CS-Bus Single and Multi-Motor Controller
TROUBLESHOOTING

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Version: 3.2
Note: this document refers to several CS-Bus motor controllers
-IMC/SMC refer to IMC-100 product line.
-IQ-485 refers to CS-Bus Network Interface controller

1.   SELECT SYMPTOMS
a.   No Power ON/Ready LED.
         Note: SMC has a single YELLOW LED (Power ON/Ready). The IQ-485 has two LEDS—a GREEN LED (Power ON/Ready) plus a YELLOW (Bus) LED. Observe the status of the Power On/Ready LED only. Go to Section 2.
b.   No activity or any LEDs illuminate whatsoever. Go to Section 3.
c.   LV keypads do not work or control improper output ports. Go to Section 4.
d.   LV keypads work, but no bus devices work (11-button BSKP, serial interface, IR-EYE). Go to Section 5.
e.   No controllers in a multiple motor controller system works. Go to Section 5.
f.   One controller in multiple motor controller system works but one or more other controller does not. Go to Section 5.
g.   IR does not work at all, or only works through certain IR receivers connected to system. Go to Section 6.
h.   BSKP (11-button) keypad does not work or controls improper ports or Controllers. Go to Section 7.
i.   Motors work correctly but no serial communication. Go to Section 9.
j.   Motor goes wrong direction. Go to Section 10.
k.   Presets cannot be programmed. They remain at factory default of 25%, 50%, and 75%. Go to Section 10.
l.   User controls work but they seem not to control the desired output devices. Go to Section 11.
m.   The Controllers power up but seem not to be operation properly or are frozen or do not respond to any commands. Go to Section 12.
n.   SMC/IQ-485 works flawlessly but you desire to reset one or more Controllers to factory default values. Go to section 12.
o.   One or more Controllers seem to be responding to an improper address or to not respond to an intended address. Go to Section 13
p.   Everything appears to be working properly. Go to Step 14, otherwise go to next step.
q.   You are still having difficulties, call Mechoshade for more information.

2.   DO THE POWER ON/READY LEDS PROPERLY ILLUMINATE?
         Note: SMC has a single YELLOW LED (Power ON/Ready). The IQ-485 has two LEDS—a GREEN LED (Power ON/Ready) plus a YELLOW (Bus) LED. Observe the status of the Power On/Ready LED only.
Yes   Go to Section 3.
No   The unit may be powered up, but its LED may be set to "Inhibit." Perform a 10 second factory reset (as described in Section 12). If the LED was set to Inhibit "ON," you will not be able to see the progress of the 10-second RESET but in any case, just proceed through the documented process waiting the specified amount of time to see if you can guide the unit (blindly) through the 10-second Factory Reset. If the LED never comes back on, proceed to section 3 below.

3.   POWER-UP TROUBLESHOOTER
a.   Is SMC/IQ-485 powered up? Check the power connections. The SMC requires AC power. IQ-485 requires 9-16 VDC. Make sure Power ON/Ready LED is on. Make sure AC Power is connected to proper SMC connected pins, or that proper DC power is applied to proper pin connections on the IQ-485 (observer proper polarity). If this does not solve the problem, proceed to next step.
b.   Check circuit breaker and power source driving SMC/IQ-485.
c.   Check fuse in SMC (replaceable). Note: Replace with only with same type of Fuse.
d.   Remedy, reboot, and go to Section 1.

4.   LV KEYPAD TROUBLESHOOTER
a.   Check wiring to LV keypad. For IQ-485, Use 4-conductor or 6-conductor wire and RJ-25 connectors (1:1). For SMC, use 4-conductor wire and RJ-25 connector on one end (check wiring diagram).

b. By default, LV keypad control particular unit (SMC) or channel (i.e. S1) into which it is plugged (IQ-485). Additional groupings or associations are only possible with discovery of multiple SMC controllers, or multiple channels (IQ-485). See section 11 for Discovery.
c. If LV keypad(s) controls an unexpected output port (on IQ-485) or an unexpected controller (SMC), then an inadvertent discovery has been performed to one or more unexpected ports or controllers. To eliminate the unexpected ports from activating, perform a 5-second address reset (see section 13) or a 10-second Factory Reset (see section 12) on device(s) which do not behave properly and rediscover Controllers once again.
d. Remedy, reboot, and go to Section 1.

5.   CS-BUS TROUBLESHOOTER
a. Check CS-BUS wiring between controllers (including all SMCs or IQ-485 Controllers on the CS-BUS). CS-BUS interconnect wiring requires at minimum a 4-conductor cable or 6-conductor cable with RJ-25 jacks on both ends. Make sure cables are plugged into Port 1 on one unit and Port 2 on the next unit.
b. If cables are checked out OK and connected properly, one or more Controllers on the CS-BUS may not have been discovered properly. Perform a 5-second Address Reset (as per section 13) or a 10 second Factory Reset (as per section 10) and rediscover all Controllers once again.
c. Verify that length of CS-BUS is less than 4000 feet. Make sure that you install a bus terminator to both the beginning and end of the CS-BUS.
d. If multiple units on the CS-BUS randomly respond to bus signals generated by devices residing on the CS-BUS (i.e. 11-button BSKP keypad, IR remotes thru IR-EYE, Serial communication commands), make sure that you have installed a bus terminator to the beginning and end of the bus.
e. If you are still having problems, proceed to Section 8. Otherwise, if you have corrected the problem, reboot, and go to Section 1.

6.   IR TROUBLESHOOTER
a. Check for batteries in device, replace batteries.
b. Make sure IR receiver not flooded (fluorescent, neon, or direct sunlight).
c. Check wiring. If using IR-EYE, make sure IR-EYE is plugged into Port 1 on SMC or IR-port or Port 1 on IQ-485. If using IR receiver within keypad, check 11-button BSKP Keypad Troubleshooter-section 7.
d. Remedy, reboot, and go to Section 1.

