1. Interfaces and integration

The BaSyTec Battery Test System provides certain interfaces to integrate external devices into the battery testing.

Design limitations:
BaSyTec Battery Test Systems are not suitable to be controlled by a superior automation system. It is not possible to use them as stupid power/current/voltage sources and do control and data acquisition externally.

Here you find an overview of the different interfaces and their characteristics:

INTERFACE	DESCRIPTION	DETAILS/APPLICATION

Autosync	Synchronization to SQL Server	• Backup of test data
		• Central storage of data of multiple test stations
		• Central battery management (access also by third party tools possible)
		• Central project management
		• Passing of data between different test stations
		• Remote access to test data for postprocessing
		   o By BaSyTec software
		   o By external third-party analysis tools
		
		Limitations:
		
		• At least few minutes delay until data is synchronized
		• Requirements to server depend on number of data and users

	Backup of test data to SQLite File	• Full information like SQL Server *Limitations:* • Minimum synchronization period is a few minutes • File size limits amount of exported data.
	Backup of test data to ASCII File	• ASCII file similar to ASCII Export *Limitations:* • ASCII file does not contain the complete information • Export while test running not recommended • Delayed to end of test to fetch all data from tester
Local Database	Direct access to local database	• Access to live data • Access to battery data (if local) • Access to test queue (in order to start tests) *Limitations:* • Not possible with the standard Paradox installation Local MySQL, MariaDB or PostGreSQL required

RCI	Remote Control Interface Control Software by ASCII commands via Ethernet or RS232	• Start/Stop prepared Test plans • Add Batteries • Single State reads ***Limitations:*** • User interaction on GUI might be required in case of issues • Limited performance (there should not be more than 10 commands per second) especially if a high number of channels is connected • Typical response time is 1s up to minutes (e.g. if multiple complex tests are started) • The interface controls the PC software, not the tester hardware • Not intended for fast polling of act values and fast sending of set values
OSI	Open Software Interface Integrate external devices which are connected to the control PC into test procedures	• Driver dll required • Is executed on control PC • Bidirectional data exchange • Drivers for CAN, Smart Battery interface, lookup tables, external data logger available • Drivers could be programmed by experienced users ***Limitations:*** • Performance dependent on control PC, load and structure (e.g. USB hubs) • Test will stop if control PC goes offline or is too busy • Response time can be down to few milliseconds but also up to a second if PC is busy
Mail	Mail status information to user	• Send Mail in test procedure at a distinct step (Message Command) • Send Mail if a global termination criteria occurred or test is stopped ***Limitations:*** • Local mail server required • Connection to Mail server not encrypted
Climate chambers	Climate chamber interface	• Driver DLL required • Is executed on control PC • May synchronize different samples in the same chamber • Multiple chambers possible ***Limitations:*** • Only Temperature and humidity • Response time seconds to minutes