



# Fixture Clamp Input

## MILL PARAMETER 738

Parameter 738, Fixture Clamp Input, stops the spindle, stops the program and generates Alarm 973 if a fixture achieves an unclamped position. It is available for mills with software version 15.05A or later.

Operation of this parameter requires that the customer provide the fixture, clamp switch and cable. The clamp switch must be attached to the fixture and the cable must be routed from the switch to an open port on the I/O Board.

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**NOTE:** The clamp switch and cable are provided if the machine is shipped with the Robot Ready Interface.

To activate Parameter 738, press PARAM DGNOS, type 738 and press the down arrow to highlight 738 FIXTURE CLAMP INPUT. Enter the I/O Board input number (01-63).

To determine the input number, select a free I/O Board connector, short a signal to ground and observe the diagnostic screen to see which input changes to zero. P1 to P22 are on the first Discrete Inputs page with the numbering starting in the upper left hand corner with 00 (deactivates the feature) and ending at the bottom of the second column with 31. P23-28 are on the second Discrete Inputs page, which begins with 32 in the upper left hand corner and ends at the bottom of the second column with 63.

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**NOTE:** An open circuit on the I/O Board indicates a fault in diagnostics by displaying a "1" (i.e., fixture is in an unclamped condition).

### Clamp Switch

If the switch has mechanical contacts, pinouts are not important. However, if a 2-wire or 3-wire active switch is used, the pinouts are important. The circuit runs at 12VDC, so any active switches must work at this voltage. Switches pull signal to ground so active types must be Negative-Positive-Negative (NPN). If more than one clamp switch is used, all but one must be mechanical, and they must be placed in series to the selected I/O Board input. If an alarm is generated, further troubleshooting is required to determine which clamp switch is in the unclamped position.

### I/O Board Input

Typical pinouts starting with the bottom of the selected connector and working up are: shield, ground, signal, more signals if more than 3 pins and +12V. P22, P23, P28 have two ground pins before the signal pins. Only P2A,P10,P15,P21,P23,P25,P27 and P28 have the +12V pin.

### Alarms

A CNC program is stopped by an alarm when the fixture is unclamped and the spindle is commanded on. That means a program can command a fixture to unclamp without generating an alarm as long as the spindle is not turning.

If the fixture is unclamped and 738 FIXTURE CLAMP INPUT is set to a non-zero value, then running the spindle generates Alarm 973, Fixture Clamp Failure, and stops the program and the spindle.