7.   11-BUTTON KEYPAD (BSKP) TROUBLESHOOTER
a. Does Keypad work at all? If it controls some Controllers but not all the intended Controllers or ports, go to Section 5, Section 8, and Section 11. If the keypad does not control anything, proceed to the next step.
b. Check wiring to keypad (pins 1,2,3,4 on keypad go to pins 6,4,3,2 on RJ-25 connector which plugs into Port 1 n SMC or IQ-485).
c. Check wiring length (entire length of CS-bus needs to be less than 4000 feet).
d. If Keypad works but controls improper ports or Controllers, proceed to Section 5, 8 and 11.
e. Remedy, reboot, and go to Section 1.

8.   SMC/IQ-485 INTERCONNECT TROUBLESHOOTER
a. If first Controller works but second or subsequent Controller does not, check CS-BUS wiring between the Controllers (requirement 6P6C 1:1 cable between either Ports on first device to either Port on next device). It is preferable to connect the output port of one device (Port 1 or "Left Port") to the input port on the second device (Port 2 or "Right Port"). However, the system will still operate properly if this convention is not followed. The above convention must however, be followed when power consuming bus devices are connected to the CS-BUS. In order, however, to avoid any potential problems, it is always wise to obey the above wiring convention.
b. If first Controller device responds to the same Group commands as the second Controller device, it is first necessary to "Discover" both units such that they respond appropriately to outside or internal (LV) commands. Follow the steps below under Discovery within Section 11 to properly identify all Controllers on the bus.
c. If neither Controllers work, separate Controllers on the CS-BUS and go to Section 5 above. After you are convinced that all Controllers work well, reconnect Controllers, check CS-BUS wiring between units, and make sure CS-BUS wires plug into Port 1 on one unit and Port 2 on the next. Then, perform a 10 second Factory Reset on each Controller (as per Section 12 and re-discover each unit again (as per Section 11).
d. Remedy, reboot, and go to Section 1.

9. **SERIAL TROUBLESHOOTER**
a. (IQ-485). Does IQ-TESTER application program work when serial cable is plugged into RS-232C port on IQ-485? This program will indicate that both transmit and receive are working on the IQ485 (and the SMC if connected via the CS-BUS interconnect wire to the above IQ-485). If it does not, proceed to Step "C" below.
b. (SMC). Does IQ-TESTER work when serial cable is plugged into RS-232C port on the IQ-485 and CS-BUS cable is connected from either CS-BUS port on IQ-485 to either CS-BUS port on SMC? If it does not, proceed to Step "C" below.
c. Check wiring to serial port on IQ-485.
d. Does Microsoft HyperTerminal work? If HyperTerminal works (and IQ-TESTER program works), but Crestron (or 3rd party Automation System) does not—check wiring to Crestron, check baud rate, software commands. Make sure no line feeds exist at end of command sequence.
e. Does Microsoft HyperTerminal fail (as well as IQ-TESTER testing program), AND, Home Automation software fails as well? Check serial wire connections between IQ-485 and third party system, check length of serial wire.
f. Remedy, reboot, and go to Section 1.

10. **CUSTOMIZATION SETTINGS**
a. Motor Direction. (process to be supplied)
b. Setting Presets through LV keypads (process to be supplied).
c. After appropriate changes are made, go to Section 1.

11. **DISCOVERY**
   To be supplied

12. **10-SECOND FACTORY RESET**
   -Follow the appropriate directions below depending upon which controller you have
   SMC-Controller
        -Depress Discovery Button and hold for 10 seconds until:
             -**YELLOW LED** first turns OFF
             -**YELLOW LED** comes back ON after 5 seconds to indicate when Discovery Button can be released.
             -Make sure you release the Discovery Button immediately after the YELLOW LED comes back ON, otherwise Factory Reset may be invoked.
   IQ485 Controller
        -Depress Discovery Button and hold for 10 seconds until:
             -**YELLOW LED** first turns **ON** and **GREEN LED** turns **OFF**
             -**GREEN LED** turns **ON** after 5 seconds to indicate when Discovery Button can be released.
             -Make sure you release the Discovery Button immediately after the GREEN LED comes back ON, otherwise Factory Reset may be invoked.

   -Reboot and rediscovery all Controllers, and proceed to Step 1.

13. **5-SECOND ADDRESS RESET**
   -Follow the appropriate directions below depending upon which controller you have
   -SMC-Controller
        -Depress Discovery Button and hold for 10 seconds until:
             -**YELLOW LED** first turns OFF
             -**YELLOW LED** comes back ON after 5 seconds
             -Continue holding button until **YELLOW LED** goes OFF again, then release button.
             -Do nothing until the YELLOW LED to turns back on again.-- Factory Reset is now complete.
   -IQ485 Controller
        -Depress Discovery Button and hold for 10 seconds until:
             -**YELLOW LED** first turns **ON** and **GREEN LED** turns **OFF**
             -**GREEN LED** turns **ON** after 5 seconds
             -Continue holding button until **GREEN LED** turns **OFF**, then release button.
             -Then NOTE: Do nothing until the GREEN LED turns back ON again—Factory Reset is now complete.
             -Then NOTE: Do nothing until the GREEN LED turns back ON again—Factory Reset is now complete.
   -Reboot and rediscovery all Controllers, and proceed to Step 1.

14. **END**
a. You have completed this troubleshooting process and your Motor Controller is working well.
b. Thank you for using the Motor Controller troubleshooter.

c.   Please provide any feedback if you have additional problems that cannot be solved using this Troubleshooter to info@convergingsystems.com