

IMVS2 - SMART INTEGRATED VALVE MONITORING DEVICE

IMVS2 is a smart diagnostic device for low and high pressure application with BUS communication protocol capability.



FEATURES

- Safety valve maintenance
- Full advanced diagnostic capability
- Full and Partial stroke test
- SOV test
- Auto-calibration
- User friendly local/remote configuration
- Wireless configuration and data transmission via Bluetooth® Interface
- BIFFI Assistant software configuration tool
- Log-in password with 4 different permission levels
- Digital input for remote control (PST and FST)
- Digital input rating: 19.2 – 57.6 V DC (current consumption 2-11 mA)
- Output contacts for position indication and diagnostics
 - 2 output contacts for position indication (NO/NC configurable)
 - 1 output contact for alarm indication (NO/NC configurable)
 - 3 output contacts for PST status (In Progress, Passed, Failed)
 - output contacts rating: up to 57.6 V DC and 0.5 A
- Data transmission with Hard-wired point-to-point connection:
 - Open and close limits
 - Common failure alarm
 - PST status (In progress, passed and failed) contacts
- Hart® 7 with DD Files and FDT & DTM certified and MODBUS® communication protocols

GENERAL APPLICATION

IMVS2 is a SMART device for predictive maintenance and safety able to perform partial and full stroke test without any impact to the process and provide SIL reliability.

APPROVALS

- ATEX certified:
 - Ex 2GD Ex d [ia] IIC (IIB with Beacon) T5 Gb
 - Ex tb IIIC T100 °C Db
 - Ex II 2GD Ex d [ia] IIC (IIB with Beacon) T4 Gb
 - Ex tb IIIC T135 °C Db
- CSA
 - CSAus and CSA please ask to factory
- IECEx
 - Ex d [ia] IIC (IIB with Beacon) T4 Gb
 - Ex tb IIIC T135 °C Db

TECHNICAL DATA

- Ambient temperature**
40°C to 75°C (-40°F to 167°F)
- Power supply**
- 24-48 V DC Two isolated circuits for ESD applications (controlling up to 2 external solenoid valves)
 - Max device power consumption: 3W
- Environmental protection**
- IP66/68 (EN 60529)
 - NEMA 4, 4X & 6 (NEMA 250)
- Certification**
- ATEX Directive 2014/34/UE
 - PED Directive 2014/68/EU
 - EMC Directive 2004/108/EC
- Functional safety**
- Suitable for use in any SIL level applications according to IEC 61508

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WIRING DIAGRAMS

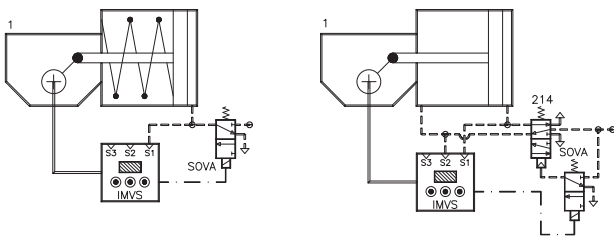
1. Configuration A – Wiring Diagram

- Mandatory Connections:
- MAIN SUPPLY (terminals 3-4)
 - SIS A SUPPLY (terminals 5-6)
 - SOVA (terminals 9-11)

CONFIGURATION A

Single or double acting actuator
 Single solenoid valve supplied/controlled by SIS

PNEUMATIC ACTUATOR



HYDRAULIC ACTUATOR

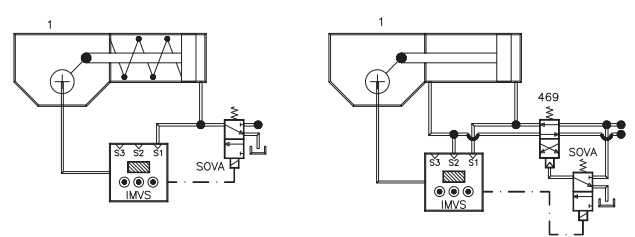
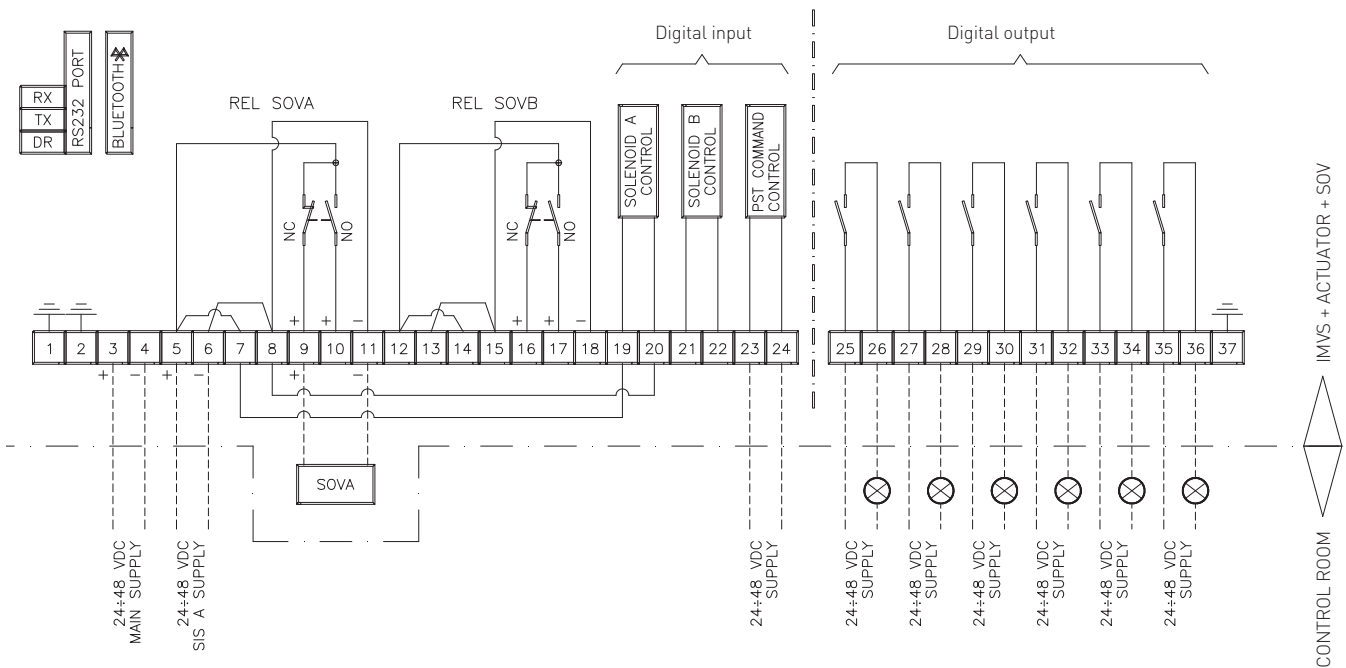


