NOTES

1. REMOTE MODE
   (RM)
   This input monitors remote status of the valve actuator. Remote status indicates that door control is available.

2. FULL OPENED
   (FP0)
   This input monitors the opened status of the valve. The fully opened position limit switch is used.

3. OPEN PERMISSIVE
   (OP1)
   This input establishes the conditions to allow the close request to become a command output signal. If there are no permissives to be monitored, then this input is either connected to logic 1 or to the open request input.

4. OPEN REQUEST
   (Auto Open Mode)
   Normal operating commands (operator commands from pushbuttons, sequence commands, or process commands) are connected to this input. This signal is used to generate the valve output signal if the open permissible is available.

5. OPEN OVERRIDE
   (OP0)
   This input is used when process conditions require the valve opened, regardless of the status of the open permissives. Since this input bypasses the open permissives, minimum required permissives are to be included with the command logic developed for this input. Open override takes precedence over close request. If there is no requirement for an open override, then this input is left unconnected.

6. STOP REQUEST
   (SPR)
   This input is used to cancel an open/close command and stop the valve travel. This signal takes priority over all override and requests. The input is used to for following functions:
   – Stop the valve in an intermediate position
   – Used along with open or close request to “jog” or inch a valve
   – Halt and reverse the valve travel.

7. CLOSE OVERRIDE
   (CLO)
   This input is used when process conditions require the valve closed, regardless of the status of the close permissives. Since this input bypasses the close permissives, minimum required permissives are to be included with the command logic developed for this input. Close override takes precedence over close request and open override. If there is no requirement for a close override, then this input is left unconnected.

8. CLOSE REQUEST
   (Manual Close/Local or Manual Closing/Local)
   Normal operating commands (operator commands from pushbuttons, sequence commands, or process commands) are connected to this input. This signal is used to generate the valve output signal if the close permissible is available.

9. CLOSE PERMISSIVE
   (CP)
   This input establishes the conditions to allow the close request to become a command output signal. If there are no permissives to be monitored, then this input is either connected to logic 1 or to the close request input.

10. FULL CLOSED
    (FC)
    This input monitors the closed status of the valve. The fully closed position limit switch is used.

11. ACTUATOR FAULT
    (AF)
    This input monitors the valve drive circuit fault status. A logic 1 indicates that actuator is fault. A logic 0 indicates that the actuator is available. If this feature is not used, connect this input to a logic 1.

12. OPEN SIGNAL
    (OS)
    An open override or open request with the open signal

13. FAULT
    (FLT)
    This output is a summary of all alarm outputs (failed to close, failed to open, misaligned, power fault, etc.). This output will be a logic

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Control Logic Diagram
Logic and Circuit Functional Description for Seal-in Type Motor Operated Valve (MS99/12)
DESCRIPTION FOR SEAL-IN TYPE MOTOR OPERATED VALVE (MSI)

NOTES

14. CLOSE SIGNAL (CS)
A close override or close request with the close permissives will establish a close command. The output signal is cancelled when the closed input is logic 1. The stop request command is present or the MOV opening input is present.

15. FAILED TO OPEN (ALARM)
This output indicates that the valve has not been proven opened within a reasonable time after an open command was issued.

16. MISALIGNED (ALARM)
This output indicates that sometime after successfully reaching the commanded state, the valve status could not be confirmed at the state remembered by the logic. This signal is cleared upon receiving an open/close command signal or when the feedback inputs are re-established to match the state remembered by logic.

17. FAILED TO CLOSE (ALARM)
This output indicates that the valve has not been closed within a reasonable time after a close command was issued.

18. CONGRUENCY FAULT (ALARM)
This output indicates that both limit switches are closed, or open.

19. OPEN REQ. NO PERMIT (ALARM)
This output indicates that open request exists without of open permissive within a reasonable time after open request was issued.

20. CLOSE REQ. NO PERMIT (ALARM)
This output indicates that close request exists without of close permissive within a reasonable time after close request was issued.

21. ALARM RESET (ALARM)
This input resets "FAILED TO OPEN/CLOSE" ALARM MEMORY.

22. These drive control logics and circuits are minimum requirements and other more logic functions follow the DCS standard VACO function.

23. Individual logic diagram is shown as follows.
DESCRIPTION FOR SINGLE SPEED NON-REVERSING MOTOR STARTER (MS)

NOTES

1. STARTED
   (STARTA)
   This input monitors the status of the motor starter 42A contact (representing the energized state of the motor starter).

2. START PERMISSIVE
   (STARTA, STARTB)
   This input establishes the conditions to allow the start request to become a command output signal. If there are no permissives to be monitored, then this input is either connected to logic 0 or to the start request input.

