

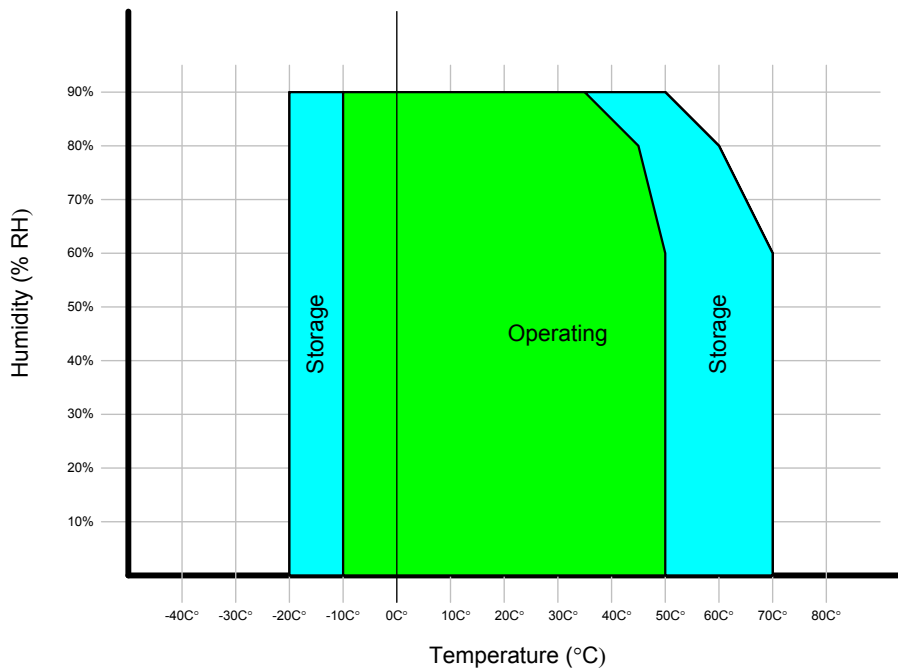
# Resistive Touchscreens

## Specification sheet

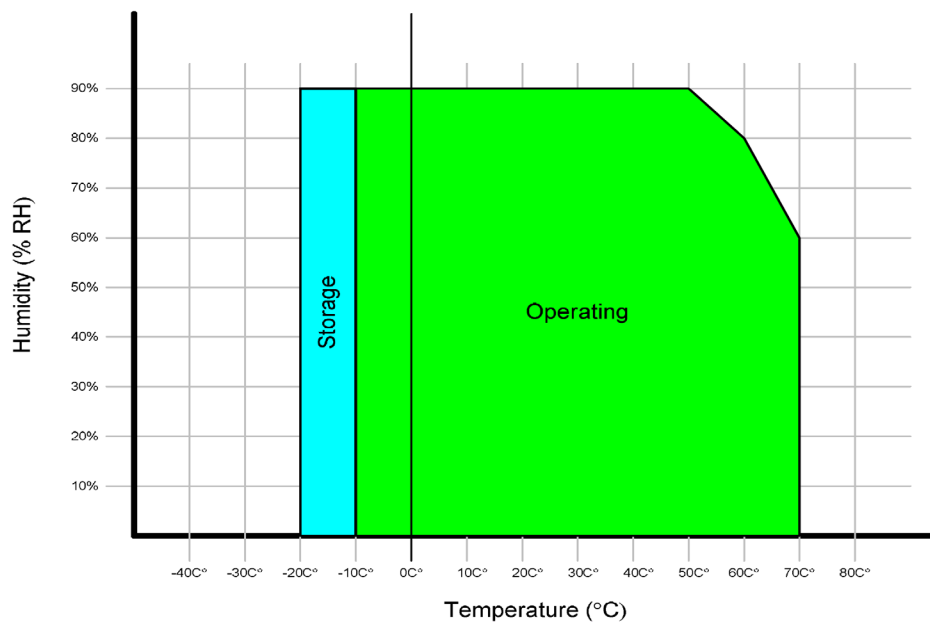
*All Touchscreen constructions are customer specific applications; specific customer application specifications can be agreed.*

