VAL CONTROLS

Intelligent Valve Control

IHP24

Intelligent Hydraulic Positioner

DHP-PL-003-01

Val Controls A/S

Intelligent valve control based on the latest know-how concerning digital technology for advanced valve control, monitoring and testing suited for pneumatic and hydraulic actuators. Our key task is to assist valve and actuator manufactures in finding the optimal solution for control, monitoring or testing of their products. We discover the best solutions for hazardous areas and harsh environments combined with cost reduction potentials.

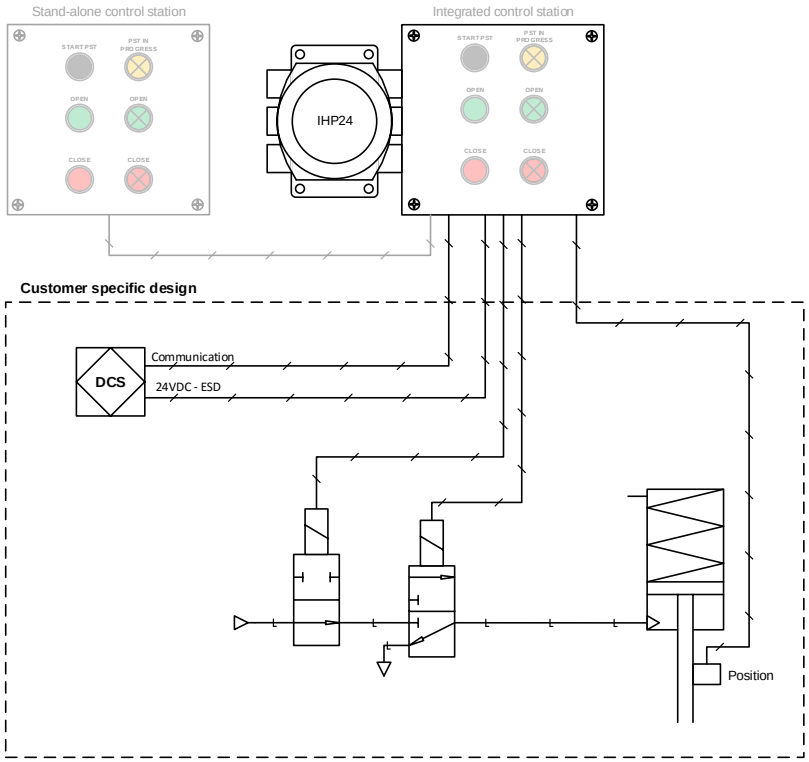
Presentation

Val Controls develops and manufacture Intelligent Electro Hydraulic Positioners. They are used for valve positioning and have an integrated microprocessor with very flexible software, so the positioner fits almost any hydraulic, pneumatic, rotary, linear, double-acting, spring return and stepping actuator on the market.

The IHP24 range offers several advantages.

- **Smart positioner for hydraulic actuators**
- **Automatic intelligent calibration**
- **Intelligent valve positioning**
- **User-friendly menu**
- **Flexible and configurable**
- **Ultra low power design**
- **Easy error handling**
- **Intrinsically safe version**
- **Compact flame proof (Ex d) version in SS316**
- **ATEX and IECEx approved**

The IHP24 range offers the best in performance and user-friendliness, combining these in a very compact enclosure.



IHP24-B and IHP24-BF

Basic and Basic Flameproof

The Basic edition of the IHP24 range is an affordable positioner. This unit is very easy to install and adjust. It offers a very simple but efficient way to achieve positioning of a valve with a hydraulic control system.

The positioner has an advanced calibration process which in combination with the regulator provides fast and reliable positioning of actuators. The user-friendly interface makes it easy to use and configure.

IHP24-A and IHP24-AF

Advanced and Advanced flameproof

The Advanced model is the most flexible positioner in the range. The standard configuration is designed to be able to handle all tasks a positioner could be used for. Furthermore it is equipped with an extension interface which makes it possible to add extra hardware functionality on customer request.

The IHP24-A offers a large range of connection possibilities. It offers inputs for several 4-20mA sensors and digital signals which make it possible to configure the positioner to control or monitor other applications connected to the valve.

IHP24-I
Intrinsically safe

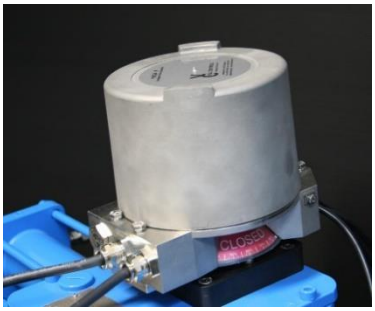
The IHP24-I has been designed to be installed in potentially explosive atmospheres. The positioner is designed to be intrinsically safe and can be used in intrinsically safe systems.