Diagram shows IMVS supplied by 24±48 VDC in steady condition (no PST in progress)

BASE POWER CARD

LOGIC CARD



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2. Configuration B – Wiring Diagram

Mandatory Connections:

- MAIN SUPPLY (terminals 5-6)
- SOVA (terminals 9-11)

Recommended Connections:

- SOLENOID A CONTROL (terminals 19-20)

CONFIGURATION B

Single or double acting actuator

Single solenoid valve supplied by main supply and controlled by separate signal

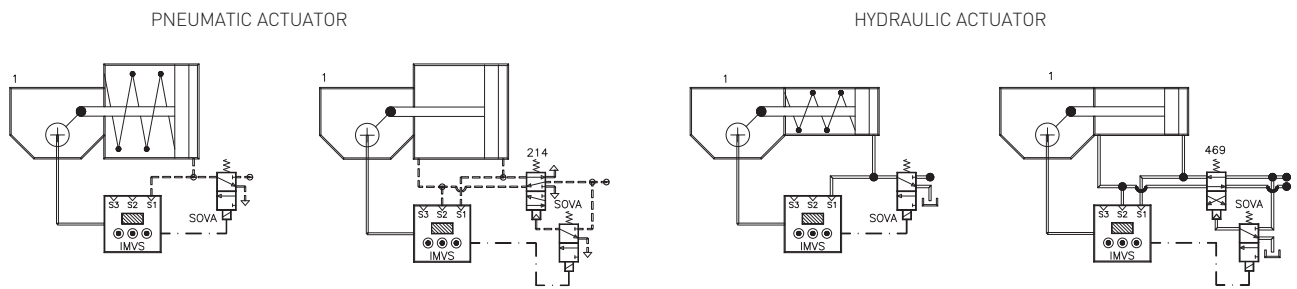
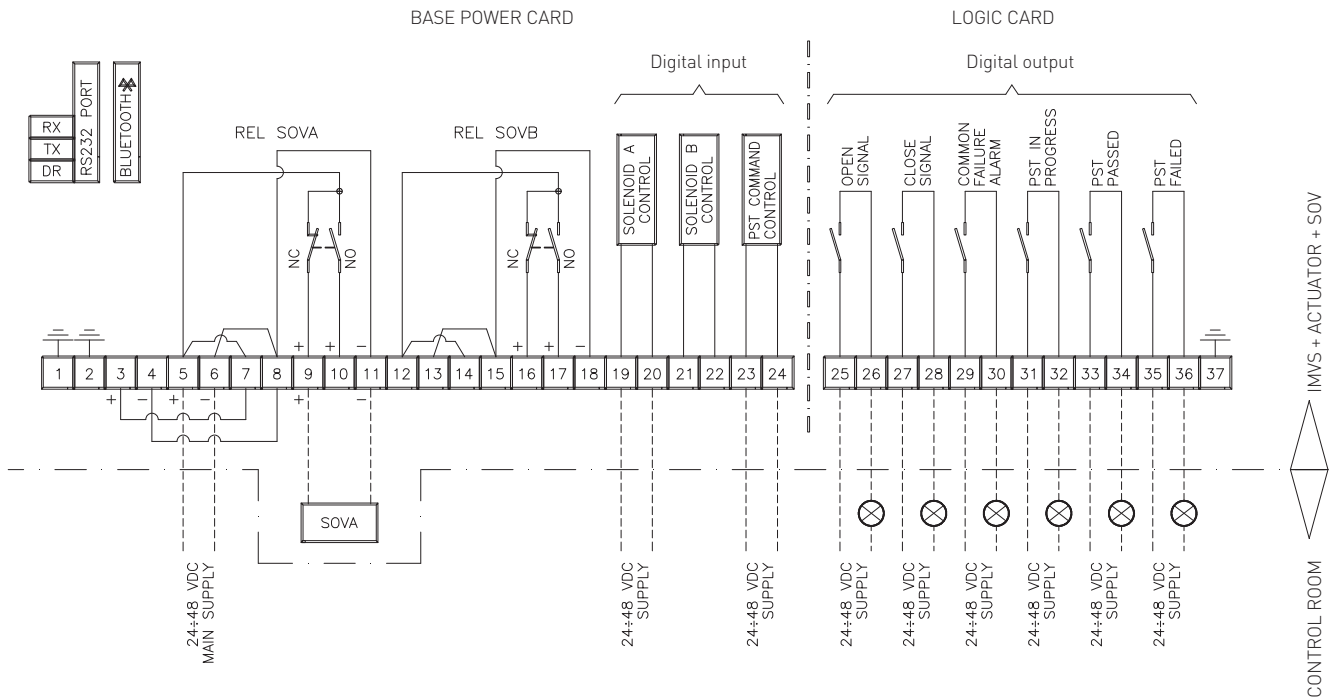


Diagram shows IMVS supplied by 24+48 VDC in steady condition (no PST in progress)



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3. Configuration C – Wiring Diagram

Mandatory Connections:

- MAIN SUPPLY (terminals 3-4)
- SIS A SUPPLY (terminals 5-6)
- SIS B SUPPLY (terminals 12-13)
- SOVA (terminals 9-11)
- SOVB (terminals 16-18)

