ROTEX GOO AND GOV SERIES ACTUATORS

INTELLIGENT GAS OPERATED GAS OVER OIL ACTUATOR

Trusted Tested Certified

IECEx ATEX CE PED FIELDCOMM GROUP EAC

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Engineering For The Future

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ROTEX GOO AND GOV SERIES ACTUATORS

ROTEX EHF GOV or EHF GOO series actuator

In continuation with tradition innovation and virtue in engineering ROTEX, introduces the next generation Gas Operated & Gas Over Oil Actuators.

WHY ROTEX?

Would you like to know the upstream and down stream pressure on display and to control room via MODBUS ?
ROTEX GOV/GOO provides digital display for the ease of operation. The complete data is available on MODBUS.

Do you have problems in setting line break pressure and rate of change of pressure?
Rotex provides easy settable line break control points. 3 settable points can give you different alarms to operate the pipeline.

Do you have problems in carrying maintenance ?
ROTEX provides full diagnosis on the system as well as on the valve for the user to carry out the maintenance. ROTEX.

Leakages of oil and gas ?
ROTEX GOO/GOV ensures Zero leakage due to least number of exposed tubing and fittings. All components are sub-based mounted with Oring's. Ensuring Zero leakage across the actuator. This helps in carbon emission and improves Green Earth.

ROTEX GOV & GOO SERIES ACTUATORS
solves all of the above problems and guarantees performance!!

SEE HOW

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ROTEX GOO AND GOV SERIES ACTUATORS

GOV SERIES ACTUATOR

KEY FEATURES

- Digital display for the ease of reading and setting various parameters.
- Provides Upstream and downstream pressure on display.
- Line break rate can be set by simply entering the value in the MENU.
- Min and Max Rate of change of pressure is displayed. This helps in setting the ELBC value.
- Smooth operations due to controlled parameters.
- Manual Auto operation available by Rotary switch.
- User friendly.

GOO SERIES ACTUTOR

KEY FEATURES

- Panel for protection of critical parts.
- Least exposed tubing and fittings.
- Built in Hydraulic hand pump for manual operations.
- No exposed cables.

ROTEX GOO AND GOV SERIES ACTUATORS

GRAPHICAL DISPLAY

- High quality TFT display.
- Ease of reading colour combinations.
- No abbreviation or Shortforms used.
- User friendly Menu and Parameters.
- All alarms and required data are on single display.

LOCAL CONTROL

- Actuator can be easily can be changed from AUTO mode to MANUAL mode by using selector switch.
- Selector switches are lockable in the position.
- STOP command will assist the user to avoid any spurious signal from the command room.
- Manual mode is provide for ease of OPEN and CLOSE the valve manually.
- Rotary switches are used for navigating the Menu.
- The same switches are sued for setting various parameters.

LOCAL INDICATION AND “GLOWDAPT”

- Local mechanical indication can be provided as an option.
- Shatterproof polycarbonate dome for visibility.
- Two piece unique indicator, ensures a life long visibility.
- The entire dome lights up RED or GREEN, depending upon the position.
- Shatterproof polycarbonate milky white dome.
- High luminous LED can be observed from a distance.

POSITION MONITORING

- Rotary feed back with % feed back on display and to controls.
- Allows exact position of valve in % of OPEN. This ensures the valve position whenthe Microswitch feed backs are not available.
- Microswitch with adjustable cam, up to 4 nos. duly wired to junction box.
- 4-20 mA available for feedback.
- Linear transducer up to 2 m stroke is available.

PRESSURE MONTORING

- Dual pressure transducer provides the independent upstream and downstream pressure.
- Delta P is obtained just by calculating the difference in pressure.
- All pressure are indicated on the display as well as available on MODBUS.
- Various pressure settings are available for shutdown.
- ELBC can be activated by calculating the rate of pressure drop.
- Menu driven units, can be in Metric or Imperial.

FAILSAFE OPTIONS

- Actuator can be programmed to shut the valve during various events.

o Larger drop in line pressure in a given time. Delta P per min.

o Dropping below Minimum set pressure in pipeline.

o Exceeding the maximum allowable set pressure in pipeline.

o ESD command

o Valve Close command

- Fail freeze can also be set for following events.

o Level 1 alarm can continue valve to remain OPEN or CLOSE

o 24 V DC failure

o If there are no setting done for the min and max pressure than the valve will remain stayput irrespective of the line pressure.

