JOLTEK · CHECKLIST

Site Acceptance Test (SAT) and Commissioning Checklist for Plant Controls

The plant's side of the four gates between the FAT and handover: the go or no-go before power-on, the SAT as a rerun of the FAT protocol, a ramp-up with an exit criterion, and a turnover package maintenance can use.

Project		**Integrator / contractor**	
SAT dates		**Plant project lead**	
FAT record rev.		**Software version**	

How to use it

1. Adjust the owners in each table to the roles the plant actually has. The owners shown are Joltek's recommendation.
2. Decide section 1 one row at a time, against evidence and not a percentage. Each row is go, no-go, or go with a written condition. Do not power on until the decision row is signed.
3. Run section 2 in the same record format as the FAT, marking every test that differs. Keep one punch list for all suppliers in section 3. Agree section 4 before the first shift of ramp-up. Run every test in section 5 before signing the turnover package.

The SAT here is the FAT protocol rerun with real field devices and interfaces, usually with the process not running. Product and rate belong to commissioning. Write down which tests belong to which stage before the SAT begins.

1 Readiness: go or no-go before power-on

Item	Evidence that counts	Owner	Go / no-go
Equipment built to the design	Walk-down against the drawings, with deviations written and approved. Model and serial numbers of installed devices match the FAT record.	Controls lead and electrical contractor	☐ Go ☐ No-go ☐ Go, with a written condition
FAT defects closed	Every Critical and Major FAT item closed and verified by the plant. Minor items on the signed punch list.	Plant project manager	☐ Go ☐ No-go ☐ Go, with a written condition

Current as-built I/O list	I/O list reconciled to the field wiring, point by point, on the day of the review.	Controls lead	☐ Go ☐ No-go ☐ Go, with a written condition
Safety circuits proven	Emergency stops, guard interlocks and safety relays tested on the installed circuits, with the test sheet signed.	EHS lead and controls lead	☐ Go ☐ No-go ☐ Go, with a written condition
Lockout and energization plan	Written sequence for first power-up and bump tests, with the people allowed in the area named.	EHS lead	☐ Go ☐ No-go ☐ Go, with a written condition
Backup of the shipped program	Archive of every controller, HMI and drive configuration as shipped, stored where the plant controls it.	Controls lead	☐ Go ☐ No-go ☐ Go, with a written condition
Written procedures	Operating, maintenance and emergency procedures in place, even as drafts marked for update during ramp-up.	Operations and maintenance leads	☐ Go ☐ No-go ☐ Go, with a written condition
Trained people	Names of the operators and technicians who will be on shift for the SAT, with training signed.	Operations lead	☐ Go ☐ No-go ☐ Go, with a written condition
The decision	All rows reviewed. Energization line signed by EHS.	Plant project or engineering manager	☐ Go ☐ No-go ☐ Go, with a written condition

Structure from OSHA 29 CFR 1910.119(i)(2), used by analogy; it binds only the processes it covers. Confirm how 29 CFR 1910.147 applies to commissioning with the plant EHS lead. This is not legal advice.

2 The SAT: what it repeats from the FAT, and what it adds

FAT test category	What the SAT adds on site	Pass / fail	Witness	Date
Point-to-point and I/O checkout	Each point tested to the real field device, with the as-built I/O list reconciled to the wiring.	☐ Pass ☐ Fail		
Network and communications	The network at real cable distances, through the real switches, with real device addressing and every connected drive and instrument online.	☐ Pass ☐ Fail		
Interlocks and handshakes	Interlocks and handshakes with neighboring equipment that was simulated at the shop, run against the actual machines.	☐ Pass ☐ Fail		
Safety functions	Emergency stops, guard interlocks and safety relays tested on the installed circuits, not on the bench.	☐ Pass ☐ Fail		

Backup and restore	A backup taken and a restore tested on the installed hardware, so the archive is proven on the controllers that will run the line.	☐ Pass ☐ Fail		
Items on the FAT action list	Each item the FAT assigned to the SAT, closed or carried onto the punch list with an owner and a date.	☐ Pass ☐ Fail		
Record format	The FAT sheets reused as they are, with every test that differs from the FAT clearly marked.	☐ Pass ☐ Fail		

Structure from Seqwater I-SPE-STD-011 version 5, sections 12.1 and 12.2. FAT defects are resolved before the SAT starts. The record captures the model and serial numbers of the equipment received and installed. Intermittent, unintentional or unrepeatable warnings, errors or failures are not accepted. The SAT is complete when the records and test sheets are signed and the high and medium priority defects are closed.

