

Smart Valve Positioner For Rotary and Linear Valves HPP3500 Series

OVERVIEW

The HPP3500 model SVXA02 is a microprocessor-equipped, current pneumatic smart valve positioner for rotary and linear valves.

The HPP3500 receives a DC current signal from control devices and controls pneumatic valves. In addition to this basic function, the HPP3500 has communications capabilities, automatic configuration program, and self-diagnostics functions that will greatly increase the productivity and efficiency of plant operations.

Calibration, configuration and self-diagnostics can be performed by using a HART communicator, or Yamatake's SFC160 or SFC260, Smart Field Communicators.

FEATURES

Easy to use

• Auto setup

The auto-setup function is a fully-automatic configuration program which specifies the actuator and adjusts the zero and span of the rotary valve. The program can be turned on simply from an switch so that adjustments to the rotary valve can be performed quickly and safely in hazardous areas.

Valve diagnostic

(for model SVXA02, software version 4.9 or newer)

Following parameters can be monitored by HART communicator or Control Valve Maintenance Support System Valstaff.

- | | |
|--------------------|----------------------|
| • Stick Slip | • Cycle Count |
| • Total Stroke | • Shut-off Count |
| • Travel Histogram | • Max. Travel Speed. |

Flexibility in installation

The models HPP3500 is available either as a stroke lever type or a fork lever type to facilitate installation on rotary valves.

• Direct mounting type

The HPP3500 can be installed to NAMUR cylinder actuator without linkage.

• Stroke lever type

The valve stem can be adjusted with a pipe wrench. (For manual operation)



• Fork lever type

The HPP3500 can be mounted compactly on the upper part of the valve stem.

This type of installation complies with the VDI/VDE3845.

High reliability

• Positive seating

The positive seating function completely shuts off the valve if the input signal becomes lower than previously set. This in turn enhances the full shut-off capabilities of the valves.

• Self-diagnostic

The self-diagnostic function provides with the ability to check the status of the positioner at any time and to alert in case of failure.

Single model for multiple specifications

The HPP3500 settings can be changed without replacing any parts. A single model can be modified to suit any application.

• **Flow characteristic:** Linear, EQ%, quick opening or custom user characteristics (16 points)

• **Actuator type:** Double or single acting actuator HART communication HART communicator model 275 can be used for calibration, configuration and self-diagnostics.

FUNCTIONAL SPECIFICATIONS

Control signal input

4-20 mA DC

Input resistance

Approx. 600 Ω / 20 mA DC
(voltage between terminals 12V DC)

Approvals

KEMA/ATEX Intrinsically safe approval

II 1 G EEx ia IIC T4

Approval No. 04ATEX1176X

The barriers should be ATEX certified types and comply with the following conditions as follows.

Input circuit (terminals I IN)

$U_i=29V$, $I_i=95mA$ (resistively limited), $P_i=690mW$,
 $C_i=10nF$, $L_i=220\mu H$

From the safety point of view the supply/input circuit shall be considered to be connected to earth.

FM Intrinsically Safe Approval

Intrinsically safe for Class I, II, III, Division 1, Groups A, B, C, D, E, F and G, T4 Ta=80°C

Intrinsically safe for Class I, Zone 0, AEx ia IIC T4

Nonincendive for Class I, Division 2, Groups A, B, C and D, T4

Suitable for Class II, III, Division 2, Groups F and G, T4
Approval No. 3021344

The barriers should be FM approved types and comply with the following conditions as follows.

Input circuit: $V_{max}=30V$, $I_{max}=100mA$, $P_i=1W$,
 $C_i=15nF$, $L_i=0.22mH$

Installation should comply with NEC.

Output Characteristics

- Linear, Equal percentage, Quick opening
- Custom user characteristics (16 points).