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DOUBLE SEAL COMPARTMENT

- Two barriers fitted with O-rings ensures optimum protection against water ingress into the electronic compartment.
- This protection remains effective even if the cover has not been closed properly or if the cable glands have not been tightened.
- Protection is also ensured for the local control selectors thanks to internal reed switches which prevent moisture ingress.
- Designed as per Ex e, IEC 60079-7.

REMOTE MOUNT

- Remote mount distance up to 50 m.
- IP67 remote mount unit, Ip68 available on request.
- Ideal for extreme environments and harsh conditions - high temperature, vibration, frequency and difficult to reach location.
- Shielded cable and circular connector ensures better connectivity and integrity.
- ROTEX remote mount unit is designed to move all electronics and hydraulics to remote location, ensuring correct functionality.

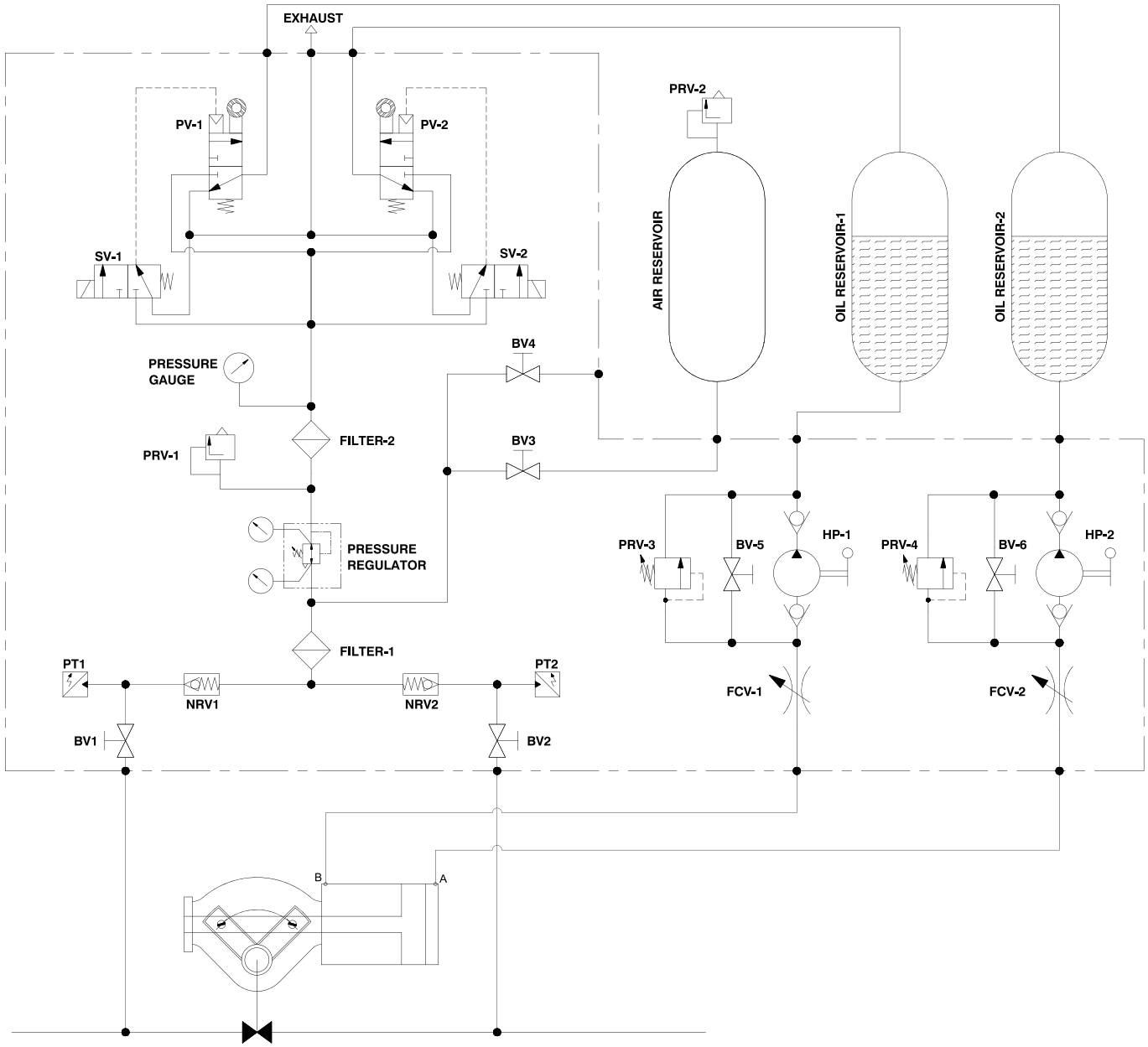
NON-INTRUSIVE

- ROTEX GOV/GOO SERIES actuator can be setup non-intrusively; pressure settings, torque and force rating can be set without opening any of the covers.
- Bluetooth communication (option) - Bluetooth technology which uses radio signals to communicate between the PC.

