

## Read/Write Registers

When programming non-safety logic, it is sometimes necessary to have read and write capabilities for a particular feature. This means that a user may be able to enter in a value through an HMI for a particular register and later, as that value is processed by the logic, the initially entered value is changed. There are five read/write registers in SLATE. They are called “wiresheet data 1” through “wiresheet data 10” and are found in the “Operating control register” grouping of the Base Module.

The read/write register can be particularly useful when interfacing with a OneShot block. Without a read/write register, the OneShot will only reset if the operator enters in a new value (0) for the register feeding the OneShot. Without the read/write register, the logic breaks if the operator forgets to reset the value to 0. The wire sheet must reset the value back to 0 as the logic progresses.

### Applying the wiresheet (read/write) registers:

Read/write registers are applied using ModulatingInput and ModulatingOutput blocks. They must both be applied and are both writing data to the same register. The ModulatingInput block receives the initial value into the wire sheet. This value is entered by the operator via the HMI. The logic in the wire sheet processes the data and writes a new value to the ModulatingOutput block read/write register. The operator may have initially entered an “ON” value (1), but later the logic resets back to “OFF” by rewriting a value of (0) to the read/write register.

### Example (Figure 1):

In this example we show a 100 second timer started by the operator via an input on an HMI. The timer logic uses a OneShot block. When the OneShot block receives a value of 1 (ON) from the HMI, it begins its countdown. The OneShot block output changes from a value of 0 (OFF) to a value of 1 (ON) for the duration of the “onTime” input which in this example is 100 s.

When the “OneShot” timer expires, the output of the “OneShot” timer reverts back to 0 (OFF) thereby writing a value of 0 to the “ReadWrite\_Out” ModulatingOutput block. At the same time, the “ReadWrite\_In” ModulatingInput block receives that same value of 0 (See Figure 1). The “OneShot” timer is ready for another cycle without the operator having to reset the timer back to OFF (0), automatically rendering the timer ready for the next timer start.

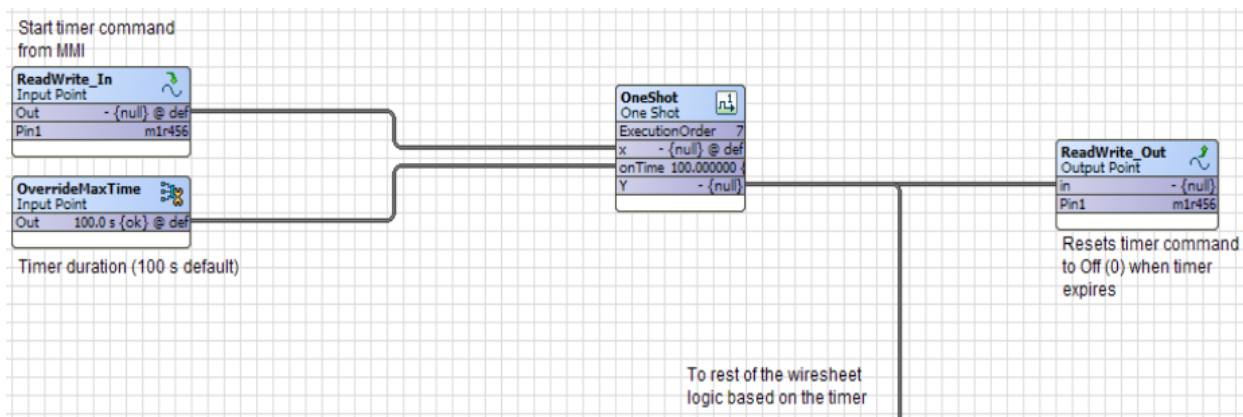


Figure 1: OneShot timer using read/write registers