Bypass Operation

Auto/Manual switch (For single acting actuator only)

Air Supply Pressure

140 to 700 kPa (20 to 100 psi)

Air Consumption

At stable output: 50%

10 l/min.(N) maximum at 400 kPa (60 psi)

Maximum Delivered Air Flowrate

250 l/min.(N) at 400 kPa (60 psi)

Output Balanced Pressure

55 ± 5%

Lightning Protection

Peak value of voltage surge: 12 kV

Peak value of current surge: 1000A

Vibration Tolerance

2 G (5 to 400 Hz)

(with standard mounting kit on Yamatake HA actuator)

Feedback Lever Angle

± 4 to ± 20

Ambient Temperature Limits

-40°C to 80°C for general model

KEMA/ATEX Intrinsically safe: -40°C to 60°C

FM Intrinsically safe: -40°C to 80°C

Ambient Humidity Limits

10% to 90% RH

Configuration Tools

Model SFC160 or SFC260 (SFC Smart Field Communicator, Software version 7.5 or newer)

HART communication model 275 (According to need, please update a software and device description files.)

CE Conformity

Electromagnetic compatibility
EN 61326: 1997 (CE marking)

PERFORMANCE SPECIFICATIONS

Accuracy

± 1.0% F.S.

(± 2.5% F.S. with custom output characteristics)

Turning Range

50° to 90°

PHYSICAL SPECIFICATIONS

Enclosure Rating

JISC 0920 watertight

NEMA type 4X

IP66 FM

Finish

Baked acrylic

Color

Grey

Material

Cast aluminum

Weight

Without pressure gauge : 1.8 kg

With pressure gauge : 2.2 kg

INSTALLATION

Air Connections

Rc1/4 or 1/4NPT internal thread

Electrical Connections

G1/2 or 1/2NPT

Conditions of Supply Air

Particles

Maximum diameter 3 μm

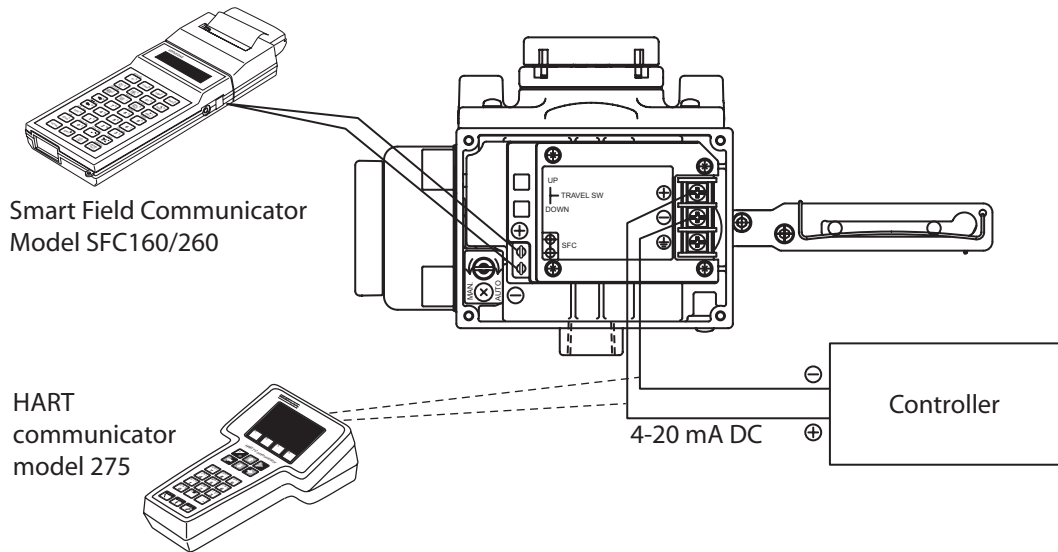
Oil Mist

None acceptable

Dew Point

10C below ambient temperature

TYPICAL INSTALLATION



Wiring for model SVXA02

MODEL SELECTION

SVXA02 HART® Smart Valve Positioners

Code	Hazardous Rating
F	Intrinsically safe FM CL I, II, III, Div 1 Groups A, B, C, D, E, F & G, T4
L	Intrinsically safe KEMA/ATEX II 1G EEx ia II CT4

Code	Enclosure Finish
S	Standard (Baked acrylic)

Code	Connection		
N	Electrical Connector	Air Piping Connection	Mounting Thread
	1/2 NPT	1/4 NPT	M8

Code	Supply Air Pressure Classification
S	Standard 20 to 100 psi (130 to 700 kPa)

Code	Pressure Gauges
X	Not included
Y	Included

Code	Pressure Regulator with Filter
X	Not included
1	Model OPAFR pressure regulator with filter