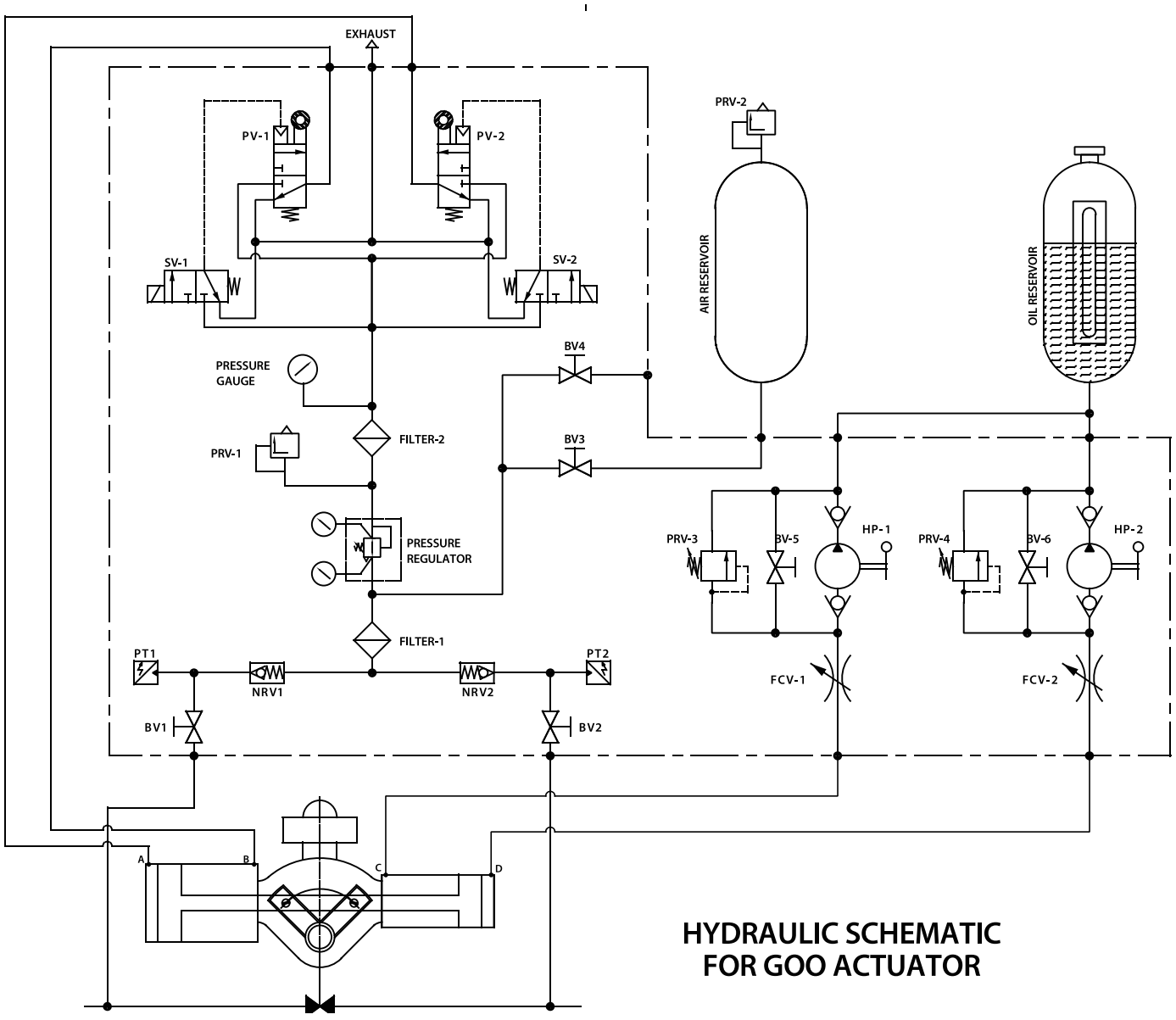
HAND OPERATION

- Using hand pump
- Selector valve for AUTO and MANUAL

GOV HYDRAULIC SCHEMATIC

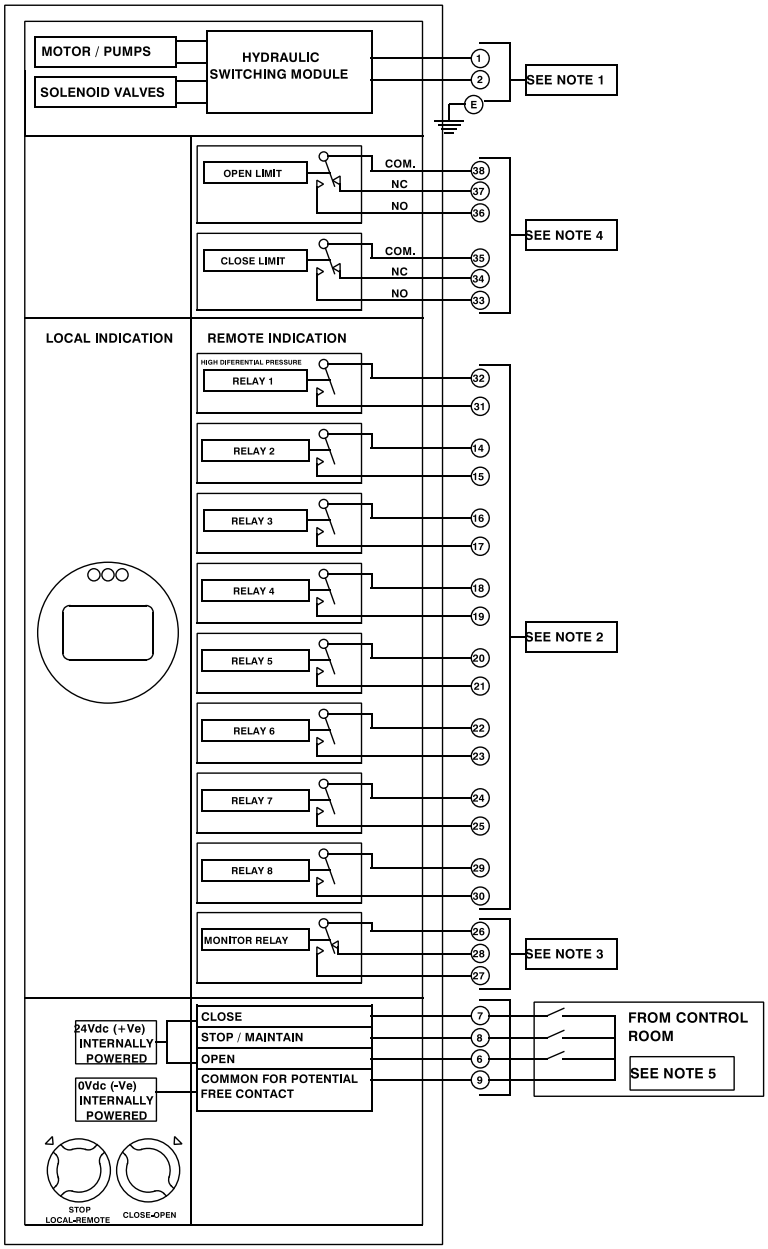


GOO HYDRAULIC SCHEMATIC



HYDRAULIC SCHEMATIC
FOR GOO ACTUATOR

WIRING DIAGRAM FOR GOV



NOTE:-1

24 VDC	+ VE	TERMINAL-1
	- VE	TERMINAL-2

NOTE:-2

CONFIGURABEL DIGITAL OUTPUT	
SR NO	DESCRIPTION
1	CLOSE LIMIT
2	OPEN LIMIT
3	FAULT/ALARM
4	EEPROM ERROR
5	MAINS/PHASE FAIL
6	OVERPRESSURE LIMIT
7	STALL
8	STALL MID
9	STALL LIMIT
10	MOVING
11	STOP
12	MANUAL MODE
13	LOCAL MODE
14	REMOTE MODE
15	POSITION OVER RANGE
16	POSITION UNDER RANGE
17	OPENING
18	PRESSURE SENSOR ERROR
19	CLOSING
NOTE:-	
ALL CONFIGURABLE RELAYS RATED AT 5A - 120 VAC/30 VDC	

NOTE:-3

MONITORS ACTUATOR AVAILABILITY.