The positioner has an advanced calibration process which in combination with the regulator provides fast and reliable positioning of hydraulic valves. The user-friendly interface makes it easy to use and set-up.

IHP24-F
Flameproof

The IHP24-F has been designed to be installed in potentially explosive atmospheres and is mounted direchtly on the actuator. It has a build in non-contact position transmitter and offers the option of adding limit switches.

The positioner has an advanced calibration process which in combination with the regulator provides fast and reliably positioning of valves.



Communication

IHP24 can be used with the following communication types:

- **HART and WirelessHART**
- **Modbus**
- **Foundation Fieldbus**
- **Profibus**
- **Bluetooth Ex mobile phone/tablet**
- **USB**

User interface

Model BF, AF and A have the following user interface features:

- **USB connection**
- **Graphical display**
- **4 button keyboard**
- **Status indicators:**
  - **Open**
  - **Closed**
  - **Moving**
  - **ESD**
  - **Local**
  - **Pump**
  - **MT locked (only BF and AF)**

MTControl

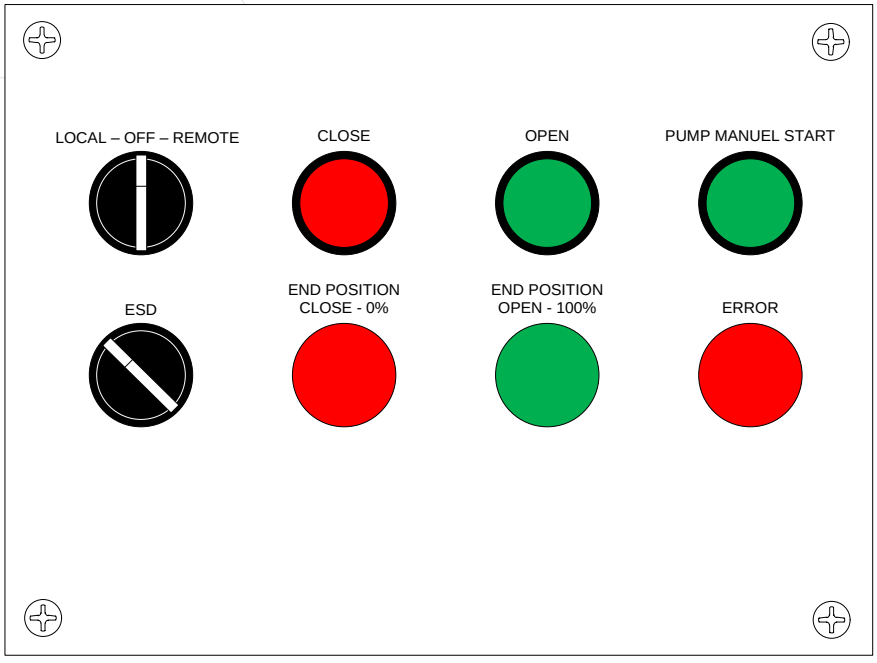
When IHP24-AF and BF are installed in hazardous area, opening of the enclosure is not allowed. Therefore it is not possible to operate the unit using the keyboard. By adding MTControl, it is now possible to operate the keyboard through the enclosure glass window using a magnetic pen. MTControl locks automatically when not used, to prohibit unattended use. MTControl can be configured so it only can be activated by pressing a 4 digit code.

Control stations

Integrated or stand-alone

All control stations are installed directly on the terminal box or as stand-alone. The control station functions are standard functions in all models.

- **Remote/local-open/close operation**
- **Local position indicator: Open/close**
- **Local reset: Ready to reset and reset**
- **ESD input**
- **Error output**