Code	Feedback Lever Type
R	Fork lever type (Rotary valves)
S	Stroke lever type (Linear valves)
D	Direct Mounting type (Rotary valve)

Code	Mounting Brackets for Actuators ¹
XX	Not included
25	For Optimux 25 & 50 LA/RA Actuators
100	For Optimux 100 LA/RA Actuators

Code	Options
X	No selection
D	With Namur joints for direct mounting type
P	For single acting actuator (with plug for OUT2) ²

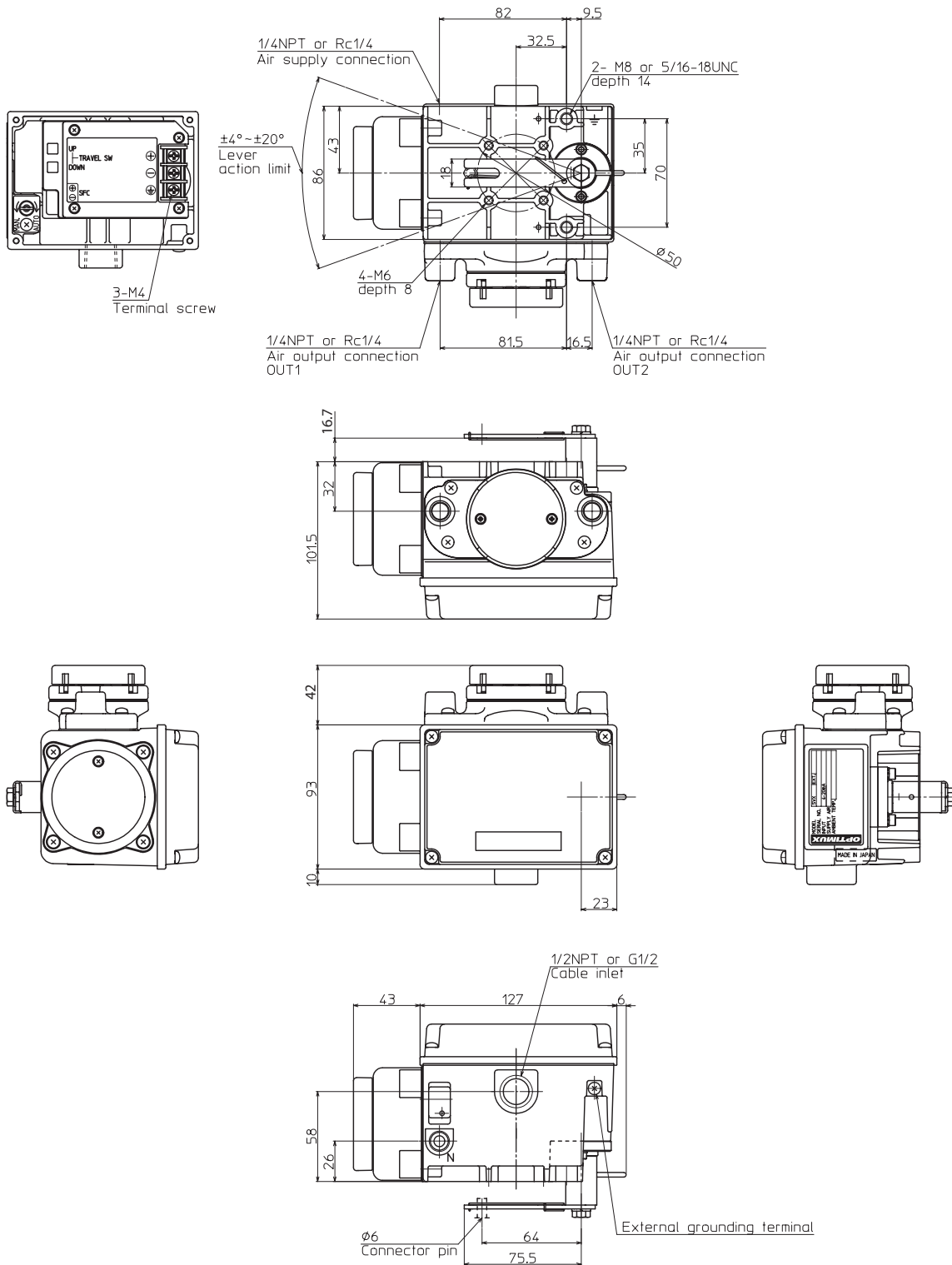
SVXA02

1) Also available a large selection of mounting brackets for Fisher®, Masoneilan® and Neles® actuators. Mounting brackets for other valve actuators can be designed and manufactured upon request.