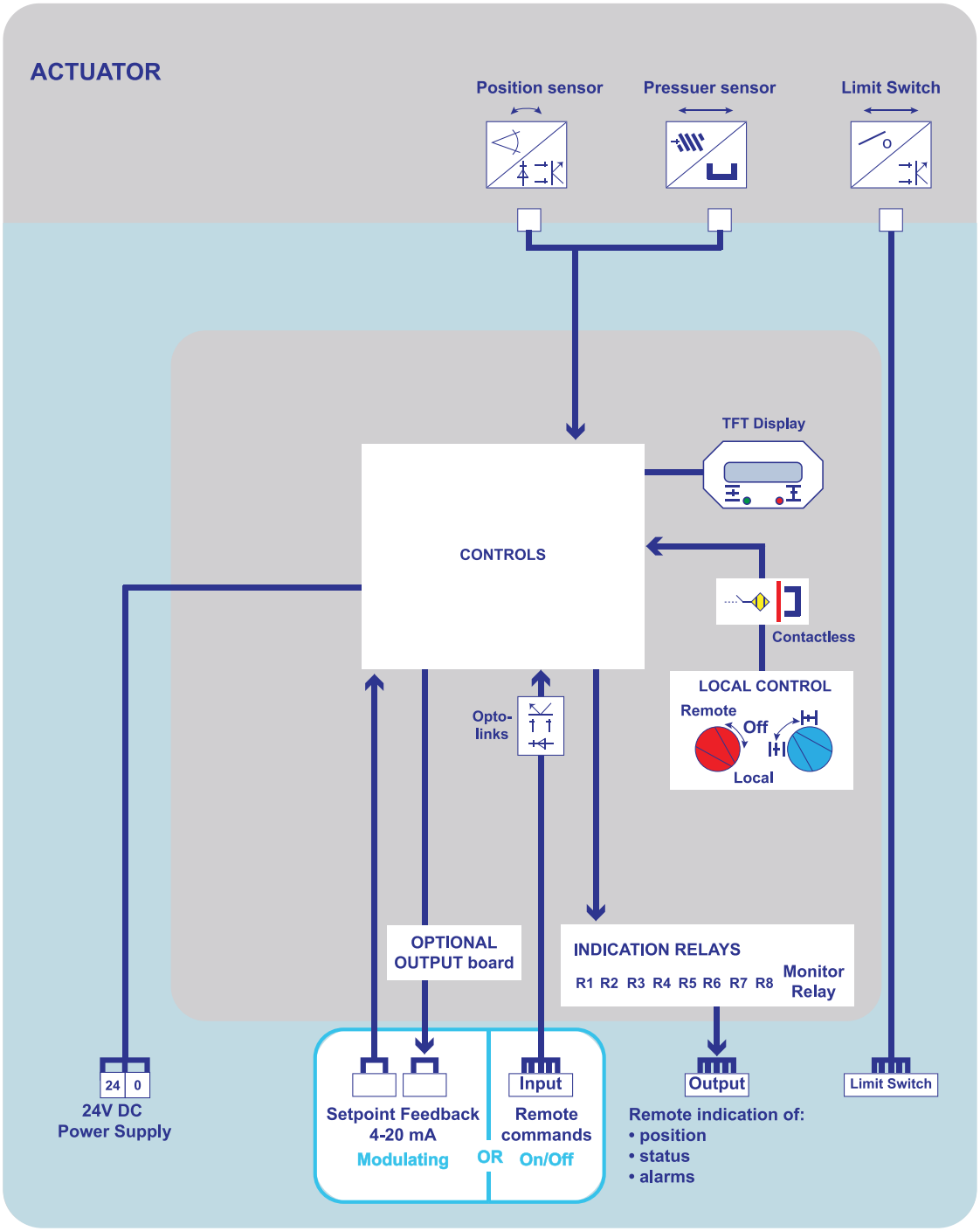
NOTE:- 4

LIMIT SWITCH FEEDBACK FOR OPEN AND CLOSE POSITION.