CONFIGURATION C

Single or double acting actuator
Single solenoid valves supplied/controlled by two independent SIS signals

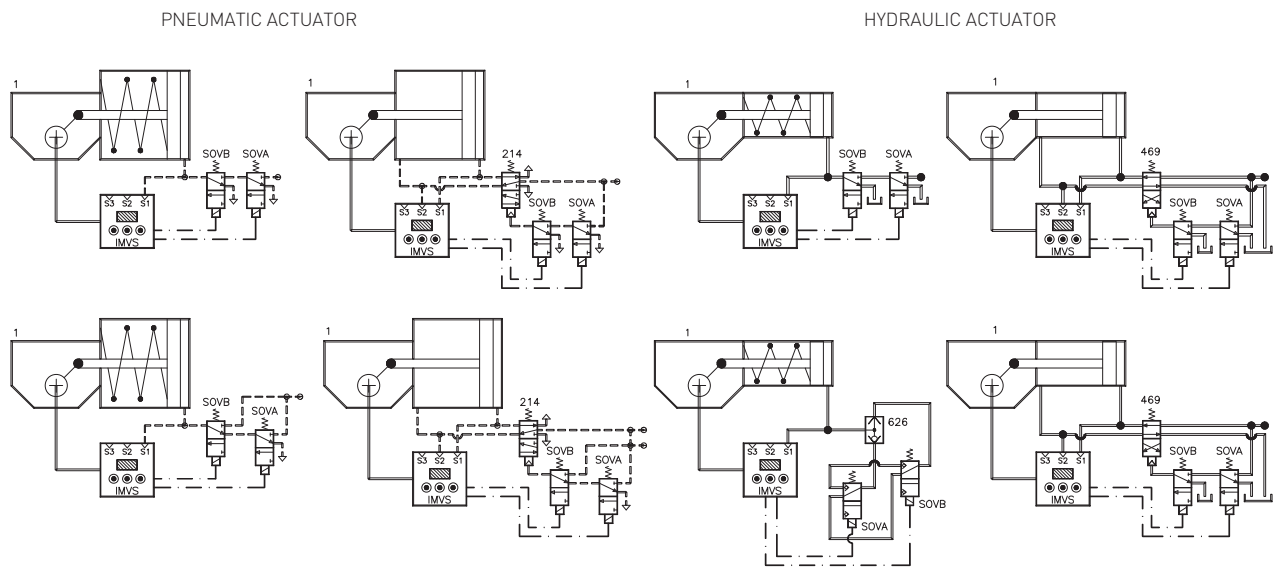
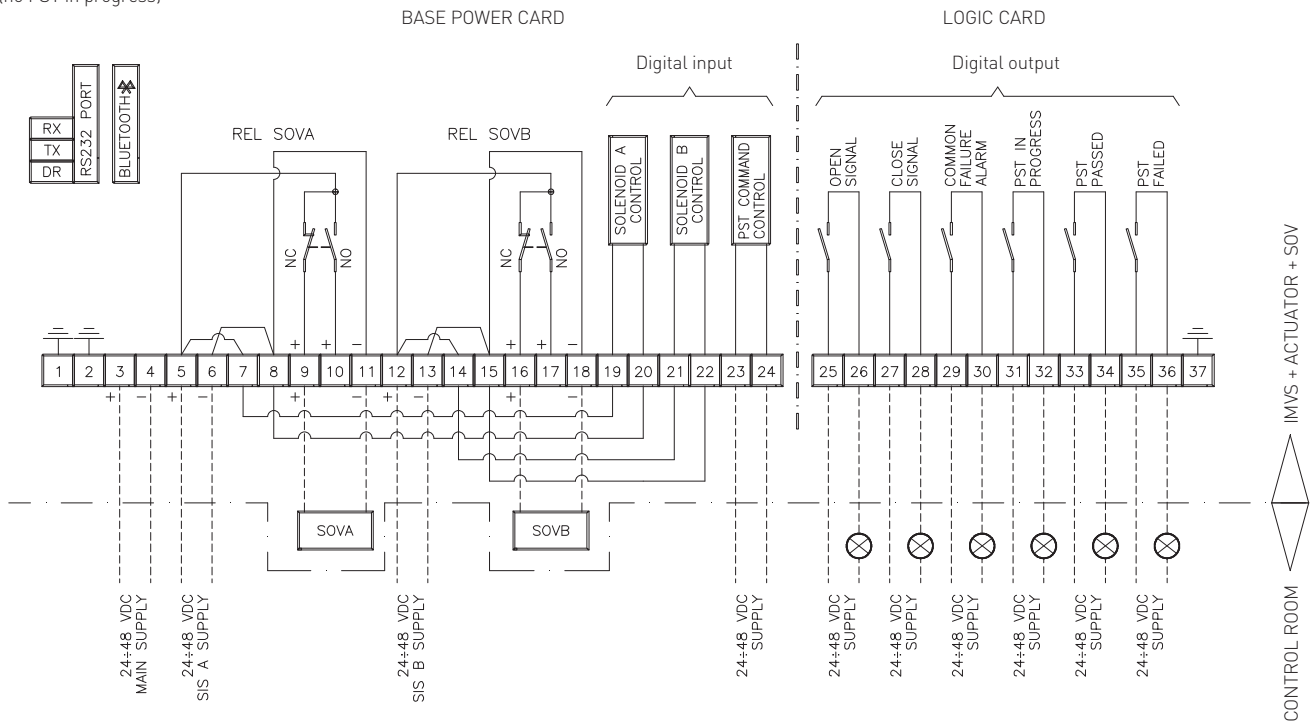


Diagram shows IMVS supplied by 24V48 VDC in steady condition (no PST in progress)



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4. Configuration D – Wiring Diagram

- Mandatory Connections:
- MAIN SUPPLY (terminals 5-6)
 - SOVA (terminals 9-11)
 - SOVB (terminals 16-18)

