ALPS Fader 1.950.044.00 - Touch Function Troubleshooting

Problem : The touch function of the faders does not work reliably

Possible reasons :

- Ground Reference

  One of the major issues is a proper environment regarding ground reference. If the operator cannot provide a clear capacity to change the touch circuitry's frequency, there will be no reliable function. The situation might change with temperature, humidity or operator.

  -> One of the tests is to check for an improvement when touching the metal frame with one hand when moving the fader.
  -> for detailed check of touch circuitry, refer to the "touch electronics" section below.

- High Frequency Fields / EMC

  A high frequency field (transmitters, wireless devices) which is applied to the knob via operator can have a negative impact on the frequency circuit which is used for touch detection (critical frequency ranges 200kHz .. 2 MHz). See "touch electronics" section below.

- Dirty fader tracks

  The touch signal is connected via a fader contact. A clean fader is important for reliable touch operation.

  -> If particular faders do not work correctly, clean them according to ALPS recommendations, and check for improvement.

- Fader Modification

  At the very beginning there were faders with bad contacts between slider and touch connector. The problem was solved by a modification of the supplier, modified faders are marked with a blue revision "A" label. During 2006 there was a redesign of the faders, the modifications was no longer required -> faders from recent shippings do no longer have "A" label.

  -> If faders were faulty, the problem should only occur on particular channels. Swap the fader with another channel and verify that the problem moves with the fader.

  -> Studer does not repair faders, but if there are any doubts about faults of particular faders, we can analyze single faders on proper function. Contact Studer Support before returning any faders !

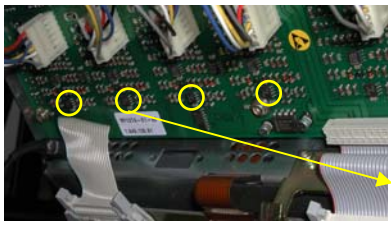
- Mechanical and Motor Defects

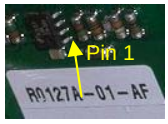
  Other possible mechanical defects shouldn't have an impact on the fader touch functions - but if the effect can be traced down to a particular fader, you can verify whether there are any obvious mechanical defects

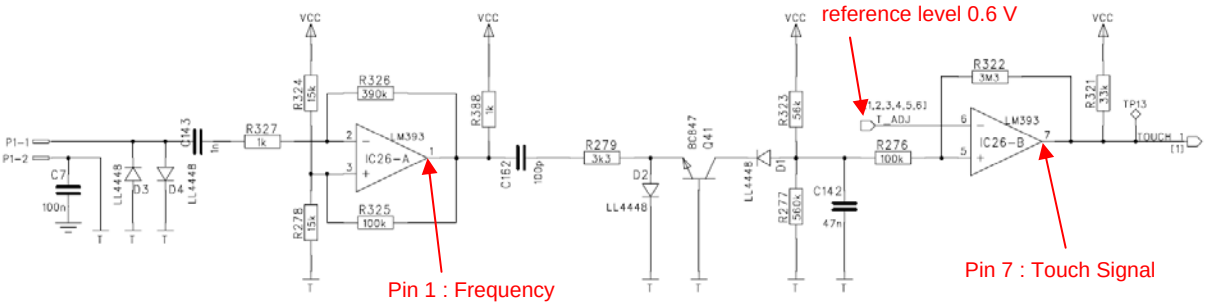
  - loose case or badly aligned sliding bar (e.g. as a result from disassembling for cleaning purposes)
  - deformed tooth belt (fader does not move smoothly) -> aging defect when fader is left in same position for years.
  - deformed rotor coil due to overheated motor -> rotor is touching case and fader moves bumpy.

Touch electronics :

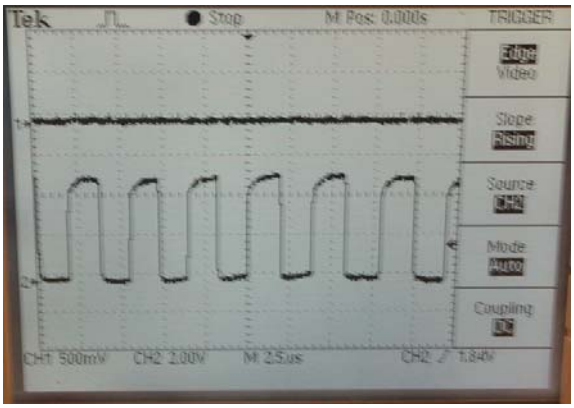
The touch detection circuit is located on the fader driver board 1.949.150.81, There is a standby frequency of about 250 kHz, which is changing on touch to 20 .. 50 kHz, the frequency change is converted to a logical signal.