NOTE:- 5

DIGITAL CONTROL SIGNALS 20-60 Vac/dc OR 60-120 Vac

CONTROL LAYOUT



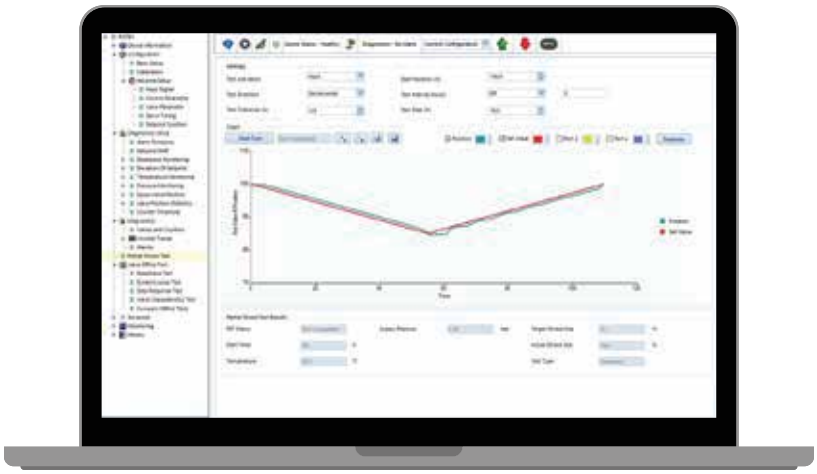
- Strong and reliable electronics architecture.
- All PCBS are conformally conated for extended life and moisture protection.
- Hardware, software are well proven using methodology softwares and validation softwares to avoid bugs and infinite loops.
- All integration goes through stringent quality checks to ensure long life.
- Potential free relays to support outputs and alarm configurations.

PARTIAL STROKE TEST

Partial stroke test (PST) is a method to check, detect and ensure availability of safety function on demand. PST physically moves the valve to a predefined position, without affecting or disturbing the current process requirement.

Partial stroke test can prevent unexpected failure of safety function and provides information on current health status of valve
and actuator.

- Multiple records are maintained
- Can be conducted using local command switches
- ROTEX provides service to study the results and provide diagnosis



Partial stroke test can be initiated through

- Handheld
- Remote push button or remote command.
- DTM / EDD using asset management system
- Pre-defined configured time interval

ROTEX GOO and GOV series actuator has safety or demand as priority.
Any other demands override the test.

Test will be aborted and returned to normal operation in case of

- Partial stroke fails
- Selector Switch is rotated for > 5 seconds
- Safety DEMAND occurs

Partial stroke test results can be saved and compared over the course of time

DIAGNOSTICS

- Logical trend and histogram.
- Diagnostics with errors and recommendation.
- Alarm based on different threshold.
- On screen notification up to last 3 alarms or errors.
- Online monitoring.

DIAGNOSTICS CAN IDENTIFY THE FOLLOWING ISSUES -

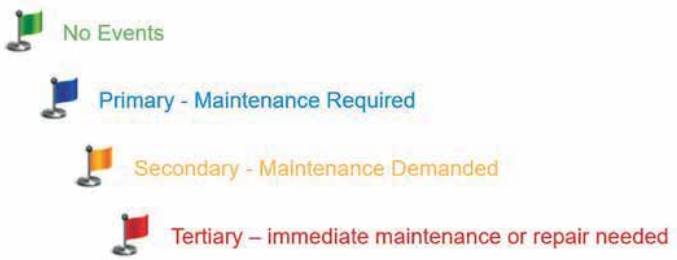
Valve Faults
- Valve Clogging Valve Stall
- Valve seat or valve build-ups
- Seat erosion
- Increase in friction
- Valve tightness

Actuator Faults
- Friction
- Spring failure
- Leakage through bush, diaphragm, seals, covers, connections

Device Failure
- Electronics failure
- Pressure sensor failure
- Feedback sensor failure

External Faults
- Unexpected change in supply pressure, (sudden drop or increase)
- Change in rate of flow or change in Δ P across the valve

- Monitoring parameter can be configured with three different threshold levels.
- Each threshold level can be classified based on severity and generates a digital feedback signal, once triggered.
- Colour code represents nature of severity (can be communicated to control system).
- This enables users to take necessary preventive action.



COMMUNICATION

The fieldbus, present on a large number of installations, is used more and more to communicate information and commands with multiple actuators and devices wired in series on a single pair of wires. Thus, the number of information available from each actuator can be multiplied while reducing the overall cost of wiring on the site.

ROTEX GOV/GOO Series actuators can be connected to most of the standard fieldbus available on the market:

- PROFIBUS DP
- FOUNDATION FIELDBUS
- MODBUS RTU
- HART / WIRELESS HART
- Ethernet
- Other Communication Protocols on demand

For more security, redundant fieldbus ensures continuous operation, even in case of a bus line disruption. Indeed, all elements of the bus line (bus controller, lines, actuators interfaces) are doubled.

