



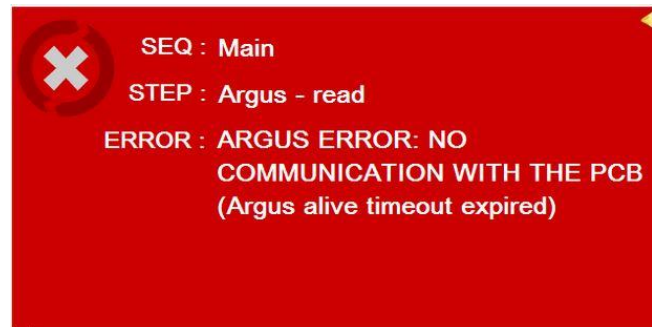
Troubleshooting communication with appliance control board

Error message displayed on the screen can be of different type, in any case it should indicate a communication problem.

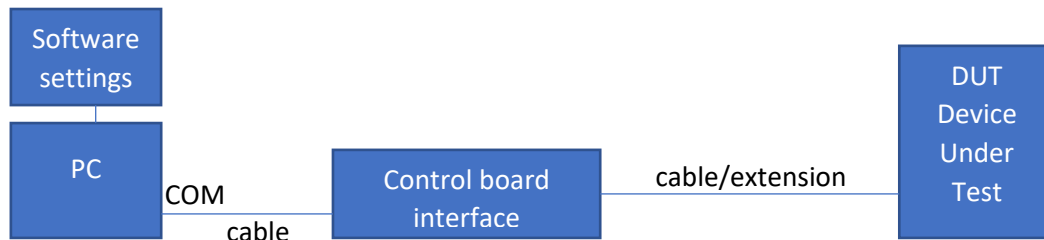
If the Microplan test bench had previously communicated with the appliance control board, **determine what modifications**, if any, have been made **to the testing procedures, software or hardware components** so to

associate current problem to its possible source. Make detailed notes of changes (or recent problems) before contacting Microplan technical support. If no such changes have been made, check the issues and troubleshooting steps listed in the following chart and table.

A step-by-step investigation of communications components should be performed to isolate and identify faulty components.



A) Serial control board interface



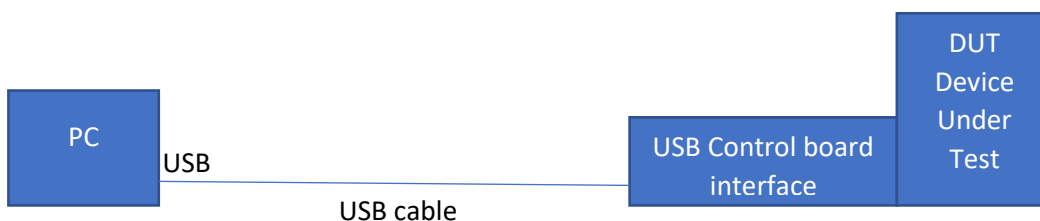
Issue	Troubleshooting
Appliance fault (DUT)	Replace the appliance under test with another: <ul style="list-style-type: none"> • If the new appliance operates correctly track the internal appliance problem • If the new appliance has the same issue as the original one, check following points
Software settings	<ul style="list-style-type: none"> • Make sure the COM port configured in the software matches with the one physically used on the PC
Control board interface fault	<ul style="list-style-type: none"> • Check the interface operation using diagnostic program from the control supplier, if it is available • If testing indicates an issue or is inconclusive, replace the control board interface



Issue	Troubleshooting
Cable – extension fault	<ul style="list-style-type: none"> Inspect cables/extension cables for improper connection or damaged wires Bypass extension if possible Replace the communication cable
Serial adaptor fault	<ul style="list-style-type: none"> If a serial adaptor connection is used (for instance a USB to RS232), replace it
PC serial (or USB) port fault	<ul style="list-style-type: none"> Check to be sure serial port (or USB) is properly configured on the PC Use a different port if available
Socket problem	<ul style="list-style-type: none"> Bypass the communication socket in the test bench electrical cabinet and establish a direct connection to the control PC If a direct connection operates correctly, replace the communication socket
Interference noise	<ul style="list-style-type: none"> Noise can disturb the serial communication therefore you should try to keep all cables of serial communication away from those of power supplies and signals. Check paths of these cables and ensure they are segregated accordingly. Additionally make sure communication cables are of shielded type and that they are as short as possible. Finally, the installation of ferrite on the power supply cable of the serial interface could help to prevent disturbs, the same as the installation of a couple of turns of toroid on the communication cable.



B) USB control board interface



Issue	Troubleshooting
Appliance fault (DUT)	Replace the appliance under test with another: <ul style="list-style-type: none"> If the new appliance operates correctly track the internal appliance problem If the new appliance has the same issue as the original one, check following points



Issue	Troubleshooting
Control board interface fault	<ul style="list-style-type: none"> • Check the interface operation using diagnostic program from the control supplier, if it is available • If testing indicates an issue or is inconclusive, replace the control board interface • Ask authorization to Microplan Support team to install the same diagnostic program, from the control supplier, on the PC of the test bench and execute the communication test
Cable – extension fault	<ul style="list-style-type: none"> • Inspect cables (cables/extension) for improper connection or damaged wires • Bypass extension if possible • Make sure total length of USB cable, together with possible extensions, doesn't exceed 5 meters • Replace the USB communication cable
Software settings	<ul style="list-style-type: none"> • Make sure the USB port configured in the software matches with the one physically used on the PC
PC USB port fault, or PC ports overloaded	<ul style="list-style-type: none"> • Check to be sure the USB port is properly working on the PC • Use a different USB port, if available. If so, make sure the USB port configured in the software matches with the one physically used on the PC • In case many USB devices are connected to the PC, disconnect one, or more, to reduce possible overload of the PC on USB ports
Socket problem	<ul style="list-style-type: none"> • Bypass the communication USB socket in the test bench electrical cabinet and establish a direct connection to the control PC • If a direct connection operates correctly, replace the USB communication socket
Interference noise	<ul style="list-style-type: none"> • Noise can disturb the serial communication therefore you should try to keep all cables of serial communication away from those of power supplies and signals. Check paths of these cables and ensure they are segregated accordingly. • Additionally make sure communication cables are of shielded type and that they are as short as possible. • Finally, the installation of ferrite on the power supply cable of the serial interface could help to prevent disturbs, the same as the installation of a couple of turns of toroid on the communication cable.