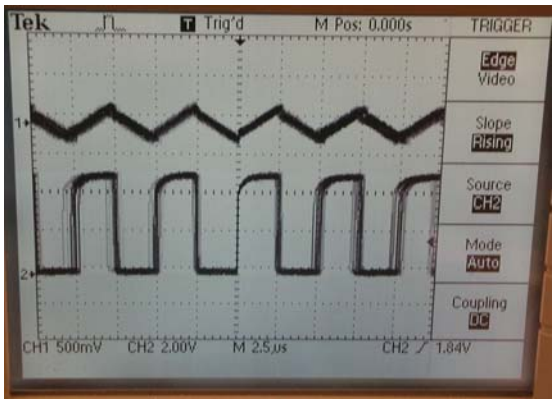


Channel 2 : oscillator frequency (pin 1)



no touch - signal period about 4 usec (250 kHz)

Channel 1 : fader knob signal
Channel 2 : oscillator frequency (pin 1)



touching knob with oscilloscope probe (about 10 pf)
-> signal period about 5 usec (200 kHz)

-> the switching level is typically at a period of 6-7 usec (150 kHz)

-> a typical touch condition has a period of 20-50 usec (< 50 kHz)

- When the operator does not provide enough capacity, the frequency won't change enough to trigger the circuit. If an operator has extremely dry skin, this might also result in unreliable operation.
  -> verify by touching the desk chassis (metal frame / screws) with the other hand - there should be a clear improvement of the signal /frequency shift.

  The only action which will improve such a situation is properly grounding the desk or add a conductive coating / carpet in front of the desk and connect it to the desk chassis.

- In case of high frequency environment, the oscillator frequency may already be different in untouched condition, or react upon touch with higher or only small changes, which do not reliably switch.

Custom Key Panel

Vista 6 : on 1.949.129.00 Center Front Board Top
Vista 8 : Module 1.949.038.00

The panel on the Vista Control Bay provides 16 keys with yellow LEDs , offering transparent caps for customized labelling. A 37pin D-type connector at the Vista desk's frontside panel provides an input and output signal for each key :

- an open collector output can work in pulse or latching mode, depending on the DIP switch S140 / S141 setting.
- when assigned to latching mode, the power-up status of each group of 4 keys can be preselected with DIP Switch S139.

- depending on customer requirements the LED can be tied to the key signal, or independantly controlled by an external signal.
- For key groups 1-8 and 9-16 the supply voltage source can be selected separately, either internal or external. Due to a current source design the LED intensity does not depend on the external voltage (5 .. 24V)

The connector offers a power supply 5V / 0.5 A, the current on a single open collector output shouldn't exceed 300 mA, the max current not 2 A.

Pin Assignment D-type connector, 37p female

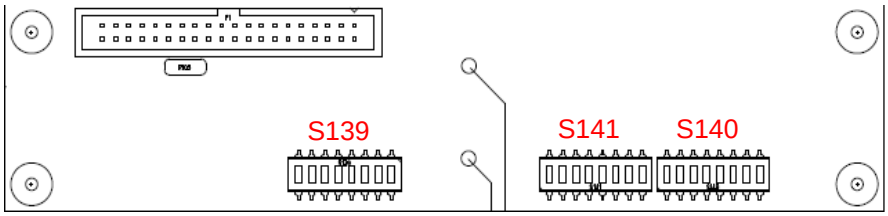
Function	*Pin*	*Function*	*Pin*	*Function*	*Pin*
Switch 1	20	Switch 9	28	LED Supply 1-8	36
LED 1	2	LED 9	10	LED Supply 9-16 (5..24V)	18
Switch 2	21	Switch 10	29		
LED 2	3	LED 10	11		
Switch 3	22	Switch 11	30	Signal Ground	1, 19
LED 3	4	LED 11	12	Supply 5V / 0.5A	37
Switch 4	23	Switch 12	31		
LED 4	5	LED 12	13		
Switch 5	24	Switch 13	32		
LED 5	6	LED 13	14		
Switch 6	25	Switch 14	33		
LED 6	7	LED 14	15		
Switch 7	26	Switch 15	34		
LED 7	8	LED 15	16		
Switch 8	27	Switch 16	35		
LED 8	9	LED 16	17		