3 Punch list: sort every open item by the gate it blocks

Category	Test question	Who verifies	Example closure evidence
Blocks power-on	Could energizing or running this equipment hurt a person or damage equipment while the item is open?	EHS lead and controls lead	Retested safety circuit with the signed test sheet; corrected wiring with the as-built I/O list updated.
Blocks handover	Could maintenance or operations not run, restore or support the line without it?	Plant project manager, with the maintenance lead	Restore-tested backup; reconciled as-built drawing; missing spare delivered and checked against its part number.
Can close after handover	Is the line safe, supported and accepted while the item is open, with an owner and a date?	Plant project manager	Dated entry on the open punch list, signed by the plant, with the owner named and the due date agreed.

The plant verifies closure, not the contractor. An item with no owner and no date is not on the list. Keep one list for all suppliers.

#	Description	Category	Owner	Due date	Verifier	Closed

4 Ramp-up: the exit criterion, agreed before the first shift

Criterion	What to agree	Value agreed	Owner
Target rate	The rate the line must hold, in the units the plant plans against.		Operations lead
Product mix	Which products count toward the run, and which do not.		Operations lead
Consecutive shifts or runs at that rate	The number of shifts or runs the line must hold the rate without intervention.		Plant project manager
Quality limit	The reject or defect limit that applies during the run.		Quality lead
Loss categories logged	The list of categories every stop and slowdown is logged against.		Operations and maintenance leads
Each loss with an owner and a cause	A named owner and a stated cause for every loss, open until it closes.		Controls lead and maintenance lead

A template to fill in, not a set of values. The criterion is agreed locally by the people who will own the result. Peak speed is not the same as sustainable production.

5 Turnover package: test each item by its use

Item	What maintenance does with it	Test before signing	Done
Signal trace	Follows a signal from terminal to scan to logic to HMI tag to device when something stops working.	Pick one input at random and trace it end to end with the drawings and the program.	☐ Passed
Restore-tested backups	Rebuilds a failed controller from the archive, and returns the line to its commissioned settings.	Restore one controller from the archive onto a spare, and confirm an "as commissioned" setpoint backup exists.	☐ Passed
Source code, credentials and licenses	Opens, edits and downloads the program without asking the integrator for access.	Open the code for a protected block with the delivered credentials, and confirm the programming licenses are in the plant's name.	☐ Passed
Spares	Replaces a failed power supply, CPU, communication or I/O module, switch or cable.	Find one spare by part number in the storeroom, and check the list against what is installed.	☐ Passed
Labeling	Finds the right rack, I/O card or switch in the cabinet at night.	Walk to three labeled items and match each label to the drawing.	☐ Passed

As-built drawings	Troubleshoots against drawings that match what was installed.	Reconcile one drawing sheet against the field wiring, and note any difference.	☐ Passed
Test records	Shows what was tested, by whom, and with what result.	Confirm the FAT and SAT records are complete, signed and filed where the plant keeps them.	☐ Passed
Training records	Shows who has been trained on which equipment.	Match the names on the training records to the people on the maintenance roster.	☐ Passed

Documents are signed as received, and receipt is not acceptance. Acceptance comes from running the tests above.

6 Sign-off: do not sign until

- ☐ Every row in section 1 is go, or go with a written condition that has an owner and a date
- ☐ Every SAT test in section 2 is passed, with each test that differs from the FAT marked
- ☐ Every FAT defect is closed and verified by the plant
- ☐ Every punch-list item has a category, an owner, a due date and a verifier
- ☐ The ramp-up criterion in section 4 was agreed before ramp-up started and has been held for the agreed run
- ☐ Every test in section 5 is passed

SAT and commissioning sign-off

Plant project or engineering manager: name, title, signature, date

EHS lead (energization line): name, signature, date

Operations lead: name, signature, date

Maintenance lead (turnover package accepted): name, signature, date

Integrator: name, title, signature, date

Independent witness (if any): name, signature, date