text (5)	YES, NO, N/A Short Circuit Compensation status
Load_Comp	Text (5)	YES, NO, N/A Load Compensation
Result	Number (Single)	Actual test result
TestStatus	Text (5)	DSP Status for test
PassFail	Text (5)	PASS/FAIL Individual test pass or fail result

Table:	tblVoltechTestID	
Field	Format	Notes
TestID	Text (25)	Index ID
TestMnemonic	Text (10)	Individual test mnemonic
TestUnits	Text (10)	Individual test units
CheckType	Text (5)	NONE/MIN/MAX/DIFF/POL
		Type of test limits (see *)
MinLimit	Number (Single)	Minimum limit for test (see *)
MaxLimit	Number (Single)	Maximum limit for test (see *)

(CheckType = MIN)	If there is a Min limit only, MaxLimit = 0
(CheckType = MAX)	If there is a Max limit only, MinLimit = 0
(CheckType = DIFF)	If there is a Min and Max limit
(CheckType = POL) If Positive Pol If Negative Po	Polarity test arity test, MinLimit = 0 and MaxLimit = 1 plarity test, MinLimit = -1 and MaxLimit = 0

The primary Key IDs for the database storage are strings based on the following pattern:

PPyyyyMMddHHmmssRRRRRRR, where,

- PP two digits representing the COM port number that the AT is on.
- yyyy the four-digit year the entry was created.
- MM the two-digit month the entry was created.
- dd the two-digit day the entry was created.
- HH the two-digit hour (0-23) the entry was created.
- mm the two-digit minute the entry was created.
- ss the two-digit second the entry was created.

RRRRRRR is a 32-bit random number expressed in hexadecimal notation with characters 0-9 and A-F.

2.5.4.3. Use of data in Database

Once an AT Server to database connection has been made, it is possible to either

A, write your own queries, forms, and reports to extract the data in the database

Or

B, write the queries/forms/reports in a separate database and link to the actual results data in your live database

The relationship between the 4 data tables is remarkably simple and expressed below.



2.6. LocalDB Database + Report Generator

2.6.1. LocalDB Location

As explained in section 1.1, the AT SERVER dotNET also has a NEW built-in MS LocalDB database that is always running in the background.

This saves the results on the local PC ONLY, in the same 4 table structure as an external database (see 2.5.4 for definition of tables)

Data base location

%AppData%\AT Server .NET\

Database file name

ATResults.mdf

The database can be connected to using a variety of tools, for example MS SQL SERVER MANAGEMENT STUDIO, using the path (LocalDb)\MSSQLLocalDB

🖵 Connect to Serv	/er	×
	SQL Server	
Server type:	Database Engine	~
Server name:	(LocalDb)\MSSQLLocalDB	\sim
Authentication:	Windows Authentication	\sim
User name:	RRIDDLE\Richard	\sim
Password:		
	Remember password	
	Connect Cancel Help Optio	ns >>

2.6.2. LocalDB Reporting

Customers can take advantage of the LocalDB without ANY knowledge of databases using the free built in Results Viewer

To enable this, select VIEW>REPORT on the menu

2.6.2.1. Selecting and filtering data

1, Select Part Number and Date Range

First, select the Test program / Part number from the drop-down list.

This shows all test programs which have valid results in the internal database

Then, optionally select a date range for the results if you wish to narrow further.

2, Choose Optional Filters

Batch number

If you have used the batch number option in the ATP test program, results can be further filtered here. The drop-down box will show a valid list of your entered batch numbers for the chosen part number.

Pass/Fail/Rerun/Abort tick boxes.

Results can be further filtered using the four tick boxes.

3, Refresh data

Once you have chosen the filters you need, press refresh to update the Summary and Results tabs below.

2.6.2.2. Summary Tab

The Summary Tab provides an overview of the test data, defined by the filters you have applied.

It shows a summary of the tests executed, the limits applied, the failure rate by test, and the mean and standard deviation of the results.

The standard deviation convention used is SDev.P – the population standard deviation.