Specifications

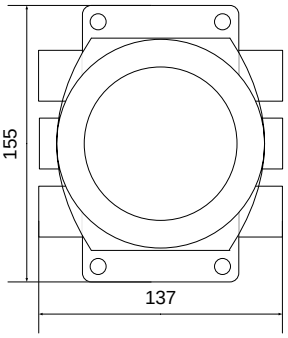
IHP24-BF

Dimensions lxwxh: 137x155x140mm

Weight: 4kg

Ex approval: ATEX/IECEx - II 2 GD

Ex d IIC T4-T6



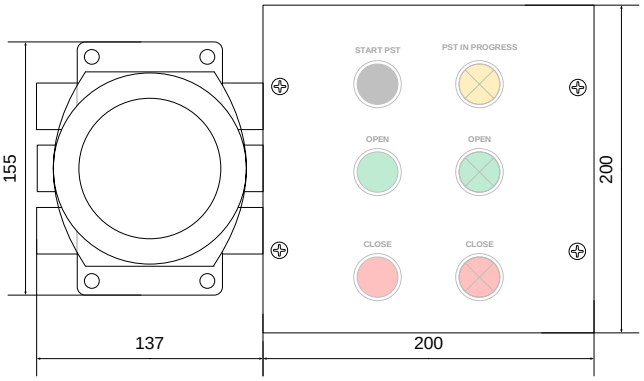
IHP24-AF/BF standard

Dimensions lxwxh: 337x200x160mm

Weight: 7kg

Ex approval: ATEX/IECEx - II 2 GD

Ex d IIC T4-T6 and Ex e IIC T4-T6

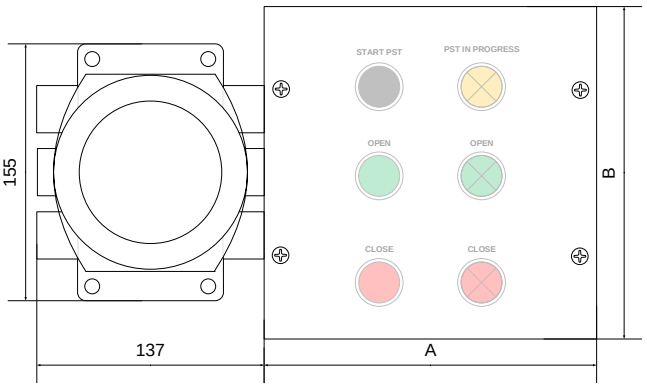


IHP24-AF/BF custom

Dimensions lxwxh: custom

Weight: custom

Ex approval: custom



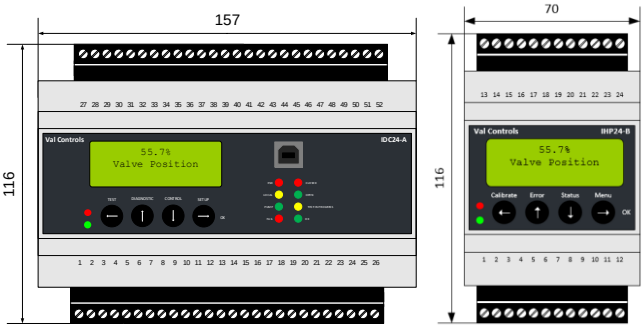
IHP24-A and IHP24-B

Dimensions lxwxh: 157x116x58mm

Dimensions lxwxh: 70x116x58mm

Weight: 0,5kg

Ex approval: None



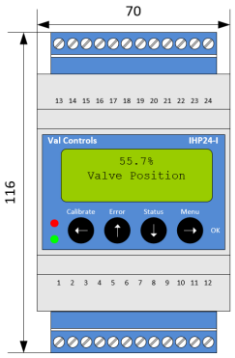
IHP24-I

Dimensions lxwxh: 70x116x58mm

Weight: 0,5kg

Ex approval: ATEX/IECEx - II 2 GD

Ex ia IIC T4-T6



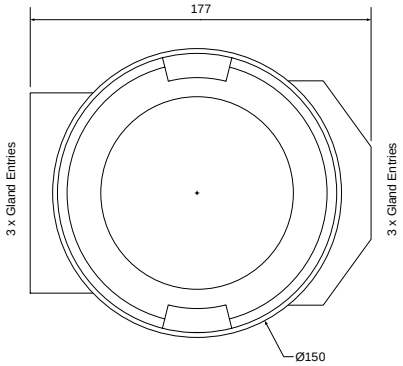
IHP24-F

Dimensions lxwxh: 177x150x150mm

Weight: 6kg

Ex approval: ATEX/IECEx - II 2 GD

Ex d [ib] IIC T4-T6



Model	BF Standard	BF Custom	AF Standard	AF Custom	B	A	I	F
Valve control – standard functions								
Hydraulic or pneumatic - Spring Return or Double Acting actuator Automatic intelligent or manual calibration Intelligent valve positioning Flow curves – Linear, Equal percentage 50:1, custom Valve action – Direct/reverse End settings Manual linearization Stepping function Error log Manual valve control	●	●	●	●	●	●	●	●
Standard functions								
User friendly menu Manual control of valves and actuator Open/Close indicator Remote/local/off selector ESD input Error output	●	●	●	●	●	●	●	●
Advanced functions								
Advanced regulation 4-20mA proportional valve			○	○		○		
Advanced regulation of stepping actuator	●	●	●	●	●	●	●	●
Pump unit controller	●	●	●	●	●	●	●	●
Local user interface								
Display with menu	●	●	●	●	●	●	●	
Indication LEDs	●	●	●	●		●		
USB connection	●	●	●	●		●		●
MTControl	●	●	●	●				
Communication								
AIO: 4-20mA control and transmitter loop	○	○	○	○	○	○	○	○
HART v.7: 4-20mA control and transmitter loop with HART	○	○	○	○	○	○	○	○
Modbus RTU – RS-485		○		○	○	○		○
Foundation Fieldbus H1		○		○		○		○
Profibus DP/DPV1		○		○	○	○		○
Wireless HART		○		○	○	○		○
Bluetooth V2.0		○		○		○		○
Other communication protocols on request	○	○	○	○	○	○	○	○
Local control panel functions								
Remote/local-open/close operation Local position indicator: Open/close Local reset: Ready to reset and reset ESD input Error output	●	●	●	●	●	●	●	●
