



## Object Location SCPTlocation

This configuration property (SCPTlocation) is used to define the location of the Modbus register from which data will be obtained. The 31-character location string includes both a textual label that is arbitrary, and the identification of the Modbus register at that location.

The location string is expected to be in the format:

**UTNNNNNxLabel**

where:

U is a unit number 1..247 (aka, Slave address)  
T is a register type (see below)  
NNNNN is the register reference  
x is any non-numeric character  
Label is any arbitrary text label

The “xLabel” can be omitted, and may be EOL. A completely empty string will indicate an unused object that is not disabled, but will not be active.

Register types T recognized by the Babel Buster gateway are as follows, and the letter shown should be substituted for T in the above format:

S - signed 16-bit  
U - unsigned 16-bit  
B - bit/Boolean  
F - floating point                   R - floating point, swapped  
D - signed 32-bit                   W - signed 32-bit, swapped  
E - unsigned 32-bit                 Y - unsigned 32-bit, swapped

Control Solutions gateways default to high order register first for register pair (32-bit) values. The Modbus protocol is defined as “big endian”, i.e., most significant data is always in the first byte across the wire. In keeping with this principle, Control Solutions chose to place the most significant register first in pairs, with the option of swapping them. The register ordering is not standardized, therefore it is acceptable to find the ordering either way. The designation ‘swapped’ in a Control Solutions gateway means least significant register first (least significant data in lower register number in the pair).

Register references are recognized in the following ranges for the indicated Modbus types:

0x	Coil	00001-09999 (master only)
1x	Discrete Input	10001-19999 (master only)
3x	Input Register	30001-39999 (master only)
4x	Holding Register	40001-49999

Firmware versions 1.8 and above support extended register references. Extended references look for a 6-digit register reference. Anything less than 6 digits will be treated according to the original rules above. Extended references follow similar rules except that the offset is a multiple of 100,000 rather than 10,000.

Extended Modbus register number with offset that determines type of register.

0x	Coil	000001-065535 (master only)
1x	Discrete Input	100001-165535 (master only)
3x	Input Register	300001-365535 (master only)
4x	Holding Register	400001-465535

Note: Format for nviDataTo SCPTlocation is identical except that only 0x and 4x references are recognized.

If the location string contains an invalid, unrecognized, or out of range register reference when the functional block is enabled via nviRequest, the nvoStatus (Node Object) will reflect “unable\_to\_measure”.