- Reccomended Connections:
- SOLENOID A CONTROL (terminals 19-20)
 - SOLENOID B CONTROL (terminals 21-22)

CONFIGURATION D

Single or double acting actuator
 Redundant solenoid valves supplied by main supply and controlled by separate signals

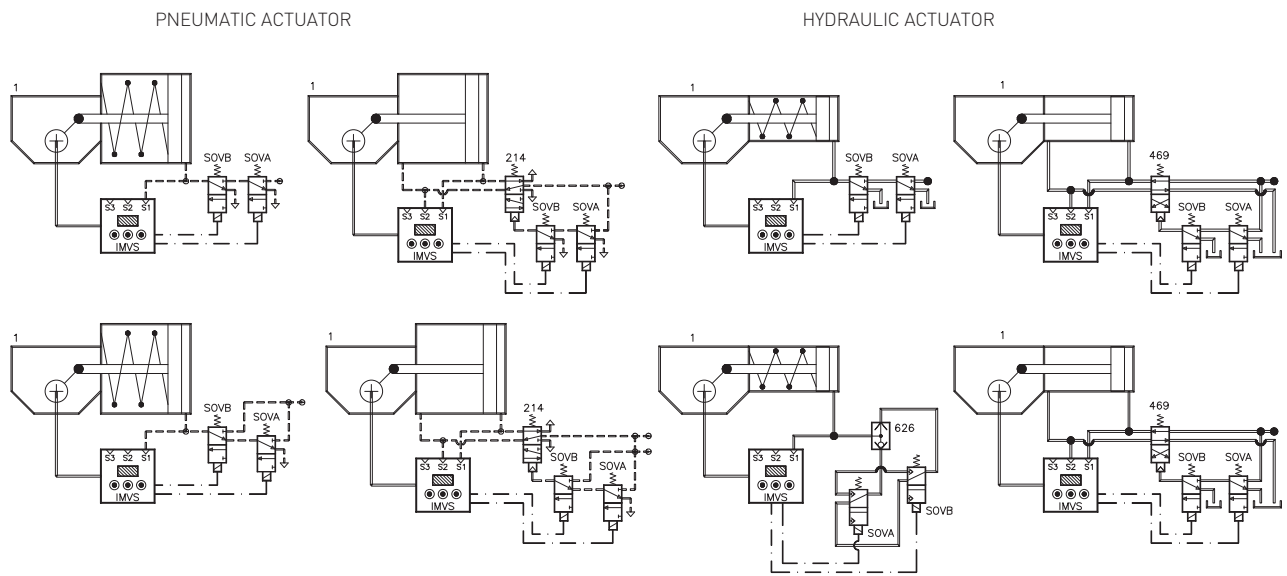
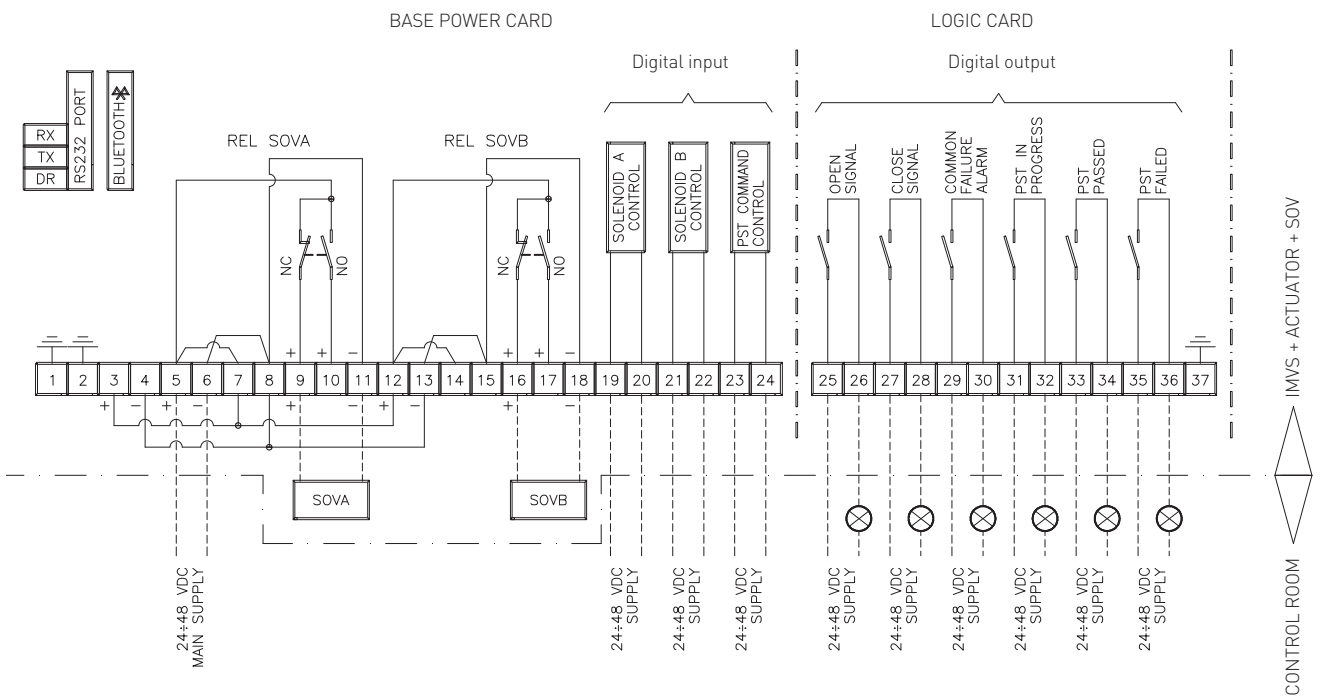


Diagram shows IMVS supplied by 24+48 VDC in steady condition (no PST in progress)



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5. Configuration E - Wiring Diagram

Mandatory Connections:

- MAIN SUPPLY (terminals 3-4)
- SIS A SUPPLY (terminals 5-6)
- SOVA (terminals 9-11)
- SOVB (terminals 16-18)