M AT See	ior.											
Eile C	etun I	/imu L	din.									
			ip	1								
9432	Col	м16] [Report]									
1, Select P	Part Numb	er and Date	e Range				2, Optional Filte	ers				
Part Number 09 POE 7491199212 L V Batch Number 1212558 V										\sim		
Date Range Jul 20, 2019 🗐 🔻 To Jul 20, 2020 🗐 🗸 Overall Result 🗹 Pass 🗹 Fail 🗌 Re-run 🗋 Abort								port				
C												
Summary	Results	•										
Passed	10	(83 333	2)									
Failed	2	(16 667	~», %)									
By Tes	t	(-,									
	Test #	Test Type	Run Count	Min Limit	Max Limit	Min Result	Max Result	Mean	Std. Dev.	Failure Rate	Polarity Failure Rate	Error Code %
►	1	R	12	1.1700E-01	1.4300E-01	1.2826E-01	4.1666E-01	1.5292E-01	7.9521E-02	8.333%	0%	0%
	2	R	12	4.0500E-01	4.9500E-01	4.6042E-01	4.7810E-01	4.6271E-01	4.9965E-03	0%	0%	0%
	3	R	12		1.0000E-01	8.0739E-02	8.0839E-02	8.0802E-02	2.9611E-05	0%	0%	0%
	4	R	12		1.0000E-01	8.0545E-02	8.0665E-02	8.0613E-02	3.5717E-05	0%	0%	0%
	5	LS	12	1.1430E-04	1.3970E-04	1.2337E-04	1.2356E-04	1.2348E-04	6.2511E-08	0%	0%	0%
	6	LL	12		7.0000E-06	5.7839E-06	6.6857E-06	6.1599E-06	2.3024E-07	0%	0%	0%
	7	TR	12	4.6191E+00	4.9048E+00	4.6908E+00	5.0692E+00	4.7232E+00	1.0430E-01	8.333%	0%	0%
	8	TR	12	3.3448E+00	3.5517E+00	3.4393E+00	3.4418E+00	3.4408E+00	7.1510E-04	0%	0%	0%
	9	TR	12	3.3448E+00	3.5517E+00	3.4320E+00	3.1971E+02	2.9789E+01	8.7413E+01	8.333%	8.333%	0%
	10	HPAC	12		5.0000E-03	4.3145E-05	4.4018E-05	4.3708E-05	2.5184E-07	0%	0%	0%

Note:

Columns can be resized or dragged and dropped to reorder them to suit your own preferences.

Clicking on a column heading will sort the data alpha-numerically.

Data can be extracted by

A, selecting the top left square to select the entire grid, Then

B using standard MS Windows Copy (CTRL+C) and Paste (CTRL+V) into EXCEL or Notepad.

2.6.2.3. Results Tab

The Results Tab then allows you to further analyse and inspect the results.

The screen is split into two sections horizontally.

The dividing line between "Overall Run Results" and "Test Results" can be moved up or down by hovering over the dividing line, clicking, and holding, and then dragging the divide up or down