DIP Switch Functions

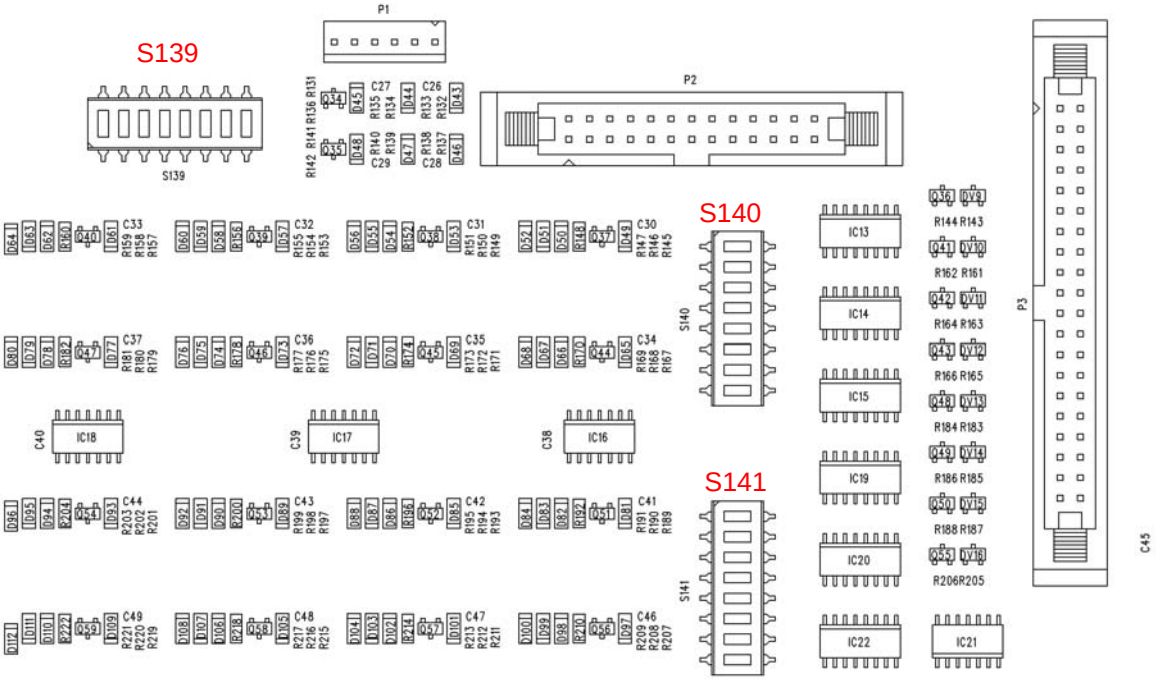
S139.1	supply source LED 1-4	ON = internal, OFF = external
.2	supply source LED 5-8	
.3	supply source LED 9-12	
.4	supply source LED 13-16	
.5	power-on default Switch 1-4 :	ON = switch OFF, OFF = switch ON
.6	power-on default Switch 5-8	
.7	power-on default Switch 9-12	
.8	power-on default Switch 13-16	

S140.1	Switch 1 Mode	S141.1	Switch 9 Mode	ON direct, OFF = latching
.2	Switch 2 Mode	.2	Switch 10 Mode	
.3	Switch 3 Mode	.3	Switch 11 Mode	
.4	Switch 4 Mode	.4	Switch 12 Mode	
.5	Switch 5 Mode	.5	Switch 13 Mode	
.6	Switch 6 Mode	.6	Switch 14 Mode	
.7	Switch 7 Mode	.7	Switch 15 Mode	
.8	Switch 8 Mode	.8	Switch 16 Mode	

DIL Switch Layout



Vista 8 Custom Key Module 1. 949.038 (Connector Side of 1.949.162.00)



Vista 6 : on 1.949.129.00 Center Front Board Top (Components/Connector Side)