2) In the case of using the device as a single acting actuator, close the output air pressure connection plug (OUT2). The device cannot be used when the output air pressure plug (OUT1) is closed.

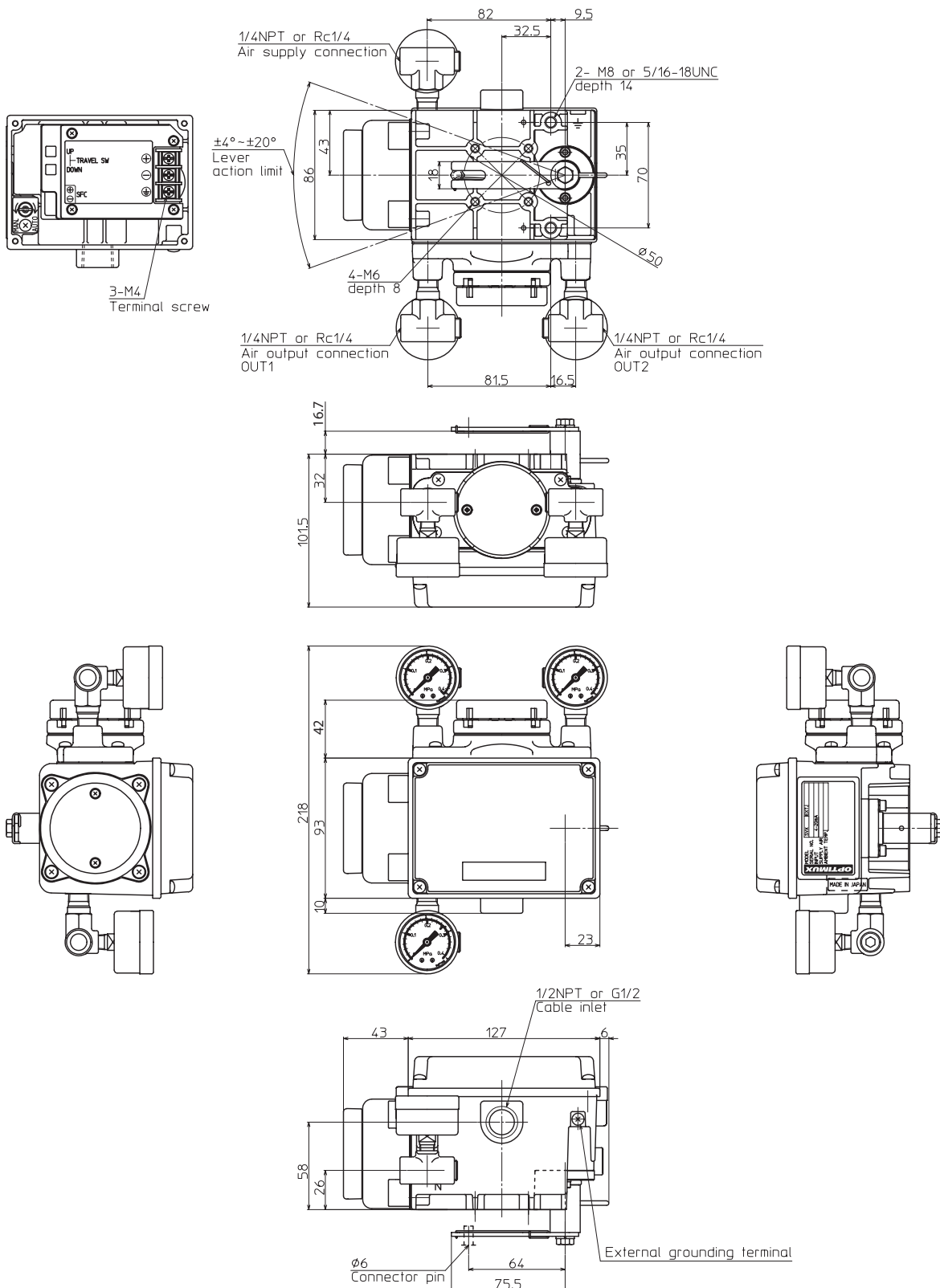
DIMENSIONS

Fork lever type (without pressure gauges)



