INTERFACE COMMAND SET FOR THE 1512

This document outlines the command set for the 1512 controller for the 15xx series chassis. This document applies to version 2.7 of the firmware, other versions may have differences, contact Xitron Technologies Inc. for details or for updated firmware.

Commands and Responses

Certain commands may cause the controller to make a response available. The next time that the controller is read following taking action on one of those commands, the response will be obtained, this is a destructive read so the response may only be read once.

If no response is available then only a Line Feed character is transmitted, otherwise the response is immediately followed by a Line Feed character.

The user may only send one command at a time, the command being terminated by either the assertion of the EOI line or by a Line Feed character (or both). The syntax shown below for each command must be exactly followed and all characters must be in uppercase, the 1512 has only basic error checking functionality.

C?

This causes the 1512 to make a response available to the user indicating whether any changes have occurred in the 15xx chassis since the last C? command was executed. The response is the '1' (one) character if changes have occurred, otherwise it is the '0' (zero) character.

LOAD=*lnnnns*

This causes the 1512 to find the first (starting at the first slot) load having the requested load code (denoted by the four number characters *nnnn*), and configured for the selected load section (denoted by the letter *l*), to be set to the state denoted by the number *s*. If *s* is '0' (zero) then the selected load will be turned off entirely, '1' will only turn on the filament portion of the load, '2' will turn on the entire load.

Note that no difference is apparent between a two-terminal load and a four-terminal load. Sending the state *1* to a two terminal load PCB is not recommended.

This will only turn on the first load matching the requested code and section, any other loads matching these will automatically be turned entirely off. Also, any loads configured for the same section, but having a different code, will be entirely turned off.

This command makes a response available, the response is the number '0' if either the command requested to entirely turn off the requested load, or the requested load was successfully set to the desired state, otherwise the number '1' (one) is made available as a response. In this manner the user may "scan" across several chassis to find the desired load, and still be able to turn off any other loads in the same section.

Examples :

LOAD=A50002

This will fully turn on load ID # 5000, for section A. This will fully turn off all other loads associated with section A. If the load was found in this chassis then the response will be *0*, otherwise it will be *1*.

LOAD=A50000
This will fully turn off all loads configured for section A, although an ID # is required, it actually does not matter what code is specified. The response will always be *0*.

LINE=*ns*

This causes the 1512 to find the first (starting at the first slot) line switch that has been configured for the ballast # defined by the number *n*, to be set to the state denoted by the number *s*.
The number *n* must be in the range *1* through *9* or the characters *:* (colon, equivalent to 10), *;* (semi-colon, equivalent to 11) or < (less than, equivalent to 12).
The number s must be either *0* (zero, denoting that the line switch is to be set to the OFF state) or *1* (one, denoting that the line switch is to be set to the ON state).
This will only turn on the first switch matching the requested ballast #, any others with this ballast # will be turned off.
This command makes a response available, the response is the number '0' if either the command requested to turn off the requested switch, or the requested switch was successfully turned on, otherwise the number '1' (one) is made available as a response. In this manner the user may "scan" across several chassis to find the desired switch, and still be able to turn off any other switches for the same ballast.
Example :
LINE=11
This will turn on the line switch configured for ballast #1. If the line switch was found in this chassis then *0* will be returned, otherwise it will be *1*.

ISOLATE=*abcd*

This causes the 1512 to set the state of any 1520 switches configured as isolation switches to the desired condition.
The number *a* (either *0* or *1*) turns off or on (respectively) the 1520 configured for section A.
The number *b* (either *0* or *1*) turns off or on (respectively) the 1520 configured for section B.
The number *c* (either *0* or *1*) turns off or on (respectively) the 1520 configured for section C.
The number *d* (either *0* or *1*) turns off or on (respectively) the 1520 configured for section D.
This command does not cause a response to be available.

MUX=*s*

This causes the 1512 to turn off all line switches configured as multiplexors (*MUX=0*), or to turn on the selected multiplexor switch only (all others are turned off). The multiplexor to turn on is selected by the letter *s* (A through L) corresponding to the configured source letter for each line multiplexor switch.
This command makes a response available, the response is the number '0' if either the command requested to turn off all multiplexors, or the requested multiplexor was successfully turned on, otherwise the number '1' (one) is made available as a response. In this manner the user may "scan" across several chassis to find the desired switch.

Note – the 1512 does NOT ensure that any previously engaged multiplexor is turned off prior to making the change. The user should send *MUX=0* and delay approx. 60ms before turning on a different multiplexor.

ANGLE=*aaaaos*

This causes the 1512 to set any 1585 Line Conduction Angle Control PCB to the desired phase conduction angle (denoted by the number *aaaa*, four digits integer tenths of a degree), turning the switch off or on (*o* is the number *0* or *1* respectively), and selecting the 1585 configured for source *s* (a letter, *A* through *L*).
This command does not cause a response to be available.
Example :
ANGLE=18001A
This will cause any 1585 configured for source A to be turned on with a 180.0 degree conduction angle.
NOTE :

1. 3599 is the maximum allowable phase.
2. A phase greater than approx. 3500 is fully on.
3. A phase less than approx. 0050 is fully off.
4. *ANGLE=00001A* and *ANGLE=18000A* produces the same (off) result.
5. This is the full cycle conduction angle, i.e. 1800 is half on.