Recommened Connections:

- SOLENOID A CONTROL (terminals 19-20)
- SOLENOID B CONTROL (terminals 21-22)

CONFIGURATION E

Single or double acting actuator

Dual solenoid valves supplied by SIS and controlled by separate signals

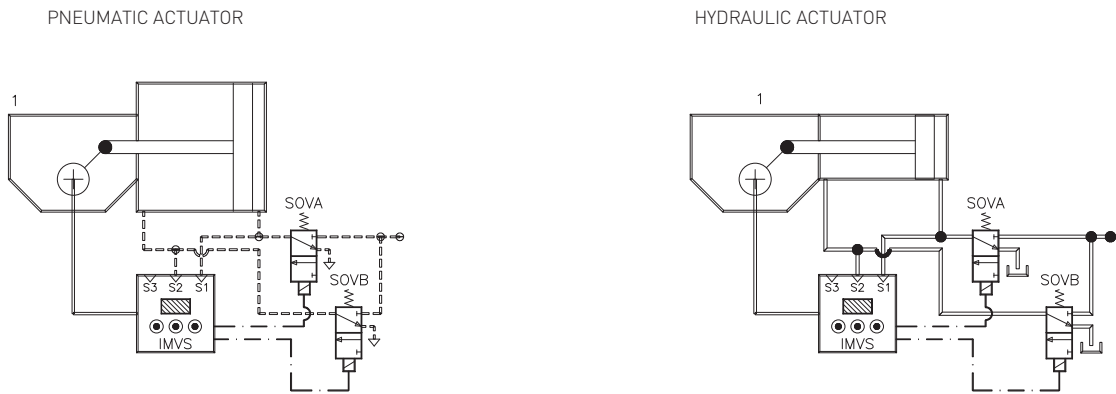
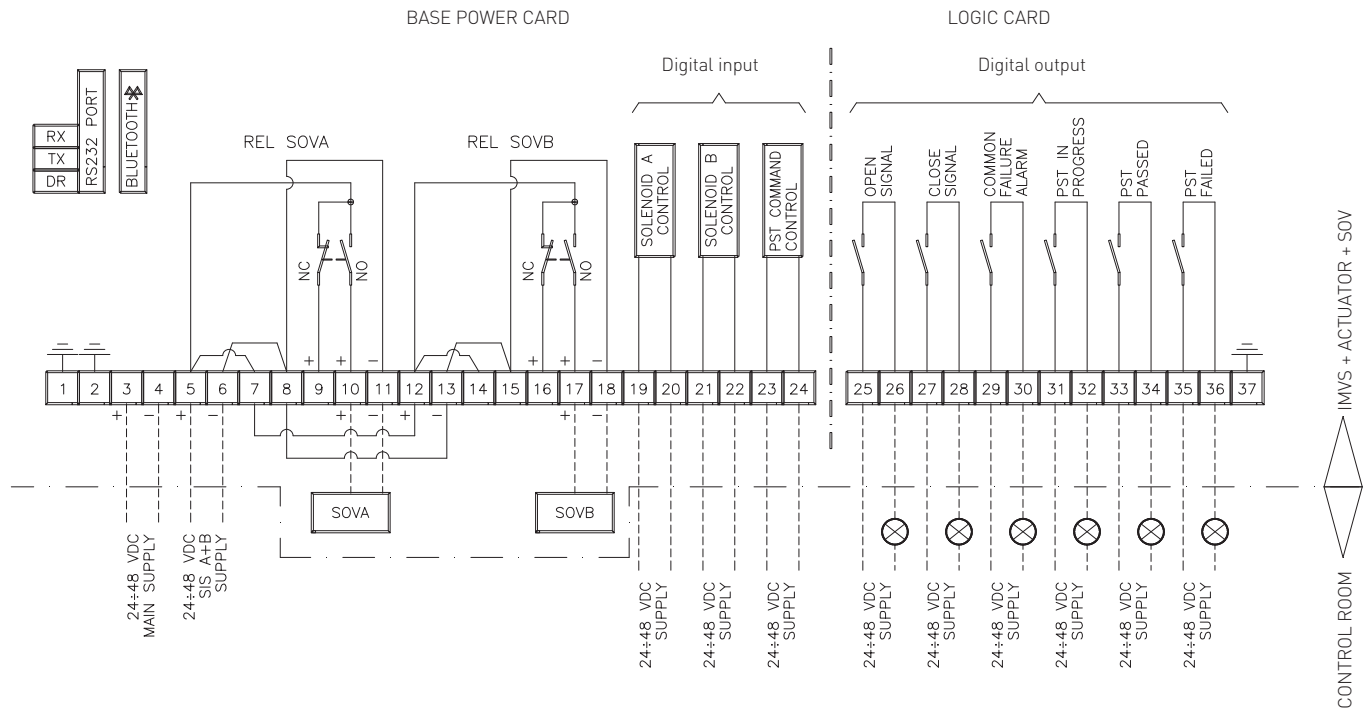


Diagram shows IMVS supplied by 24±48 VDC in steady condition (no PST in progress)



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6. Configuration F - Wiring Diagram

Mandatory Connections:

- MAIN SUPPLY (terminals 5-6)
- SOVA (terminals 9-11)
- SOVB (terminals 16-18)

Recommended Connections:

- SOLENOID A CONTROL (terminals 19-20)
- SOLENOID B CONTROL (terminals 21-22)

