

Sensor-to-Trip Functional Assurance Matrix

Create one matrix row for every protection, control, alarm and interlocking function. Use the checklist below to confirm that design intent is linked to final witnessed evidence.

Project / Site		Document No.	
Panel / Bay		Revision	
Prepared by		Date	
Witnessed by		Status	

Recommended columns

Status	Checklist item	Evidence / comment
[]	Function ID and hazard or system requirement.	
[]	Initiating quantity or state.	
[]	CT/VT/LPIT source and polarity.	
[]	IED function, setting group and logic equation.	
[]	GOOSE/hardwired signal reference and supervision.	
[]	Output contact, trip relay, coil and breaker.	
[]	Expected alarm, indication, event and SCADA point.	
[]	FAT test case, SAT test case, result and evidence link.	
[]	Design owner, test owner, witness and approval status.	

Minimum functional cases

Status	Checklist item	Evidence / comment
[]	Intended operation at the protection boundary.	
[]	Security for external or reverse faults.	
[]	Loss of VT, CT, sensor, communications, time and DC supply.	
[]	Local/remote and test/maintenance selector positions.	
[]	Breaker failure, lockout, intertrip and autoreclose interaction.	
[]	Alarm/event/SCADA mapping and timestamp quality.	

Change control

Status	Checklist item	Evidence / comment
☐	Assign each row a settings, logic, drawing and SCL revision.	
☐	Identify completed tests invalidated by each dependency change.	
☐	Repeat affected tests and link replacement evidence.	
☐	Close only when every credited function has approved evidence or an accepted deviation.	

Overall result	☐ Accepted ☐ Accepted with comments ☐ Rejected
Open actions	
Final approval	Name / signature: _____ Date: _____

Use project-specific standards, approved drawings, settings and manufacturer instructions. This resource does not replace competent engineering judgement or contractual acceptance requirements.