OPEN VERSUS PROPRIETARY SYSTEMS:
Two physical concepts of fieldbus are available from various providers.

- The «Proprietary» so-called system: This is a technology designed by a device manufacturer for his own needs. A «Proprietary» system not only includes the actuators with the specific bus interface, but also the bus controller located at the line head-end. Only the products proposed by the bus controller manufacturer can be installed on the bus.

- «Open» systems: One using standard international communication so various manufacturers can supply compatible controllers and interfaces. This type of technology is proven, reliable and offers fast response time.

ROTEX GOO AND GOV SERIES ACTUATORS

ORDERING CODE

1

PRODUCT SERIES	
CODE	DESCRIPTION
EHF	Electro-Hydraulic Systems

2

OPERATION TYPE	
CODE	DESCRIPTION
LO	Linear -On/Off
RO	Rotary - On/Off
LM	Linear -Modulating
RM	Rotary - Modulating

3

ACTUATOR TYPE	
CODE	DESCRIPTION
DRS	Scotch Yoke Rotary
CC	Linear

4

FRAME SIZE FOR ROTARY ACTUATOR	
CODE	DESCRIPTION
AA, A, B, C, D, E, G, H, J, M, N	Frame Size
X	None

5

MEDIA	
CODE	DESCRIPTION
HY	Hydraulic

6

CYLINDER SIZE IN MM	
CODE	DESCRIPTION
32, 50, 63, 80, 100, 125, 150, 200, 225, 250, 275, 300, 325, 350, 400	Size

7

STROKE FOR LINEAR ACTUATOR IN MM	
CODE	DESCRIPTION
0-500	Stroke
X	None

8

TYPE OF ACTION	
CODE	DESCRIPTION
*	Double Acting
E0, E1, E2, E3, E4, E5, E6, E7, E8, E9, E10	Single Acting

9

MAIN POWER SUPPLY	
CODE	DESCRIPTION
A	24 VDC
B	110/120 VAC 50Hz
C	110/120 VAC 60Hz
D	220/240 VAC 50Hz
E	220/240 VAC 60Hz
F	220/240 VAC 50Hz, 3 Phase
G	220/240 VAC 60Hz, 3 Phase
H	380 VAC 50Hz, 3 Phase
I	380 VAC 60Hz, 3 Phase
J	400 VAC 50Hz, 3 Phase
K	400 VAC 60Hz, 3 Phase
L	415 VAC 50Hz, 3 Phase
M	415 VAC 60Hz, 3 Phase
N	440 VAC 50Hz, 3 Phase
O	440 VAC 60Hz, 3 Phase
P	480 VAC 50Hz, 3 Phase
Q	480 VAC 60Hz, 3 Phase
R	575 VAC 50Hz, 3 Phase
S	575 VAC 60Hz, 3 Phase
T	690 VAC 50Hz, 3 Phase
U	690 VAC 60Hz, 3 Phase

FAIL-SAFE	
CODE	DESCRIPTION
SP	Fail safe condition Achieved using spring
AC	Fail safe condition Achieved using accumulator
*	None

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FAIL-SAFE CONDITION	
CODE	DESCRIPTION
STY	Stayput
EFO	Signal/ESD Fail - Open, Power Fail - Stayput
EFC	Signal/ESD Fail - Close, Power Fail - Stayput
EPC	Signal/ESD and Power Fail - Close
EPO	Signal/ESD and Power Fail - Open
PFC	Power Fail - Close
PFO	Power Fail - Open

ORDERING CODE

12

ESD CONFIGURATION	
CODE	DESCRIPTION
A	24 VDC Single SOV
B	24 VDC Dual SOV, Redundant
C	110 VAC Single SOV
D	110 VAC Dual SOV, Redundant
E	230 VAC Single SOV
F	230 VAC Dual SOV, Redundant
*	None

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CLOSING SPEED	
CODE	DESCRIPTION
XXX	0.2 - 300 seconds
	For other closing speed contact ROTEX

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ACCUMULATOR	
CODE	DESCRIPTION
*	None
P	Piston Type
B	Bladder Type