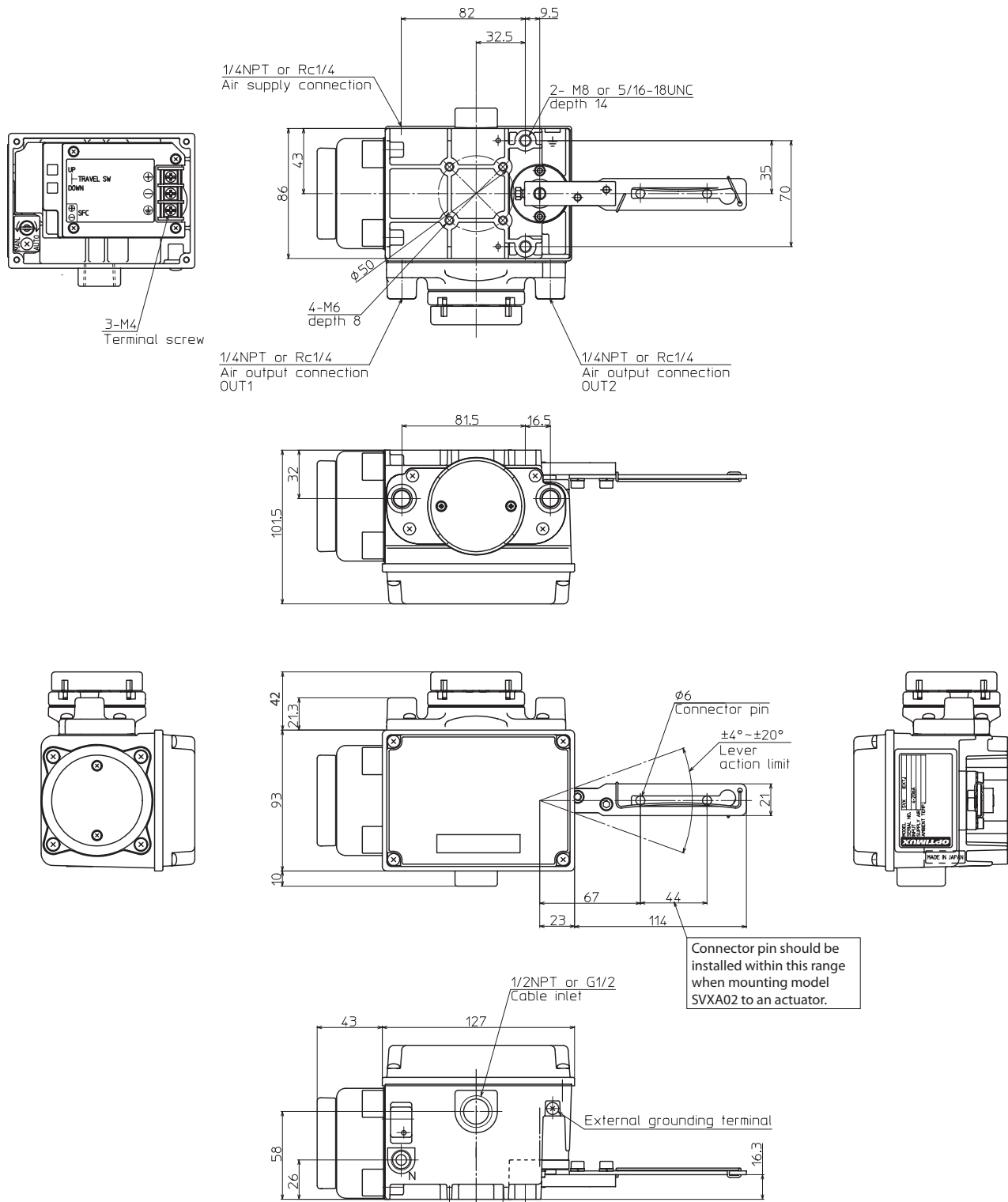
DIMENSIONS

Fork lever type (with pressure gauges)



