USING HANDS-OFF-AUTO SELECTOR SWITCHES WITH THE MPS

This Technical Note describes the use of HAND-OFF-AUTO in MPS installations. Because the MPS supports multiple start sources, support for HAND-OFF-AUTO requires the use of specific input programming and menu selections to avoid conflicting signals.

In a typical MPS installation using a start-stop station, a start signal from a 3-wire source needs to be a momentary closure as shown in Figure 1. The start command is internally latched by the MPS until a STOP is issued. If the start is maintained, a stop signal will be active only as long as STOP is pressed. In the case of an OPI stop, stop is detected at a 250 ms rate and will cause relay chatter. For this reason, HAND-OFF-AUTO connections should not use the 3-wire digital input selections labeled *Start1* and *Start2*.

START — DIGITAL INPUT PROGRAMMED FOR *Start1* OR *Start2*
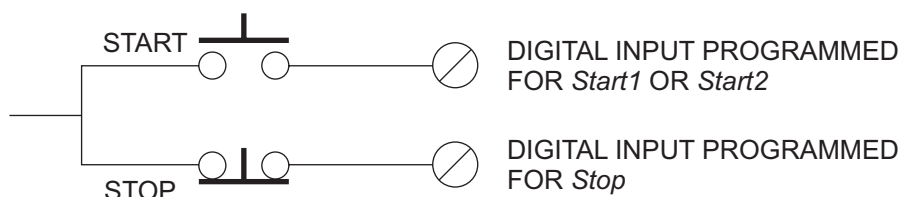STOP — DIGITAL INPUT PROGRAMMED FOR *Stop*

Figure 1

HAND-OFF-AUTO requires using a digital input programmed for 2-wire operation using selections *2-Wire Start1* or *2-Wire Start2* and connected as shown in Figure 2. In 2-wire operation, the start signal is not latched and must be maintained for a motor run condition. If the start signal is removed, the motor will stop. The MPS records which source caused a start and if a start command is from a 2-wire input, a stop command will cause a latching trip.

HAND
OFF
AUTO
PROCESS-CONTROL CONTACT
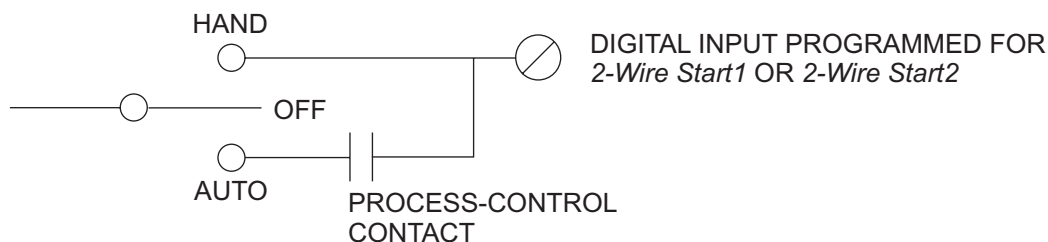DIGITAL INPUT PROGRAMMED FOR *2-Wire Start1* OR *2-Wire Start2*

Figure 2

Because the OFF position does not lock out other start sources, the circuit in Figure 2 requires all other start sources except REMOTE to be disabled. OPI and NETWORK control can be disabled in the *Setup | Starter | Start Sources* menu.

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Using any other start sources in conjunction with HAND-OFF-AUTO requires the use of an interlock input as shown in Figure 3. This connection allows both OPI and NETWORK sources to be enabled. When in HAND position the interlock is completed to allow 2-wire start and when in AUTO, the interlock is completed to allow a start using the control contact or any other enabled start source. When in the OFF position the interlock is not completed and all start sources are locked out.

HAND

OFF

AUTO

DIGITAL INPUT PROGRAMMED FOR
2-Wire Start1 OR *2-Wire Start2*

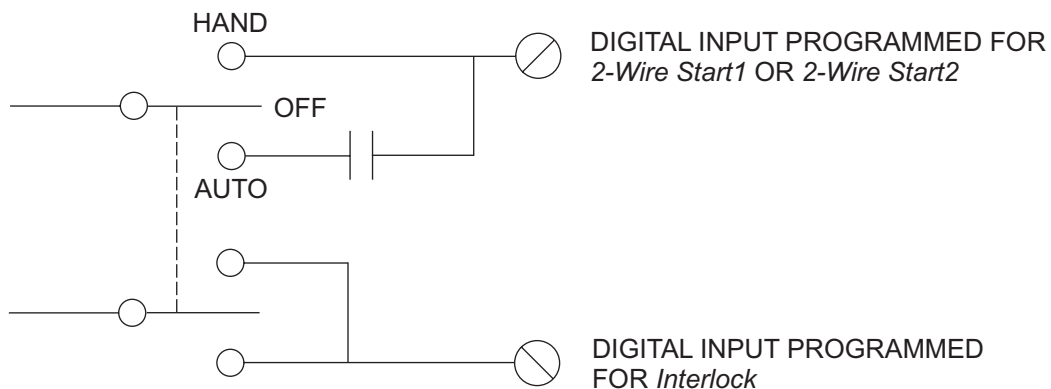DIGITAL INPUT PROGRAMMED
FOR *Interlock*

Figure 3

As mentioned, if the start is from the 2-wire input, a stop signal will cause a trip and the MPS will display "Trip Caused By Stop". If the start signal is from a source other than a 2-wire input, a stop will not cause a trip.