15

MANUAL OVERRIDE	
CODE	DESCRIPTION
*	None
H	Handpump

16

CABLE ENTRIES#	
CODE	DESCRIPTION
TR 0	1 1/4" NPT(F) X 1 No., 3/4" NPT(F) X 6 Nos.
TR1	1 1/4" NPT(F) X 1 No., 3/4" NPT ADAPTED TO 1/2" NPT(F) X 6 Nos.
TR2	1 1/4" NPT(F) X 1 No., 1" NPT ADAPTED TO 1/2" NPT(F) X 6 Nos.
TR3	1 1/4" NPT ADAPTED TO 1" NPT(F) X 1 No., 3/4" NPT ADAPTED TO 1/2" NPT(F) X 6 Nos.
TR4	1 1/4" NPT(F) X 1 No., 3/4" NPT ADAPTED TO 1" NPT(F) X 6 Nos.
TR5	1 1/4" NPT ADAPTED TO 3/4" NPT(F) X 1 No., 3/4" NPT ADAPTED TO 1/2" NPT(F) X 6 Nos.
TR6	1 1/4" NPT ADAPTED TO 1/2" NPT(F) X 1 No., 3/4" NPT ADAPTED TO 1/2" NPT(F) X 6 Nos.
2M0	M25 (F) X 1 No., M20 (F) X 6 Nos.
4M0	M25 (F) X 2 Nos., M20 (F) X 4 Nos.
4M1	M25 (F) X 3 Nos., M20 (F) X 4 Nos.
6M0	M32 (F) X 1 No., M25 (F) X 6 Nos.
6M1	M32 (F) X 1 No., M25 (F) ADAPTED TO M20 (F) X 6 Nos.

17

INDICATOR	
CODE	DESCRIPTION
*	None
M	Mechnical
L	ROT-GLOW LED Illumination

18

LIMIT SWITCH	
CODE	DESCRIPTION
*	None
1A2	2 SPDT Microswitches
1A4	4 SPDT Microswitches
3A2	Proximity NBB3-V3
6A2	Hermitically Sealed Switches

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TRANSMITTER (4 … 20 mA FEEDBACK)	
CODE	DESCRIPTION
*	None
P	Position Transmitter
R	Pressure Transmitter
B	Position + Pressure Transmitter

20

OIL TRANSMITTER (4 … 20 mA FEEDBACK)	
CODE	DESCRIPTION
*	None
T	Oil Temperature Transmitter
L	Oil Level Transmitter
O	Oil Temperature + Level

21

TEMPERATURE	
CODE	DESCRIPTION
*	-20 °C to +50 °C
Ht1	-20 °C to +70 °C
Lt1	-30 °C to +50 °C
Ht2	-30 °C to +70 °C
Lt2	-40 °C to +50 °C
Ht3	-40 °C to +70 °C
Lt3	-50 °C to +50 °C
Lt4	-50 °C to +70 °C
	for temperature above +70 °C, select remote mount units

ORDERING CODE

22

COMMUNICATION	
CODE	DESCRIPTION
*	None
F	Foundation Fieldbus
H	Hart
M	Modbus
A	Profibus
WH	Wireless Hart
RP	Redundant Profibus

23

CERTIFICATION	
CODE	DESCRIPTION
*	None / Weather Proof
C1	Exd, IS 60079-1
C2	Exd, IS 60079-1 + PESO
C3	ExD, IS 60079-1 + SIL 3
C4	Exd, IS 60079-1 + PESO + SIL 3
C5	SIL 3
C6	ATEX IEC 60079-1
C7	IECEx IEC 60079-1
C8	ATEX IEC 60079-1 + SIL 3
C9	IECEx IEC 60079-1 + SIL 3
C10	FM*
C11	CSA*
C12	TRCU
C13	FM* + SIL3
C14	CSA* + SIL3
C15	TRCU + SIL3

* Under Certification

24

MOUNTING	
CODE	DESCRIPTION
*	Vertical stem, Horizontal Pipleline, Actuator Parallel to Pipeline
M1	Vertical stem, Horizontal Pipleline, Actuator Perpendicular to Pipeline
M2	Horizontal stem, Horizontal Pipleline, Actuator Parallel to Pipeline
M3	Horizontal stem, Horizontal Pipleline, Actuator Perpendicular to Pipeline
M4	Horizontal stem, Vertical Pipleline, Actuator Parallel to Pipeline
M5	Horizontal stem, Vertical Pipleline, Actuator Perpendicular to Pipeline For Linear application, M1, M3, and M5 Available

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SPECIAL VERSION	
CODE	DESCRIPTION
*	None
RM50	Remote Mount 50 Metres
GOV	Gas Over Oil Actuator
GOO	Direct Gas Operated Actuator

NOTES

OVERSEAS OFFICES

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ROTEX : 19091 : 1K: 09/26