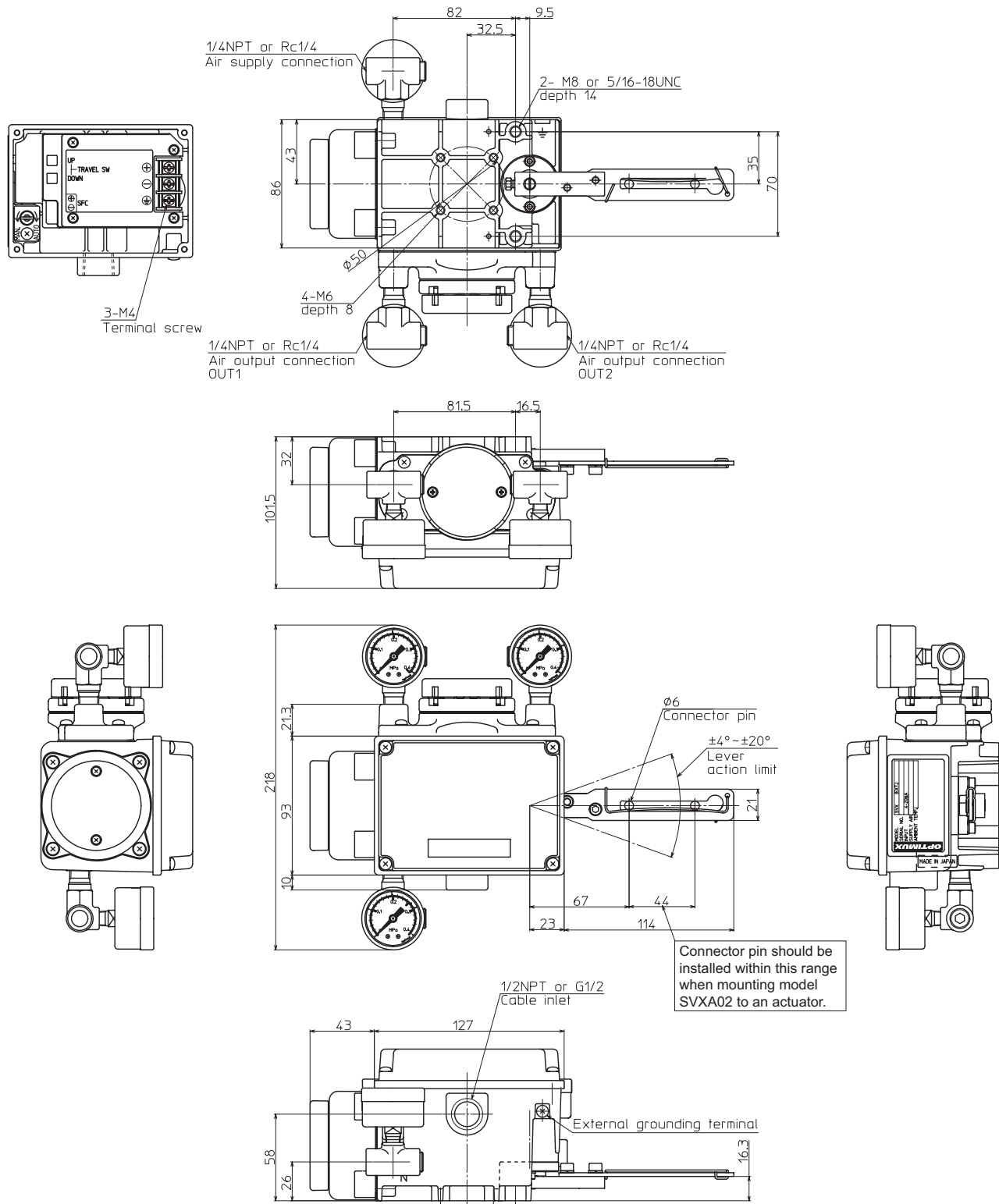
DIMENSIONS

Stroke lever type (without pressure gauges)



