

NextMove & Denstep Input /Output Circuit Repair Info

The inputs and outputs on the NextMove and Denstep Control card are split into banks of 8. These inputs and outputs are detailed below.

There are 8 inputs and outputs on each card.

Denstep Top Card (with RED 7 Segment Display)

Inputs 0 -7

The inputs are activated by connecting them to ground. The Inputs are connected by U15 a surface mount 74HC244 and are pulled up to 5V via RP1 and package of 10K Resistors.

Datum's and E-Stop

Another bank of inputs is located on the card driving the E-Stop input and the axes datum switches. The Inputs are connected by U13 as surface mount 74HC244 and are pulled up to 5V via RP2 and package of 10K Resistors.

Outputs 0-7

The Outputs are driven by a Darlington pair transistor array in Output chip U12 a base mounted ULN2803 which allows the Output to sink up to 0.5A. Direct connection of power to any of these Outputs will cause permanent damage. The output device is controlled by U11 a surface mount 74HC573

NextMove Top Card (with Green or Yellow 7 Segment Display)

Inputs 0 -7

The inputs are activated by connecting them to ground. The Inputs are connected by U19 a surface mount 74HC244 and are pulled up to 5V via a package of 10K Resistors.

Datum's and E-Stop

Another bank of inputs is located on the card driving the E-Stop input and the axes datum switches. The Inputs are connected by another surface mount 74HC244 and are pulled up to 5V via a package of 10K Resistors.

Outputs 0-7

The Outputs are driven by a Darlington pair transistor array in Output chip U28 a base mounted ULN2803 which allows the Output to sink up to 0.5A. Direct connection of power to any of these Outputs will cause permanent damage. The output device is controlled by U35 a surface mount 74HC573

Bottom Card

Inputs 8 -15

The inputs are activated by connecting them to ground. The Inputs are connected by U2 a surface mount 74HC244 and are pulled up to 5V via 10K Resistors R1 to R8

Outputs 8 -15

The Outputs are driven by a Darlington pair transistor array in Output chip U4 a base mounted ULN2803 which allows the Output to sink up to 0.5A. Direct connection of power to any of these Outputs will cause permanent damage. The output device is controlled by U3 a surface mount 74HC573.

Fault Finding and Repair of I/O

The first step is to identify which input or output is damaged.

Output Faults

If an output fails this would usually be because the load connected is too large causing the output to blow. In most cases the failure would be the output driver stage a ULN 2803 which is a low cost device and is usually base mounted to allow replacement.

On most of the cards this device has been fitted into a DIL socket to allow easy replacement but in some cases it is directly soldered to the PCB. In either case it is best to try replacing the chip before returning the board for repair.

Outputs 0-7 are located on the board with the 7 segment display outputs 8-15 are on the base board.

Input Faults

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