CONFIGURATION F

Double acting actuator

Dual solenoid valves supplied by main supply and/controlled by separate signals

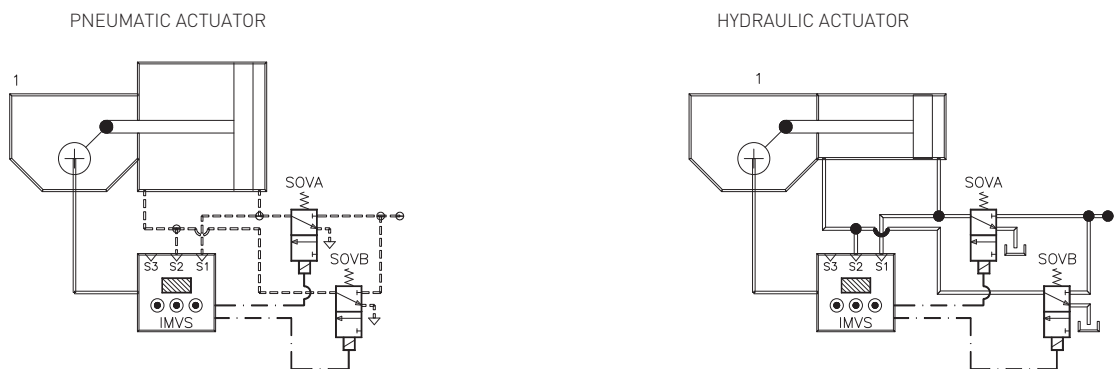
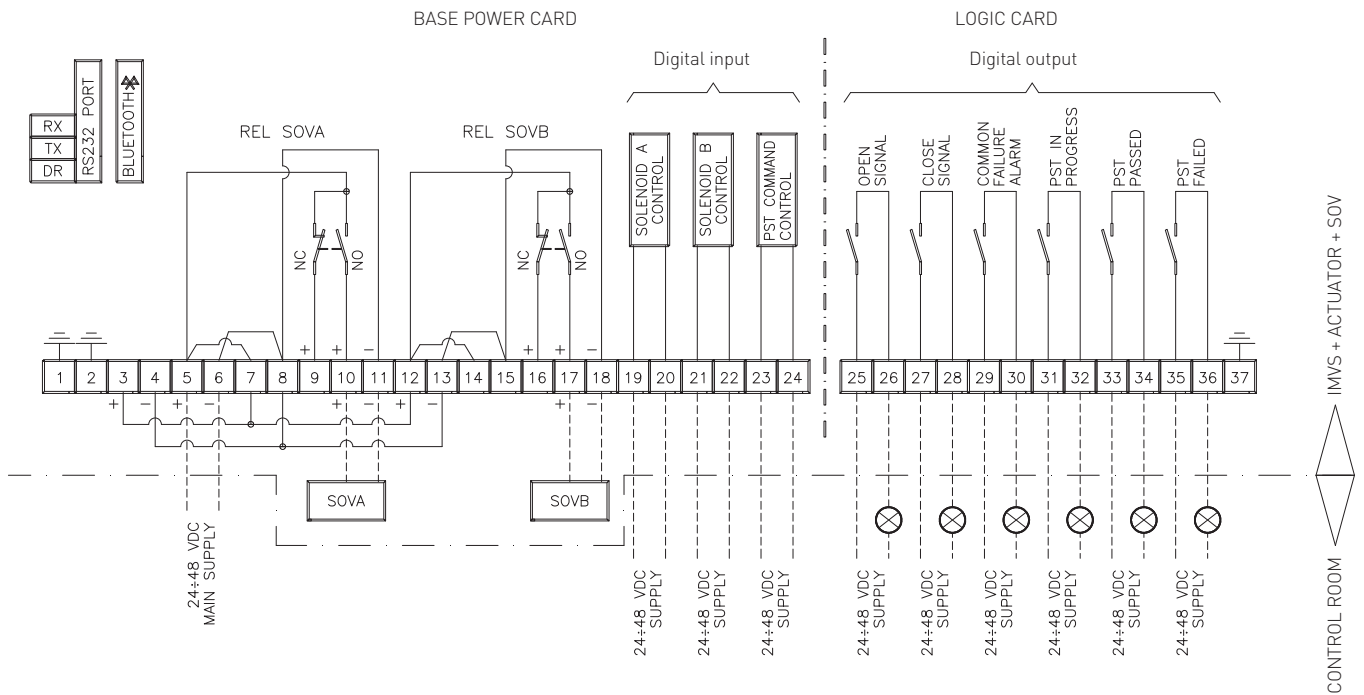


Diagram shows IMVS supplied by 24±48 VDC in steady condition (no PST in progress)



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7. Configuration G – Wiring Diagram

- Mandatory Connections:
- MAIN SUPPLY (terminals 5-6)
 - SOVA (terminals 9-11)

CONFIGURATION G

Single or double acting actuator
 Single solenoid valve supplied and controlled by main supply

