

ELECTROSOFT AUTOMATION PVT. LTD.

**QUALITY ASSURANCE PLAN / FAT PLAN
FOR ALL AUTOMATION PANELS**

PROJECT:	P.O. NO.:	APPROVAL ABBREVIATIONS:
	END CLIENT:	R: REVIEWED
ITEM NAME:	ITEM SERIAL NO.:	P: PERFORMED
AGENCY (A): M/S ELECTROSOFT AUTOMATION PVT LTD.	AGENCY (B):	V: VERIFIED
AGENCY (C):	AGENCY (D):	W : WITNESSED

Sr. No.	Component / Operation	Characteristics checked	Class	Method / Type of Check	Acceptance norm	Approval by Agency				Remarks
						A	B	C	D	
1	2	3	4	5	6	7				8

1 INPUT / RAW MATERIAL INSPECTION										
1A	MS Sheet Steel (Fabrication)	A) Surface Finish	Major	Visual	Manufacturer certificate shall be provided					
		B) Sheet Metal Thickness	Major	Measurement	Approved Drawings					
	Enclosure	C) Dimensions	Major	Measurement	Approved Drawings					
1B	Hardware									
	Bolt / Nuts / Plain Washer / Spring Washer	A) Dimensional Conformity	Major	Sample Measurement	Internal Standards					
		B) MOC	Major	Certification	Internal Standards					
1C	Paint	A) Finish (Shade) Viscosity	Major	Visual	Manufacturer certificate shall be provided					
		B) Routine Test	Major	Visual	Manufacturer certificate shall be provided					
		C) Thickness	Major	Certification	Manufacturer certificate shall be provided					
1D	Neoprene Rubber Gasket	A) Dimensional Conformity	Major	Sample Measurement	Internal Standard					
1E	Conductor / Wire	A) Verification of Cross Section make, Colour Code etc.	Major	Physical Verification	Internal Standard					
		B) Grade	Major	Physical Verification	Manufacturer certificate shall be provided					
1F	Terminal for Power & Control	A) Size / Current rating	Major	Physical Verification	As per approved Drawing.					
		B) Connecting Arrangement	Major	Visual	As per approved Drawing.					
		C) Spare Terminals Percentage	Major	Physical Verification	As per approved Drawing					
1G	Indicating Instruments (Voltmeter, Ammeter, Frequency, KW, KWH, Meter)	A) Mounting Detail & Dimensions	Minor	Measurement	As per approved Drawing					
		B) Accuracy Class	Major	Physical Verification	As per approved Drawing					
		C) Routine / Type Test	Major	Certification	Manufacturer certificate shall be provided					
1H	Control Switch	A) Visual	Minor	Physical Verification	As per approved Drawing					
		B) Contact Rating AC / DC	Major	Physical Verification	As per approved Drawing					
		C) Operational Test	Major	Functional test	As per approved Drawing					
1I	Space Heater	A) Mounting Detail	Minor	Visual / Physical inspection	As per approved Drawing					

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		B) Verification of Volt / Watt Rating	Major	Visual / Physical inspection	As per approved Drawing					
1J	LED Indicating Light	A) Verification Of Voltage Grade	Major	Verification	As per approved Drawing					
		B) Operational Test	Major	Functional test	As per approved Drawing					
1K	Push Button	A) Verification of Rating & Contact Arrangement	Major	Physical Verification	As per approved Drawing					
		B) Mounting Arrangement	Major	Measurement	As per approved Drawing					
		C) Operational / Functional	Major	Functional test	As per approved Drawing					
2	IN-PROCESS INSPECTION									
2A	Panel Fabrication	A) Visual check for weld, dressing, de-burring, straightness & dimensional control	Minor	Visual Inspection	Internal Standard					
		B) Checking of Frame.	Minor	Visual Inspection / Measurement	Internal Standard					
		C) Checking of Trollies with standard fixtures	Minor	Physical	Internal Standard					
		D) Dimensions	Minor	Process (Measurement before assembly)	As per fabrication Drawing					
		E) Lifting Facilities	Minor	Process (Physical check before assembly)	As per fabrication Drawing					
		F) Cable Entry	Minor	Process (Physical check before assembly)	As per fabrication Drawing					
		G) Waviness	Minor	Process (Physical check before assembly)	As per fabrication Drawing					
		H) Gasket Arrangement	Minor	Process (Physical check before assembly)	As per fabrication Drawing					
2B	Pre-treatment / Painting	A) Pre- Treatment of sheet steel	Minor	Physical / Visual	Internal Standard/ IS / IEC Standards					
		B) Final Painting	Minor	Physical / Visual	Internal Standard/ IS / IEC Standards					
		- Paint Thickness	Minor	Certification / Measurement	As per approved Drawing					
		- Finish	Minor	Visual	As per approved Drawing					
2C	Assembly	A) Alignment of Panel	Major	Physical Verification	Internal Standard					
		D) Arrangement of Components & Terminations	Major	Physical Verification	Internal Standard					
2D	Wiring	A) Proper Wire Clamping	Minor	Visual	Internal Standard					
		B) Continuity & Ferruling as per wiring diagram	Minor	Visual / test	Internal Standard					
		C) Proper crimping of lugs / connections tightening at terminals & components	Minor	Visual	Internal Standard					