In and outputs								
AI: 4-20mA control loop	1	1	1	1	1	1	1	1
AO: 4-20mA transmitter loop	1	1	1	1	1	1	1	1
Power supply 24VDC – device power consumption <2W	1	1	1	1	1	1	1	1
DO: Digital output	3	4	3	6	4	6	3	3
DI: Digital input	1	0(1)	4	4(13)	0(1)	4(13)		3
AO: 4-20mA output			2	(2)		(2)		
AI: 4-20mA sensors	1	1(2)	1	5	1	5	1	1
3-wire potentiometer		1		1	1	1	1	
Design								
Temperature range	-30°-+60°	-50°-+80°	-30°-+60°	-50°-+80°	-30°-+80°	-30°-+80°	-30°-+80°	-40°-+85°
Ingress protection	IP66	IP65-68	IP66	IP65-68	IP20	IP20	IP20	IP66/67
ATEX and IECEx	Ex d/e	Ex d/e	Ex d/e	Ex d/e			Ex i	Ex d
Enclosure material	SS316L	SS316L	SS316L	SS316L	Plastic	Plastic	Plastic	SS316
Glands	6/8 x M20	Custom	11 x M20	Custom				Custom
Configuration software								
Configurable by ValConnect software using USB or Bluetooth*	●	●	●	●	○*	●	○*	●

Standard = ●

optional = ○

contact Val Controls = *

Model selector – IHP24-BF

Product name		Type	Terminal box	Control station		Communication 1	Communication 2	Expansion card		Software features
IHP24	-	BF	A1	A2	-	B1	B2	C1	-	D

BF - standard	
A1	Terminal box
-	None
E	Standard terminal box with spare term: 4 grey + 2 PE
I	Standard terminal box with spare term: 4 grey + 2 PE, 4 blue + 2 PE
A2	Control station
-	None
B1	Communication 1
00	None
10	HART – Control loop
B2	Communication 2
00	None
C1	Expansion card
00	None
D	Software features
-	None

Model example: IHP24-BF-100000

BF - custom	
A1	Terminal box
-	Customized terminal box
A2	Control station
-	Customized Control station
B1	Communication 1
00	None
10	HART – Control loop
11	HART – Transmitter loop
12	Wireless HART
21	Modbus RTU
30	Foundation Fieldbus H1
40	Profibus DP
41	Profibus DPV1
B2	Communication 2
00	None
C1	Expansion card
00	None
05	1 x Motor relay direct/reverse
D	Software features
-	None
E	Custom identification
XX	To identify custom made units

Model example: IHP24-BF-100000-A1

Model selector – IHP24-AF

Product name		Type	Terminal box	Control station		Communication 1	Communication 2	Expansion card		Software features
IHP24	-	AF	A1	A2	-	B1	B2	C1	-	D

AF - standard	
A1	Terminal box
-	Standard terminal box with spare term: 4 grey + 2 PE
A2	Control station
-	None
B1	Communication 1
00	None
10	HART – Control loop
B2	Communication 2
00	None
C1	Expansion card
00	None
01	2 x AO (4-20mA - active)
D	Software features
-	None
C	Advanced regulation using 4-20mA proportional valve