PNEUMATIC ACTUATOR

HYDRAULIC ACTUATOR

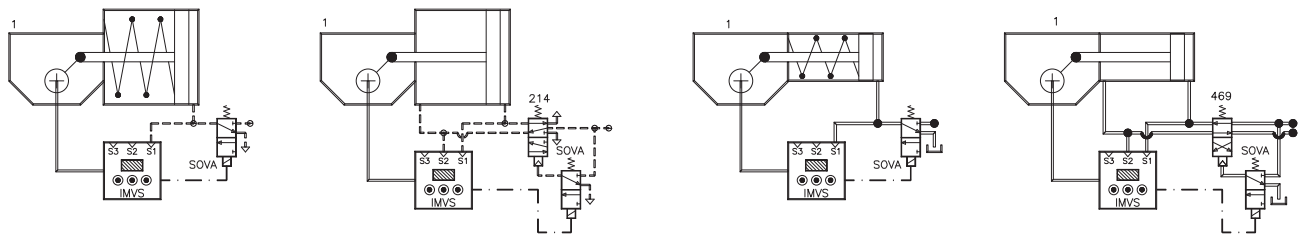
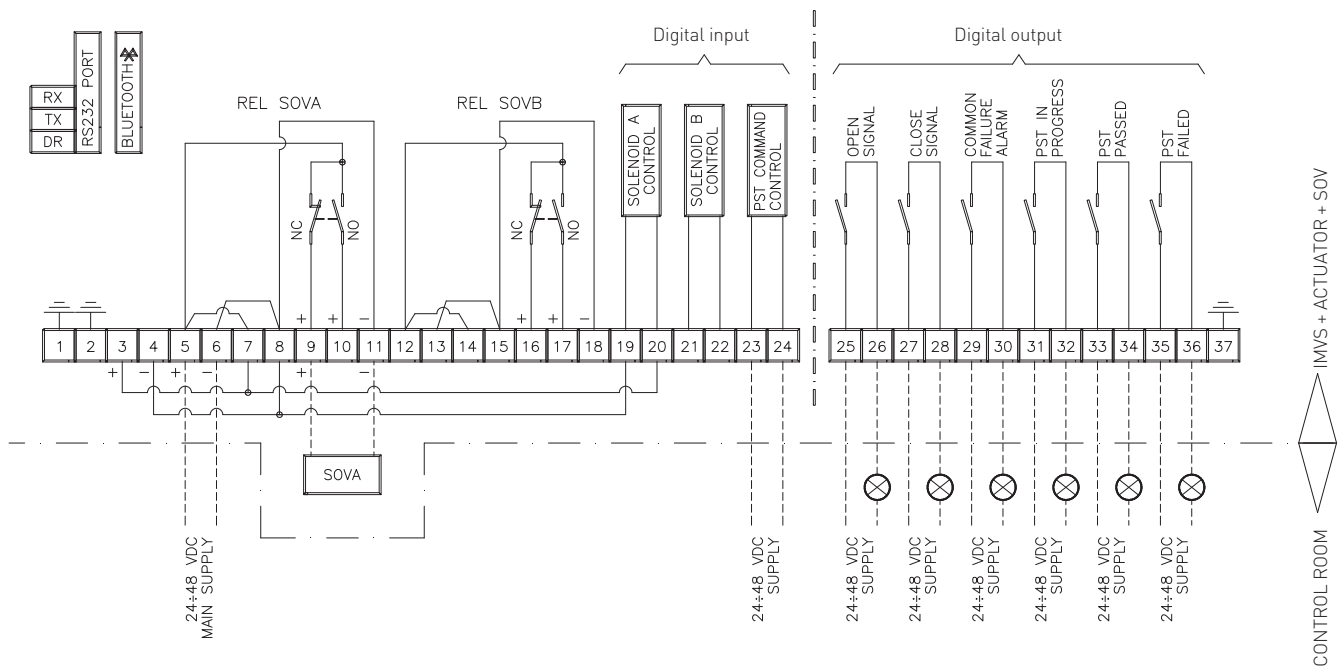


Diagram shows IMVS supplied by 24÷48 VDC in steady condition
 (no PST in progress)

BASE POWER CARD

LOGIC CARD



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8. Configuration H – Wiring Diagram

Mandatory Connections:

- MAIN SUPPLY (terminals 3-4)
- SIS A SUPPLY (terminals 5-6)
- SOVA (terminals 9-11)
- SOVB (terminals 16-18)

CONFIGURATION H

Single or double acting actuator
 Redundant solenoid valves supplied/controlled by SIS

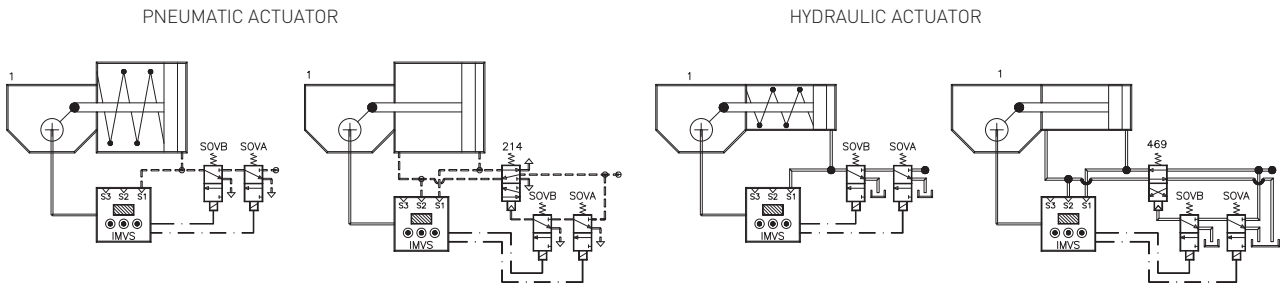
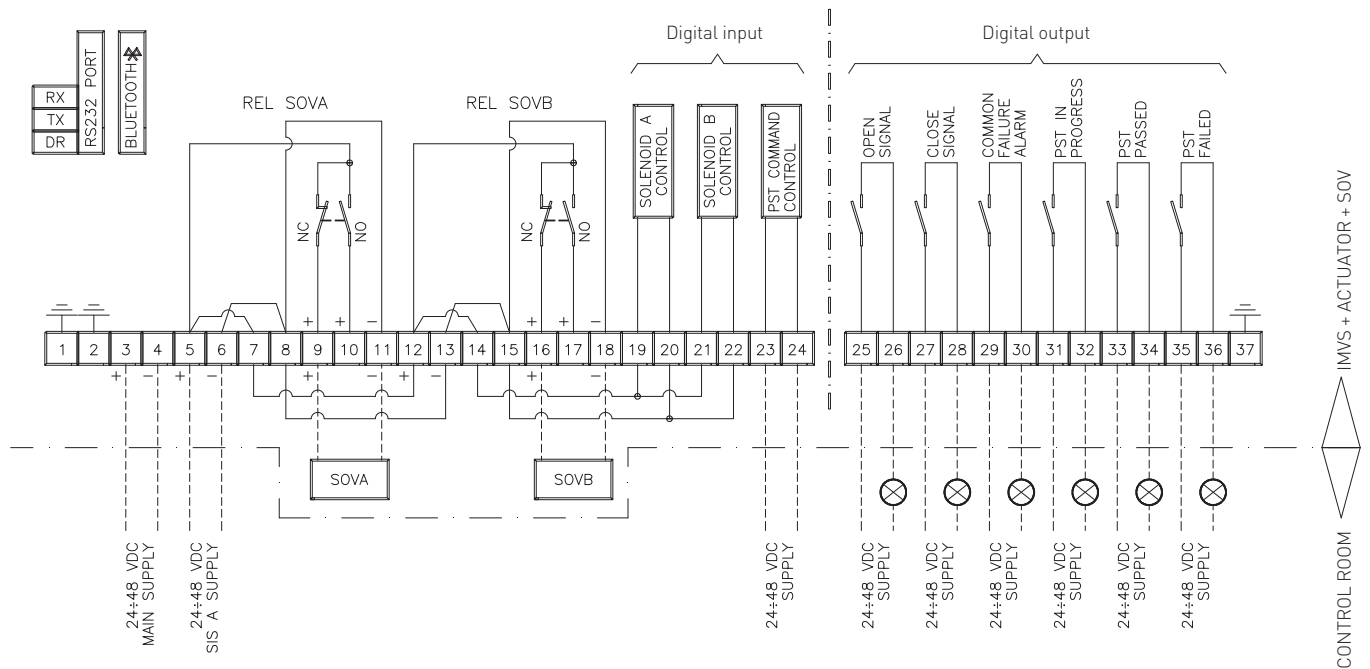