POWER=*spp..pp*

This causes the 1512 to set the fan speed for loads associated with section s (the letter *A* through *L*) to be consistent with a power level *pp..pp* watts (integer watts, any number of digit characters).
This command does not cause a response to be available.
NOTE :

1. Fan speed is also, automatically, adjusted for the actual temperature of the loads. This information allows the fans to come on when the power is first applied to the loads, slowing down the initial rate of temperature rise.

PHASE=*ppp*

This command configures all 1581 type power switches such that they will turn on at the phase angle *ppp* integer degrees.
This command does not cause a response to be available.

SAFE

This command causes all slots in the 15xx chassis to be set to a safe state (typically the OFF state).
This command does not cause a response to be available.

SLOT?*s*

This causes the 1512 to make available as a response the details regarding the contents and configuration of slot *s* (a letter *A* through *L*). Note that for PCBs which span more than one slot, the data is returned for the module only when the "master" slot for the module is specified.

The response made available has the following format –

Blank Slot

The - character .

1581 Line Switch Configured as a Multiplexor

The response is the number *0* (zero), followed by a letter (*A* through *L*) corresponding to the configured line source for this multiplexor or the letter *X* if not configured, followed by the number *0* (PCB is not faulty) or *1* (PCB is faulty).

1581 Line Switch Configured as a Switch

The response is the number *0* (zero), followed by a number (*1* through *9*, *: ;* or <) corresponding to the configured ballast # for this line switch or the letter *X* if not configured, followed by the number *0* (PCB is not faulty) or *1* (PCB is faulty).

1585 Line Conduction Angle Control Switch

The response is the character *;* (semi-colon), followed by a letter (*A* through *L*) corresponding to the configured line source for this switch or the letter *X* if not configured, followed by the number *0* (PCB is not faulty) or *1* (PCB is faulty).

1520 Switch PCB Configured as a Tube Load Switch

The response is the number *5* (five), followed by a letter (*A* through *L*) corresponding to the configured section (or the letter *X* if not configured), followed by four digits denoting the configured load ID #, followed by the number *0* (PCB is not faulty) or *1* (PCB is faulty).

1520 Switch PCB Configured as an Isolation Switch

The response is the number *5* (five), followed by a letter (*A* through *L*) corresponding to the configured section (or the letter *X* if not configured), followed by four successive *0* (zero) digits, followed by the number *0* (PCB is not faulty) or *1* (PCB is faulty).

152x Load PCB

The response is the number *1* (one), followed by a letter (*A* through *L*) corresponding to the configured section (or the letter *X* if not configured), followed by four digits denoting the configured load ID #, followed by the load value string (5 characters), followed by the filament load value string (4 characters), followed by the number *0* (PCB is not faulty) or *1* (PCB is faulty).

153x Load PCB

The response is the number *2* (two), followed by a letter (*A* through *L*) corresponding to the configured section (or the letter *X* if not configured), followed by four digits denoting the configured load ID #, followed by the load value string (5 characters), followed by the filament load value string (4 characters), followed by the number *0* (PCB is not faulty) or *1* (PCB is faulty).

154x Load PCB

The response is the number *3* (three), followed by a letter (*A* through *L*) corresponding to the configured section (or the letter *X* if not configured), followed by four digits denoting the configured load ID #, followed by the load value string (5 characters), followed by the filament load value string (4 characters), followed by the number *0* (PCB is not faulty) or *1* (PCB is faulty).

1554 Multiple Load PCB

The response is the number *6* (six), followed by a letter (*A* through *L*) corresponding to the configured section (or the letter *X* if not configured), followed by four digits denoting the configured load ID # for the first load, followed by the load value string (5 characters)

for the first load, followed by four digits denoting the configured load ID # for the second load, followed by the load value string (5 characters) for the second load, followed by four digits denoting the configured load ID # for the third load, followed by the load value string (5 characters) for the third load, followed by four digits denoting the configured load ID # for the fourth load, followed by the load value string (5 characters) for the fourth load, followed by the filament load value string (4 characters), followed by the number *0* (PCB is not faulty) or *1* (PCB is faulty).

ALLFANS

This causes the 1512 turn fully turn on all cooling fans. After this command has been received only turning the power off from the chassis, or issuing a device clear, will clear this command and return control of the fans to the normal state (temperature and power control).

*IDN?

This will cause the 1512 to make available as a response the following information string:
XITRON,1512,0,vvv
Where the characters *vvv* denotes the revision of firmware being executed.

DOWNLOADCODE=151X

This will cause the 1512 to become ready to accept a firmware update. After issuing this command to the 1512, the user should copy the contents of the factory supplied firmware update file to the 1512.