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3 FINAL INSPECTION / FACTORY ACCEPTANCE TEST										
3A	BOQ	Verification of :- 1. Component, 2. Rating, 3. Quantities 4. Make	Major	Physical Verification	As per approved BOQ					
3B	Mounting Arrangement	Proper Mounting Arrangement of :- 1. Components, 2. Mounting plates, 3. Gland plates 4. Name plates 5. Doors & covers	Major	Physical Verification	As per approved Drawing					
3C	Wiring	1. Completeness 2. Finishing 3. Ferruling & Lugging 4. Harnessing	Major	Physical Verification	As per approved Drawing					
3D	Continuity test	Wire Continuity test	Major	Routine test	As per approved Drawing					
3E	Ingressive protection	Degree of protection by insertion of thin paper	Critical	Test	Manufacturer certificate shall be provided					
3F	Powder Coating	1) Shade	Minor	Visual	Manufacturer certificate shall be provided					
		2) Surface Finish	Minor	Visual	Manufacturer certificate shall be provided					
		3) Thickness	Major	Certification	Manufacturer certificate shall be provided					
3G	Functional Test	1) Transformer input / output voltage as specified.	Major	Measurement	Manufacturer certificate shall be provided					
		2) SMPS input / output voltage as specified	Major	Measurement	Manufacturer certificate shall be provided					
		3) All components configured – Controllers, instruments, timers, VFD's, recorders, PID functions, etc.	Major	Physical Verification	Manufacturer certificate shall be provided					
		4) Install jumpers as needed to simulate proper input/output signals and test ALL interlocks and circuits for proper functional	Major	Physical	Manufacturer certificate shall be provided					
		5) Testing of all digital inputs at PLC software by applying jumpers at input terminals	Major	Functional test	Manufacturer certificate shall be provided					
		6) Testing of all digital outputs by forcing DO using PLC software	Major	Functional test	Manufacturer certificate shall be provided					

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		7) Testing of analog/RTD inputs by connecting source or sensor respectively	Major	Functional test	Manufacturer certificate shall be provided					
		8) Testing of analog outputs by forcing counts from PLC software	Major	Functional test	Manufacturer certificate shall be provided					
		9) Connect analog meter (4-20mA) as needed to measure analog outputs and resulting control panel operational functions as needed	Major	Functional test	Manufacturer certificate shall be provided					
		10) Connect analog generator (4-20mA) to simulate analog inputs and resulting control panel operational functions as needed	Major	Functional test	Manufacturer certificate shall be provided					
		11) Set or verify each motor OL setting to FLA data found on drawing	Major	Physical	Manufacturer certificate shall be provided					
		12) Trip each motor OL and verify door mounted light operation	Major	Functional test	Manufacturer certificate shall be provided					
		13) Trip each motor OL and verify output signal operation	Major	Functional test	Manufacturer certificate shall be provided					
		14) Operate all selector switches and verify interior component operation ie: Motor starters, VFDs, control relays, etc.	Major	Functional test	Manufacturer certificate shall be provided					
		15) Operate all selector switches and verify pilot light operation. Verify proper operation under normal and OL tripped conditions	Major	Functional test	Manufacturer certificate shall be provided					
		16) Simulate all system fault signals and verify proper operational results, if any	Major	Functional test	Manufacturer certificate shall be provided					
		17) Inputs/outputs, horn, dialer, HMI banners, etc.	Major	Functional test	Manufacturer certificate shall be provided					

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SIGNATURES:

AGENCY:	A	B	C	D
ROLE:	MANUFACTURER	CONTRACTOR	CONSULTANT	END CLIENT
AGENCY NAME:	ELECTROSOFT AUTOMATION PVT. LTD.	AGENCY B	AGENCY C	AGENCY D
SIGNATURE:				
NAME OF PERSONNEL:				
DATE:				
PLACE:				

