

Absolute Value

ABS S6

DESCRIPTION

The ABS function is provided to simplify user programming and to improve execution time. It is entered as a Special Function, but does not involve the same overhead.

Execution time is similar to that of a simpler instruction, e.g. coil, contact, AND.

The ABS Special Function provides the absolute value of a numeric value. That is, it provides an output that is always positive, regardless of whether the numeric value input is negative or positive.

On controllers that have floating point facilities, it works in a exactly the same way regardless of whether the numeric value is an integer or in floating point.

FEATURES

- Considerable improvement in execution time and complexity over other techniques that achieve the same result
- More readable than other techniques
- Simple to use
- No possibility of fault conditions

SPECIFICATION

Control language:-

```

      ABS
X-----SPEC-----Q
      S6
  
```

Equation:

$Q = X$ if X is positive

$Q = -X$ if X is negative

with one exception that, in integer operation, if $X = -32768$ (or @8000), then $Q = 32767$ (not 32768 which falls outside the number range that can be represented by a 16 bit integer)

Note: Q and X are always of the same type. If X is an integer, so is Q ; if X is floating point, then so is Q .



Kidsgrove, Stoke-on-Trent, ST7 1TW, England
Tel: (0782) 783511 Fax: (0782) 776329

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