🛎 AT Ser	ver										
File S	etup View	Help									
9432	[COM16]	[Report]									
1, Select	Part Number and	Date Range				2, Optional Filter	8			3, Press REFRESH to up	date results
Part Numb	09 POE	7491199212 L			\sim	Batch Number	1212558			×	
Date Ran	ge Jul 20, 2	2019 🔲 🗖	To Jul 2	0, 2020]-	Overall Result	Pass	🗹 Fail	Re-run 🗌 Abort	REFRESH	
Summary	Results										
Overal	I Run Results				U Tatal Day	a.H. 10					
Select a	Beguit tt	to see individual re:	suits. Note: I	DecatorID	BatchID	JIL #. 12	merSerialNo	OverallRegult			
	1	2020-07-20 18:13	21	RR	1212	2558 NO	SERIAL NUMBER	R Passe	d		
	2	2020-07-20 18:13	:37	RR	121	2558 NO	SERIAL NUMBER	R Passe	d		
	3	2020-07-20 18:13	:48	RR	121	2558 NO	SERIAL NUMBER	R Passe	d		
	4	2020-07-20 18:13	:55	RR	121	2558 NO	SERIAL NUMBER	R Passe	d		
	5	2020-07-20 18:14	:04	RR	121	2558 NO	SERIAL NUMBER	R Passe	d		
	6	2020-07-20 18:14	:12	RR	121	2558 NO	SERIAL NUMBER	R Passe	d		
	7	2020-07-20 18:14	:19	RR	121	2558 NO	SERIAL NUMBER	R Passe	d		
	8	2020-07-20 18:14	:27	RR	121	2558 NO	SERIAL NUMBER	R Passe	d		
	9	2020-07-20 18:14	:36	RR	121	2558 NO	SERIAL NUMBER	R Passe	d		
<u> </u>	10	2020-07-20 18:14	.44	RR	121	2558 NO	SERIAL NUMBER	R Passe	d		
Ľ	12	2020-07-20 18-15	0.08	DD DD	121	2558 NO	SERIAL NUMBER	R FAILE	D		
		2020 07 20 10.10					oen ne nomber		-		
Test	Results										
	Test #	Test Type	Min Limit	Max Limit R	esult Te	stStatus	Pass/Fail	Polarity Limit	Polarity Pass/Fail		
Þ	1	R	1.1700E-01	1.4300E-01 1	2914E-01	0000	Passed				
	2	R	4.0500E-01	4.9500E-01 4	6042E-01	0000	Passed				
	3	R		1.0000E-01 8	0765E-02	0000	Passed				
	4	R		1.0000E-01 8	0578E-02	0000	Passed				
	5	LS	1.1430E-04	1.3970E-04 1	2344E-04	0000	Passed				
1	6	LL	4 01015-00	7.0000E-06 6	045/E-06	0000	Passed		Presed		
	2	TR	4.0131E+00 3.3448E+00	4.5048E+00 4	4412E+00	0000	Paseed	1	Passed		
	9	TR	3.3448E+00	3.5517E+00 3.	1971E+02	0000	FAILED	-1	FAILED		
	10	HPAC		5.0000E-03 4	3566E-05	0000	Passed				

2.6.2.4. Overall Run Results

The top of the screen "Overall Run Results" shows a list of each test run for the selected part.

This shows the time of recording, and overall result.

Any test runs that have an overall FAIL result will be highlighted RED.

mmary Results Verail Run Results ielect a row in this table to see individual results. Note: Time format yyyy-mm-dd Total Result #: 41												
	Result #	Time	OperatorID	BatchID	TransformerSerialNo	OverallResult						
•	1	2020-06-09 09:52:12	NO OPERATOR NUMBER	NO BATCH NUMBER	NO SERIAL NUMBER	FAILED						
	2	2020-06-09 09:52:38	NO OPERATOR NUMBER	NO BATCH NUMBER	NO SERIAL NUMBER	FAILED						
	3	2020-06-09 09:53:17	NO OPERATOR NUMBER	NO BATCH NUMBER	NO SERIAL NUMBER	FAILED						
	4	2020-06-09 09:53:27	NO OPERATOR NUMBER	NO BATCH NUMBER	NO SERIAL NUMBER	FAILED						
	5	2020-06-09 09:56:05	NO OPERATOR NUMBER	NO BATCH NUMBER	NO SERIAL NUMBER	Passed						
	6	2020-06-09 09:56:15	NO OPERATOR NUMBER	NO BATCH NUMBER	NO SERIAL NUMBER	Passed						
	7	2020-06-09 09:56:31	NO OPERATOR NUMBER	NO BATCH NUMBER	NO SERIAL NUMBER	Passed						
	8	2020-06-09 09:56:39	NO OPERATOR NUMBER	NO BATCH NUMBER	NO SERIAL NUMBER	Passed						
	9	2020-06-09 09:56:46	NO OPERATOR NUMBER	NO BATCH NUMBER	NO SERIAL NUMBER	Passed						

If the Serial/Batch/Operator options were enabled in the test program, then this data is also displayed.

Columns can be resized or dragged and dropped to reorder them to suit your own preferences.

Clicking on a column heading will sort the data alpha-numerically.

Clicking on a specific row in the top half of the screen will then display the collected results for the SELECTED RUN in the bottom half of the screen ("Test Results")

2.6.2.5. Test Results

This bottom section of the screen displays the full data collected for a specific selected test run, which has been selected in the top half of the screen.

Any individual tests that have failed will be highlighted RED.