	Electrical	
Standard analogue Touchscreens	≤1.5% accuracy in both X and Y direction	SCHURTER test procedure
Touchscreens including bonded graphic overlay	≤2% accuracy in both X and Y direction	SCHURTER test procedure
Calibration	All Touchscreens are calibrated at two points with and offset of 4.5% from active area's perimeter prior to testing	SCHURTER test software
Controller	All SCHURTER Touchscreens are tested using a Hampshire TSHARC 12 controller. Results may vary depending on electronics used	Commercial hardware
Matrix Touchscreens	Will be tested on all key functionality	SCHURTER test procedure
Circuit resistance analogue Touchscreens	Typically between 100ohm and 1000ohm for both X and Y direction	ASTM F1680-07A
Circuit resistance matrix Touchscreens	Depending on the design, up to a maximum of 20kohm	SCHURTER test procedure
Insulation resistance	≥20Mohm @ 25V DC	ASTM F1689-05
Operating voltage	3.3V - 5V	
Capacitance	<50nF view area ≤ 15.1" <100nF view area > 15.1"	
Contact bounce time	≤10ms	ASTM F1661-09

	Environmental "Glass backer"	Test procedure
Temperature	Accordinging diagram	IEC 60068-2-14 NB (-25°C / +70°C, 50% RH, 3 hrs, 6 cycles)
Humidity	Accordinging diagram (No dew condensation allowed)	IEC 60068-2-30 (+55°C, 93% RH, 9 hrs, 2 cycles) IEC 60068-2-78 (+40°C, 93% RH, 10 days)



	Environmental enhanced "Glass backer"	Test procedure
Temperature	Accordinging diagram	IEC 60068-2-14 NB (-25°C / +70°C, 50% RH, 3 hrs, 6 cycles)
Humidity	Accordinging diagram (No dew condensation allowed)	Danielson test procedure (+50°C, 90%RH, 12hrs) (+60°C, 80%RH, 12hrs) (+70°C, 60%RH, 12hrs) IEC 60068-2-78 (+40°C, 93%RH, 10days)



	Environmental "Plastic backer"	Test procedure
Operating temperature	Between 10°C and +40°C at 50% RH	IEC 60068-2-14 NB (5°C / +40°C, 50% RH, 3 hrs, 6 cycles)
Storage temperature	Between 0°C and +50°C at 50% RH	IEC 60068-2-14 NB (5°C / +55°C, 50% RH, 3 hrs, 6 cycles)
Humidity	90% RH @ maximum +30°C (No dew condensation allowed)	IEC 60068-2-30 (+40°C, 93% RH, 9 hrs, 2 cycles) IEC 60068-2-78 (+40°C, 93% RH, 10 days)

	Durability	Test procedure
Surface finish	Range of different materials available	
Surface hardness	3H	Pencil hardness
Operating force	Typically between 15-50 gram	ASTM F2592-10 (finger of 45 shore, 4 mm radius spherical)
Point activation life 4-wire, 8-wire	>1 million activations	finger of 45 shore, 4 mm radius spherical, 550 g load at 2Hz at ambient conditions (20°C / 50% RH)
Point activation life 5-wire and matrix	>35 million activations	finger of 45 shore, 4 mm radius spherical, 550 g load at 2Hz at ambient conditions (20°C / 50% RH)
Character activation life	>100.000 characters	20 mm strokes with recommended stylus
Recommended stylus	Plastic stylus (no metal) with 1 mm radius with full hemispherical tip	
Bend radius flex tail	Minimum radius 4 mm for PET tail material 2 mm radius recommended for Kapton tail material (careful folding allowed)	
Glass backer	Toughened on request (Chemically / Thermal)	
Chemical resistance	According to manufacturer's specifications	

	Optical
Light transmission	Depending on the construction, typically between 60-80%. (Measured at 550 nm)
Surface	Gloss or Anti-glare
Visual appearance	According document "Visual Acceptance Criteria" SCHURTER

	Interface Electronics
Controllers	SCHURTER offers Micorchip touchscreen controllers. These controllers can be used for any 4/5/8 wire touchtcreen and can connect to your system using RS232, PS/2 or USB. Drivers are available for Windows 8, 7, ME, NT, 2000, XP, VISTA, CE, CE net, Linux & MS-DOS.