3. START REQUEST
   (AUTO START A - STOP A)
   Normal operating commands (operator commands from pushbuttons, sequence commands, or process commands) are connected to this input. This signal is used to generate the motor output signal if the start permissive is available.

4. START OVERRIDE
   (OBS)
   This input is used when process conditions require the motor started, regardless of the status of the start permissives. Since this input bypasses the start permissives, minimum required permissives are to be included with the command logic developed for this input. Start override takes precedence over stop request. If there is no requirement for a start override, then this input is left unconnected.

5. STOP OVERRIDE
   (TOB)
   This input is used when process conditions require the motor stopped, regardless of the status of the stop permissives. Since this input bypasses the stop permissives, minimum required permissives are to be included with the command logic developed for this input. Stop override takes precedence over start request and start override. If there is no requirement for a stop override, then this input is left unconnected.

6. STOP REQUEST
   (AUTO STOP A - STOP A)
   Normal operating commands (operator commands from pushbuttons, sequence commands, or process commands) are connected to this input. This signal is used to generate the motor output signal if the stop permissive is available.

7. STOP PERMISSIVE
   (STOPA, STOPB)
   This input establishes the conditions to allow the stop request to become a command output signal. If there are no permissives to be monitored, then input is either connected to logic 0 or to the stop request input.

8. STOPPED
   (STOP)
   This input monitors the status of the motor starter 42B contact (representing the de-energized state of the motor starter). If a de-energized state contact (42B) is not supplied as an input to the logic system, then connect this input through a "not gate" to the system's start input (42A).

9. POWER AVAILABLE
   (PA)
   This input monitors the motor starter circuit power and overload status. A logic 1 indicates a logic 0 indicates that either the power circuit has failed or the overload has not been reset. If this feature is not used, connect this input to a logic 1.

10. START SIGNAL
    (STS)
    A start override or start request with the start permissives will establish a start command. The output signal is cancelled when the running input is logic 1. The priority order of override and request signals is as follows:
    - Stop override overrides start override
    - Start override overrides stop request
    - Stop request overrides start request

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DESCRIPTION FOR SINGLE SPEED NON-REVERSING MOTOR STARTER (MS)

NOTES

11. FAULT (FLT)
   THIS OUTPUT IS A SUMMARY OF ALL ALARM OUTPUTS (FAILED TO STOP, STARTER TRIPPED, FAILED TO START, POWER FAULT, ETC). THIS OUTPUT WILL BE A LOGIC 1 AS LONG AS ANY ALARM CONDITION REMAINS ACTIVE.

12. STOP SIGNAL (SPS)
   A STOP OVERRIDE OR STOP REQUEST WITH THE STOP PERMISSIVES WILL ESTABLISH A STOP COMMAND. THE OUTPUT SIGNAL IS CANCELLED WHEN THE STOPPED INPUT IS LOGIC 1.

13. FAILED TO START (ALRVR)
   THIS OUTPUT INDICATES THAT THE MOTOR HAS NOT BEEN PROVEN RUNNING WITHIN A REASONABLE TIME AFTER A START COMMAND WAS ISSUED. THIS OUTPUT IS CLEARED WHEN ALARM RESET INPUT IS ACTIVATED.

14. FAILED TO STOP (ALRM)
   THIS OUTPUT INDICATES THAT THE MOTOR HAS NOT BEEN PROVEN STOPPED WITHIN A REASONABLE TIME AFTER A STOP COMMAND WAS ISSUED. THIS OUTPUT IS CLEARED WHEN ALARM RESET INPUT IS ACTIVATED.

15. START REQ. NO PERMIT (ALRVR)
   THIS OUTPUT INDICATES THAT START REQUEST EXISTS WITHOUT STOP PERMISSIVE WITHIN A REASONABLE TIME AFTER START REQUEST WAS ISSUED.

16. STOP REQ. NO PERMIT (ALRM)
   THIS OUTPUT INDICATES THAT STOP REQUEST EXISTS WITHOUT STOP PERMISSIVE WITHIN A REASONABLE TIME AFTER STOP REQUEST WAS ISSUED.

17. STR CONGRUENCY (ALRM)
   THIS OUTPUT INDICATES THAT THE BOTH CONTACTS (STARTED/STOPPED) ARE CLOSED, OR OPEN.

18. ALARM RESET (ARST)
   THIS INPUT RESETS "FAILED TO START/STOP, STR TRIPPED" ALARM MEMORY.

19. THESE DRIVE CONTROL LOGICS AND CIRCUITS ARE MINIMUM REQUIREMENTS AND OTHER MORE LOGIC FUNCTIONS FOLLOW THE DCS STANDARD MACRO FUNCTION.

20. INDIVIDUAL LOGIC DIAGRAM IS SHOWN AS FOLLOWS.