

# REMOTE SAFE OUTPUT—EDM FEEDBACK & ENHANCED DIAGNOSTICS/ERROR HANDLING

For information on the initial electrical connections that are required for this configuration, see the **Basic Setup** instructions for the case that uses the expansion port at [www.sensing.net/asi-solutions](http://www.sensing.net/asi-solutions)

## Expansion Example 5 — Remote safe output with EDM feedback and enhanced diagnostics/error handling

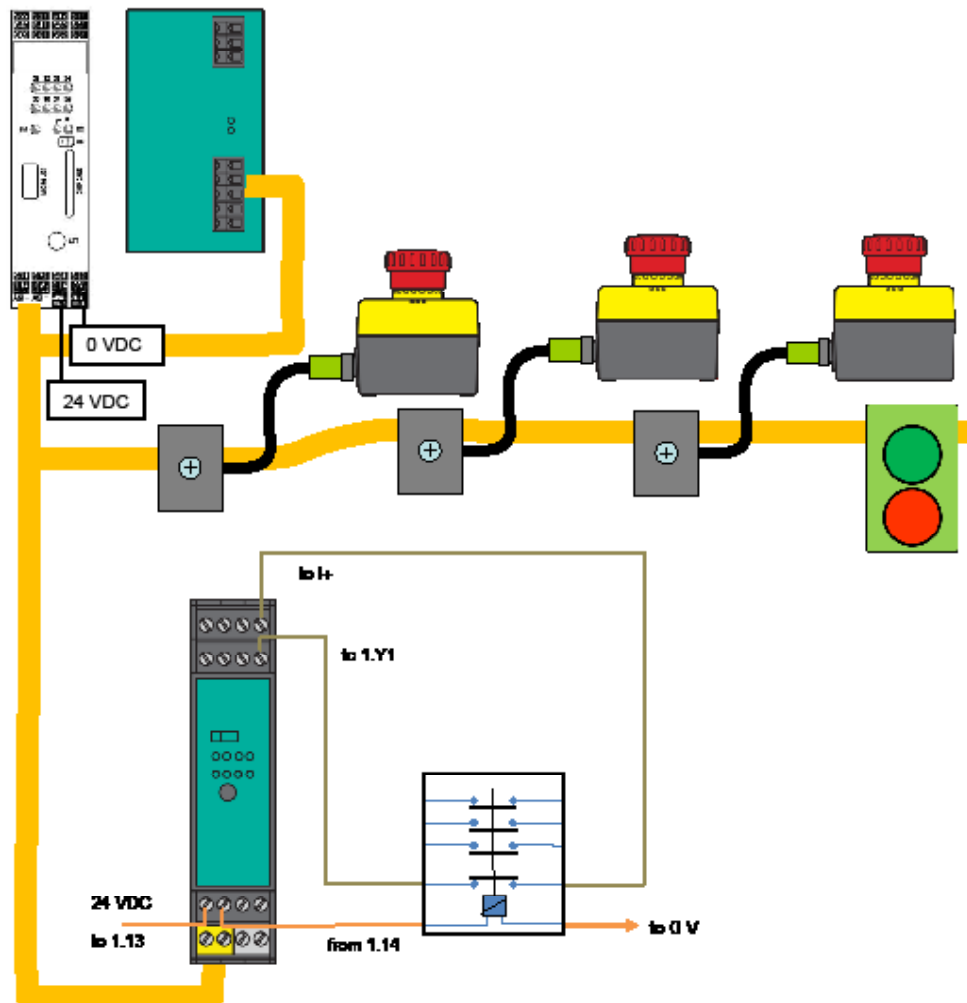
This is a modification to example 4 where a safe output module is used to control a contactor and the NC feedback contact from the contactor is used as EDM feedback. The following setup is identical to example 4.

- Three illuminated dry-contact e-stop connected to AS-Interface G10 safety modules
  - o E-stop 1 has been assigned ADR=1
  - o E-stop 2 has been assigned ADR=2
  - o E-stop 3 has been assigned ADR=3

- o E-stop LEDs are used to indicate which e-stop is in the depressed (i.e., safe) state

- One AS-Interface LED pushbutton module
  - o Pushbutton module has been assigned ADR=9A
  - o Green button is used as a reset input
  - o Green button LED flashing indicates that system is in a resettable state (i.e., all e-stops are in the released state)
  - o Red button is used to reset errors on the remote safe output

- Safe output module
  - o For this example, Safe ADR=27
  - o The diagnostics address has been set to 10A



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The following changes provide better diagnostics/error handling for the user.