Test Results											
	Test #	Test Type	Min Limit	Max Limit	Result	TestStatus	Pass/Fail	Polarity Limit	Polarity Pass/Fail		
•	1	R	3.0600E+01	3.7400E+01	3.4234E+01	0000	Passed				
	2	R	3.0600E+01	3.7400E+01	3.3670E+01	0000	Passed				
	3	R		8.0000E-01	5.6967E-01	0000	Passed				
	4	R		8.0000E-01	9.9654E-01	0000	FAILED				
	5	VOC	1.3300E+01	1.4700E+01	1.4039E+01	0000	Passed	1	Passe		
	6	VOC	1.3300E+01	1.4700E+01	1.4040E+01	0000	Passed	1	Passe		
	7	VOC	1.0925E+02	1.2075E+02	1.1495E+02	0000	Passed	1	Passe		
	8	MAGI		1.0000E-02	4.3283E-03	0000	Passed				

Columns can be resized or dragged and dropped to reorder them to suit your own preferences

Clicking on a column heading will sort the data alpha-numerically.

Data can be exported using standard MS Windows Copy (CTRL+c) and Paste (CTRL+v) into EXCEL or Notepad.

3. Change Log

Please find below change history for this user manual and AT Server.

Both these items are free to download from our website, free of charge, for all users.

Voltech Instruments are committed to a policy of continuous product improvement and development. Hence, product specification and the information given in this manual are subject to change.

The below will give an overview of improvements, new features, and corrections.

3.1. AT SERVER dotNET software

V4.0.8473

Menu labelling

Change "report" to be "Report (Local DB)" for clearer understanding that the build in report generator only looks to the local DB on the PC, not to any external DB you may also have enabled.

SQL – tblVoltechTestID.TestUnits Fixed missing SQL data for R test Add check datatype to DB and change.

SQL tables created by V3 of the server used "varchar(x)" which only supported ASCII.

SQL tables created by V4 of the server have always used nvarchar(x) which supports UNICODE.

As V4 now uses the " Ω " symbol rather than "ohms" this mean that users connecting V4 server to older legacy SQL databases would have missing entries on tblVoltechTestID.

This update now performs a silent test on any connect SQL database and updates the data types from varchar to nvarchar silently.

V4.0.8440

Results - add 4th optional results option "TSV" to make TAB separated values file, (as TXT); this allows easier use in EUR where comma is delimiter. Default on first install for this is OFF

Use WINDOWS SYSTEM CULTURE for Dates/Time and numeric format (e.g., comma for decimal in Europe).

File output add two more file name options so BATCH is visible in file name if used <Date>_<Batch #>_<UnitSN> <Date>_<Batch #>_<PartNumber>_<UnitSN>.

Fixed printing- previously was always in TAB 1, but now printing is the active selected tab.

Menu labelling - change "report" to be "Report (Local DB)" for clearer understanding that the build in report generator only looks to the local DB on the PC, not to any external DB you may also have enabled.

Fixed missing SQL data for R test - Add check datatype to DB and changed.

Fixed occasionally getting TCP client error message. Server crashed when some REGION settings used. Fixed unhandled exception rather than crashing silently. Fixed Server silently fails on run. Added more proactive checks server if unable to start properly.

If you are experiencing a crash on startup, then delete all the directories that start with the name "AT_Server_.Net..." in the location "C:\...\.AppData\Local\Voltech_Instruments"

V4.0.8244

Better handling of invalid characters in program names when writing CSV results. This previously resulted in a crash if a Windows reserves character (e.g., "%" or "/" was used in a program name. these are now silently replaced with a "-"

add 4th simpler option of "<date> only" for CSV file names.

print preview of results fixed.

V4.0.7957

local DB can now be enabled or disabled by user.

Fixed initialization bug for PC with multiuser log ins.

Tidy up of print preview of all reports.

3.2. AT SERVER dotNET manual

V5

Updated for 4.1.8473 release.

V4

2.4.4.2 added new TSX / TXT file format.

V 3

2.5.4.3 updated to give table relationships for SQL /Access results. 2.4.4.1 updated to have <Date> only options for CSV filename

V 2

LocalDB can now be enabled or disabled by user. See 2.4.4.3

V 1

Initial Release