Model example: IHP24-AF-100000-C

AF - custom	
A1	Terminal box
-	Customized terminal box
A2	Control station
-	Customized control station
B1	Communication 1
00	None
10	HART – Control loop
11	HART – Transmitter loop
12	Wireless HART
21	Modbus RTU
30	Foundation Fieldbus H1
40	Profibus DP
41	Profibus DPV1
B2	Communication 2
00	None
C1	Expansion card
00	None
01	2 x AO (4-20mA - active) and 2 x digital input
02	4 x DI
03	2 x AO (4-20mA - passive) and 2 x digital input
05	1 x Motor relay direct/reverse
D	Software features
-	None
C	Advanced regulation using 4-20mA proportional valve – Expansion card 01
E	Custom identification
XX	To identify custom made units

Model example: IHP24-AF-100000-C-A1

Model selector – IHP24-B

Product name		Type		Communication 1	Communication 2	Expansion card 1		Software features
IHP24	-	B	-	B1	B2	C1	-	D

B1	Communication 1
00	None
10	HART – Control loop
11	HART – Transmitter loop
21	Modbus RTU
B2	Communication 2
00	None
C1	Expansion card
00	None
D	Software features
-	None
E	Custom identification
XX	To identify custom made units

Model example: IHP24-B-100000-R1

Model selector – IHP24-A

Product name		Type		Communication 1	Communication 2	Expansion card 1		Software features
IHP24	-	A	-	B1	B2	C1	-	D

B1	Communication 1
00	None
10	HART – Control loop
11	HART – Transmitter loop
21	Modbus RTU
30	Foundation Fieldbus H1
40	Profibus DP
41	Profibus DPV1
B2	Communication 2
00	None
C1	Expansion card
00	None
01	2 x AO (4-20mA - active) and 2 x digital input
02	4 x DI
D	Software features
-	None
C	Advanced regulation using 4-20mA proportional valve – Expansion card 01
E	Custom identification
XX	To identify custom made units

Model example: IHP24-A-210001-C-A1

Model selector – IHP24-I

Product name		Type		Communication 1	Communication 2	Expansion card 1		Software features
IHP24	-	I	-	B1	B2	C1	-	D

B1	Communication 1
00	None
10	HART – Control loop
B2	Communication 2
00	None
C1	Expansion card
00	None
D	Software features
-	None

Model example: IHP24-I-100000

Model selector – IHP24-F

Product name		Type		Communication 1	Communication 2	Power supply	Limit switch	Enclosure	Conduit entries	Indicator	Ex certification		Software features
IHP24	-	F	-	A1	A2	B	C	D	E	F	G	-	H

A1	Communication 1
0	None
1	HART – Control loop
2	HART – Transmitter loop
3	Modbus RTU
4	Foundation Fieldbus H1
5	Wireless HART
A2	Communication 2
0	None
B	Power supply
0	None
C	Limit switch, see table below
0	None
1	2 x SPDT V3 Mechanical
2	2 x SPDT Reed Type Proximity – Rhodium
3	2 x V3 Namur Type Inductive Proximity – P&F NJ2-V3-N
D	Enclosure
S	SS316
L	SS316L
E	Conduit entries
1	6 x M20x1,5
2	5 x M20x1,5 – 1 x M25x1,5
5	6 x ½"NPT
F	Indicator
0	None
1	90° red closed/green open
G	Ex certification
I	Ex d ib – Non I.S. components
A	Ex d ib – ATEX only
B	Ex d ib – ATEX and IECEx
H	Software features
-	None
OA	2 x Maxx Guard Reed Type Proximity, Is chosen together with 2 in Limit switch
I	Custom identification
XX	To identify custom made units

Model example: IHP24-F-1000S11B

Limit switch	V3 Mechanical Switches	Mag Prox Reed Switch	P&F - NJ2-V3-N	Maxx Guard switch
Configuration	SPDT	SPDT	Namur inductive	SPDT
Contact material	Silver Plated Steel	Solid Rhodium		Rhodium
Current ratings	16 Amp @ 125 or 250 VAC 0.6 Amp @ 125 VDC 0.3 Amp @ 250 VDC	1 Amp max.	Target On - <1 mA Target Off - >3 mA	Steady State 0-0.30 A Switched max. 0.30 A Inrush max. 1A Leakage 0A
Power Rating	-	10W/VA	-	
Voltage	-	Max. 120V AC/DC	5 VDC (5-25VDC)	Max. 48 VDC / 125 VAC
Voltage Drop max.				0.1V @ 10 mA 0.5 V @ 100 mA
Temperature range	-40°C to +80°C	-40°C to +80°C	-25°C to +100°C	-40º C to + 85º C