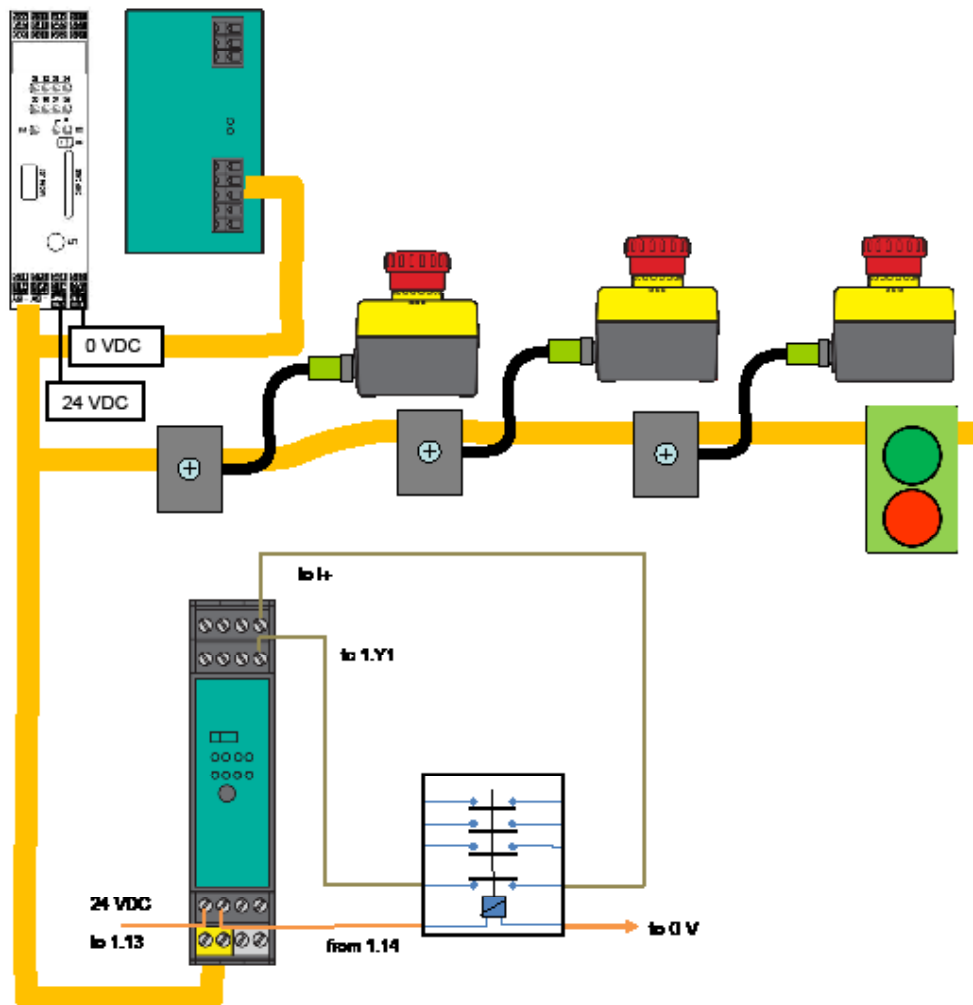
- If the controller goes into the error lock state, it is possible to clear this state using the red button on the illuminated button module. This is in addition to using the SET (i.e., Service) button on the safety controller. EDM faults will lead to an error lock state.
- If the remote safe output module does not receive the proper data sequences from the safety controller, it will go into the error lock state (indicated by rapid flashing of the OUT LED on the

remote safe output module.) While the controller is in the error lock state, the red LED of the red pushbutton is flashing at 2 Hz.

- Flashing of the green push button is inhibited while the safety controller or the remote safe output is in the error lock state.

These enhanced diagnostics methods can be used in other setups too.

Hint: Error handling is very useful and should be part of every Safety at Work setup. Once implemented, it



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needs to be tested. This requires the user to be able to create errors such that the system “fails” and the error handling can be evaluated.

- Getting the remote safe output into the error lock state

The safe output goes into the error lock state when it does not receive proper data via AS-Interface. The easiest way to do this is by creating a ground fault. Take a wire and connect either the AS-Interface (+) or AS-Interface (-) to the GND terminal on the AS-Interface power supply.

- Getting the safety controller into the error lock state

The quickest way to getting the safety controller into the error lock state is by creating an inappropriate safe input configuration. This is most easily done by setting up a safe input associated with a mechanical dry contact device (e-stop, magnetic door switch ...) as a “forced” device type. With this setup, actuate the safe device until the strict timing constraints of the forced type are violated.