Diagram shows IMVS supplied by 24±48 VDC in steady condition (no PST in progress)

BASE POWER CARD

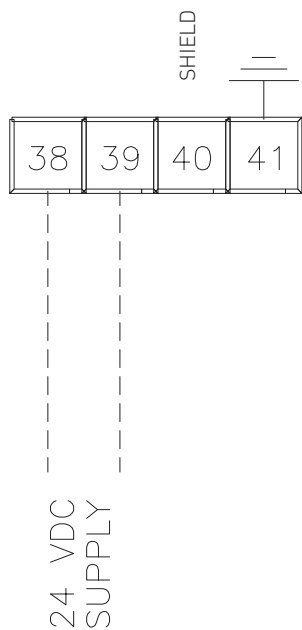
LOGIC CARD



9. Hart Card – Wiring Diagram

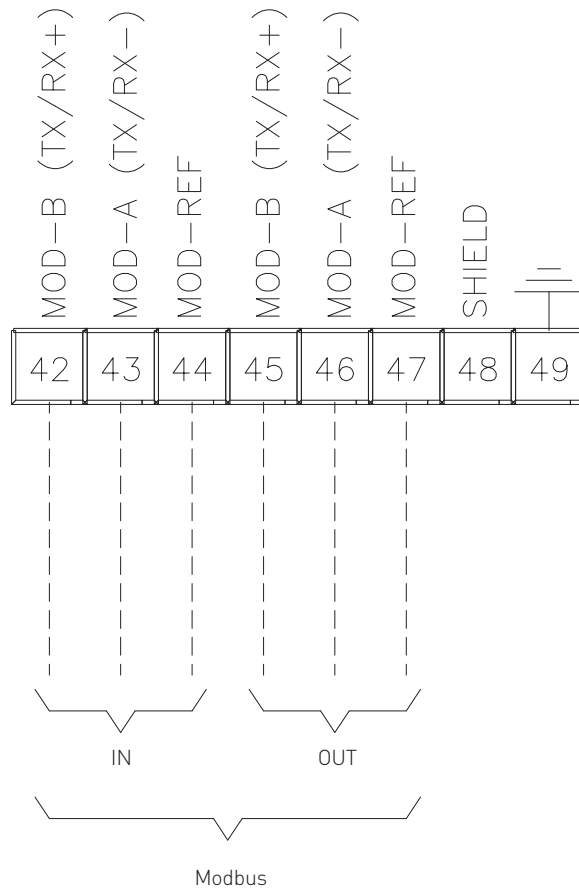
The HART Card is optional.

4-20 mA + Hart card position
or pressure feedback signal
(optional)



10. Modbus Card – Wiring Diagram

The MODBUS Card is optional.



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IMVS SELECTION GUIDE

Example:	234IMV	C	A	0	0	0	0	0	B
Base Model									
234IMV	IMVS2 SS316 ESD/PST capability								
Pressure sensor configuration									
A	Single acting actuator up to 10 bar g (145 psig)								
B	Double acting actuator up to 10 bar g (145 psig)								
C	Single acting actuator up to 100 bar g (1450 psig)								
D	Double acting actuator up to 100 bar g (1450 psig)								
E	Single acting actuator up to 200 bar g (2900 psig)								
F	Double acting actuator up to 200 bar g (2900 psig)								
G	Single acting actuator up to 400 bar g (5800 psig)								
H	Double acting actuator up to 400 bar g (5800 psig)								
Wiring Diagram configuration									
A	Single solenoid valve supplied/controlled by SIS Signal								
B	Single solenoid valve supplied by main supply and controlled by separate signal								
C	Redundant series/parallel solenoid valves supplied/controlled by two independent SIS signals								
D	Redundant series/parallel solenoid valves supplied by main supply controlled by separate signals								
E	Dual solenoid valves supplied by SIS and controlled by separate signals								
F	Dual solenoid valves supplied by main supply and controlled by separate signals								
G	Single solenoid valve supplied and controlled by main supply								
H	Redundant series/Parallel solenoid valves supplied controlled by single SIS signal								
Bus Interface card									
0	Without bus interface								
1	HART+ 4-20mA Output Interface								
2	Modbus Interface								
Material									
0	Full enclosure in SS 316 L								
1	Full enclosure in SS 316 L + Anticorrosive paint								
Beacon indicator									
0	Standard indicator								
1	Black/Yellow Beacon indicator								
2	Red/green Beacon indicator								
Additional pressure sensor									
0	Not Installed								
1	Sensor S3 10 barg (1450 psig)								
2	Sensor S3 100 barg (1450 psig)								
3	Sensor S3 200 barg (2900 psig)								
4	Sensor S3 400 barg (5800 psig)								
Certification									
0	ATEX/IECEX								
Shaft									
B	Shaft Standard Biffi								
N	Shaft Namur Type								



Biffi reserve the the right to change product designs and specifications without notice.

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