DIMENSIONS

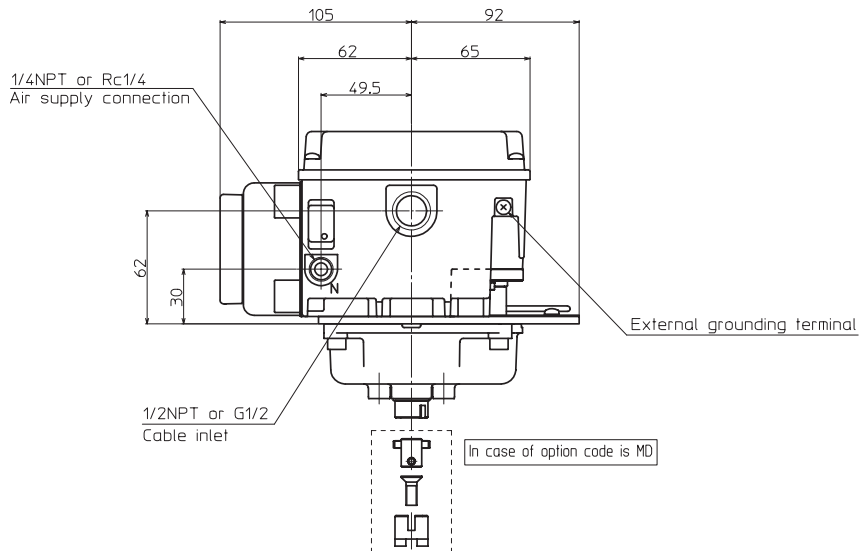
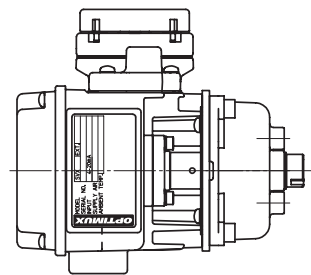
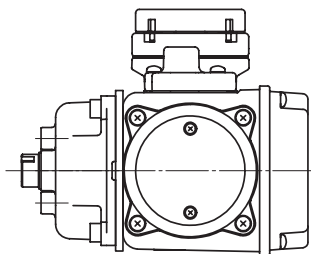
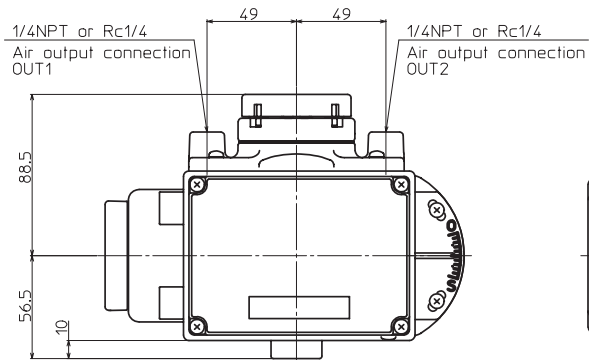
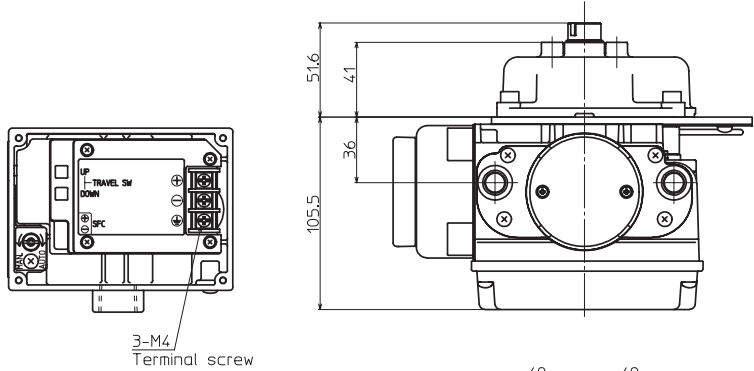
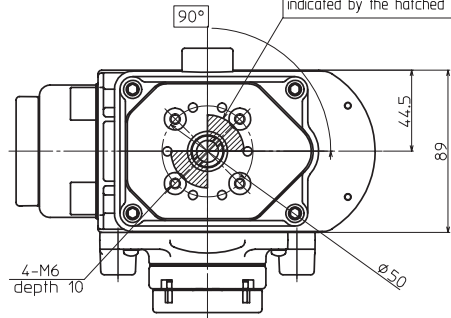
Stroke lever type (with pressure gauges)



DIMENSIONS

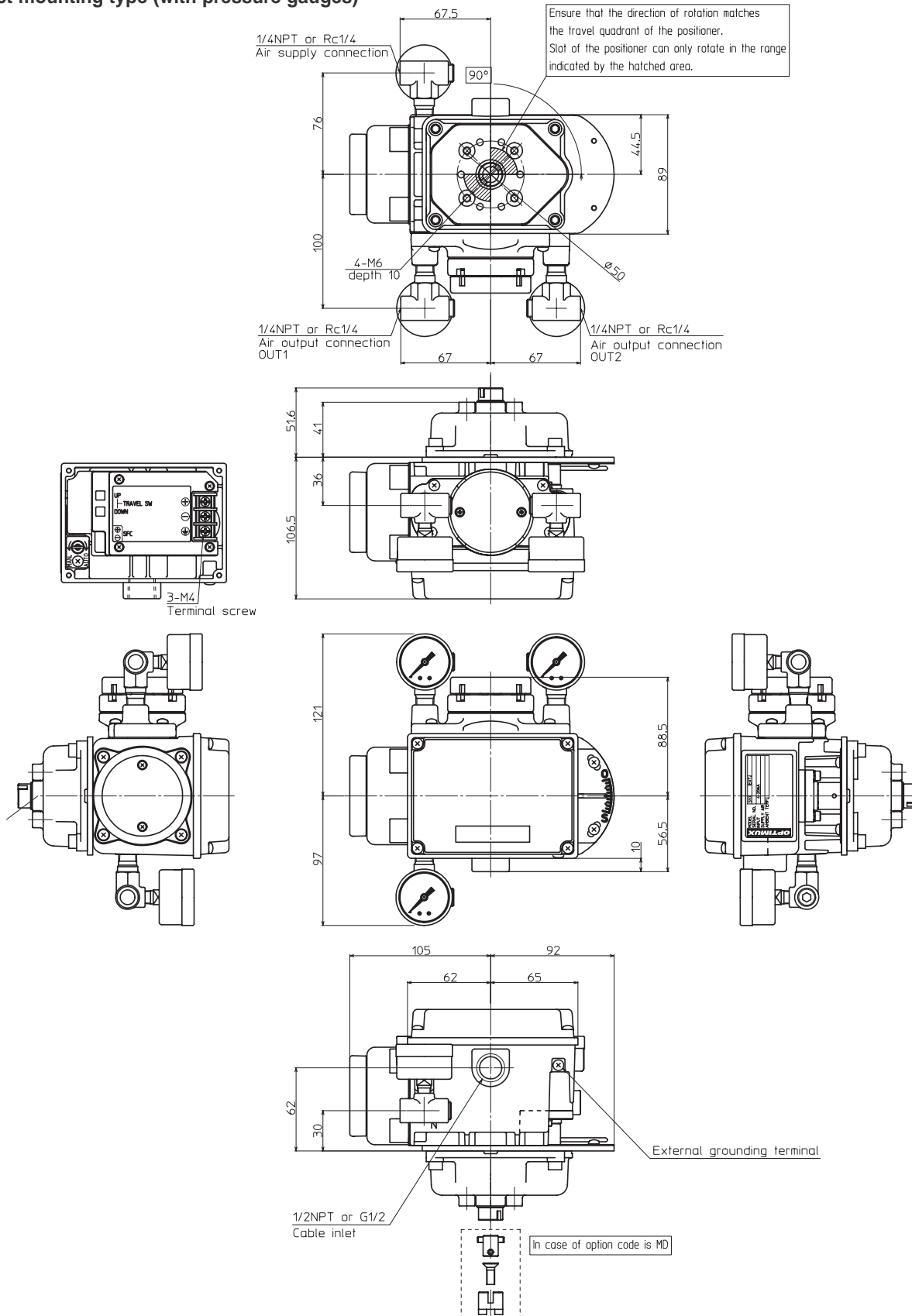
Direct mounting type (without pressure gauges)

Ensure that the direction of rotation matches the travel quadrant of the positioner.
Slot of the positioner can only rotate in the range indicated by the hatched area.



DIMENSIONS

Direct mounting type (with pressure gauges)



HART is a registered trademark of the HART Communication Foundation.
Yamatake is a registered trademark of Yamatake Corporation.

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