Dynisco SPX-T (3-Series)

**Description**

The SPX-T (3-Series) is a smart 4-20mA pressure transmitter that includes Temperature Compensation and DynaLarity™, a Dynisco innovation. The SPX-T delivers the best spec performance in the line. Temperature Compensation is based on an RTD measurement that compensates for temperature variations which reduces temperature-related drift and increases accuracy. No need to re-zero for temperature changes after installation. DynaLarity uses an advanced algorithm that will linearize offsets due to process effects on the sensor. Combined Temperature Compensation and DynaLarity reduces temperature-related drift by as much as 80% and improves accuracy by more than 60% over other sensors. Process temperature output is available (RTD or 4-20mA). HART communication is standard. The SPX 3-Series is an all-welded construction designed for use in hazardous locations and are available with a variety of different process and electrical connections.

These amplified transmitters eliminate the need for external signal conditioning. All models can interface directly with distributed control systems, PLC’s, computers, and similar high level control devices.

**Features**

- 4-20mA loop-powered output
- +/- 0.15% accuracy available
- Reduced temperature drift by 80% over non compensated units
- Temperature output available (RTD or 4-20mA)
- Wide selection of pressure ranges available
- Turndown 6:1
- Configurations available for use in hazardous locations
- Remotely configurable via HART
- Precise, repeatable pressure measurements
- Output supplied directly to DSC or PLC
- Meets CE requirements
- CE ATEX Intrinsically Safe Approved
- IECEx Intrinsically Safe Approved
- FM Explosion proof approved
- CSA Explosion proof approved
- SIL 2 Certified (pressure output)
- PL’c’ Certified (relay output)
- Additional approvals are available
| **Output** | 4 - 20 mA, with optional HART™ |
| **Input Voltage** | 16 - 36 Vdc (Std); 16 - 30 Vdc (ATEX IS) |
| **Accuracy** | ±0.25% for pressure ranges ≥ 3,000 psi  
± 0.5% for pressure ranges = 1,500 psi  
± 0.75% for pressure ranges < 1,500 psi  
33XX: ± 0.15% for pressure ranges ≥ 3,000 psi  
± 0.25% for pressure ranges = 1,500 psi  
± 0.5% for pressure ranges < 1,500 psi |
| **Repeatability** | ±0.1% |
| **Rangeability** | 6:1 Turndown |
| **Over Pressure** | 1.5 x FSO |
| **Load Resistance** | 500 Ω @ 24 Vdc, 1,000 Ω @ 36 Vdc |
| **Electronics Ambient Temperature** | 70°F (20°C) |
| **Electronics Operating Temperature** | -20 to 185°F (-29 to 85°C) |
| **Electronics Compensated Temperature Range** | 70 to 185°F (20 to 85°C) |
| **Snout Compensated Temperature Range** | 70 to 572°F (20 to 300°C) |
| **Snout Operating Temperature** | Models: 3242, 3243, 3342, 3343: 32 to 752°F (0 to 400°C)  
Models: 3290, 3291, 3390, 3391: 32 to 600°F (0 to 315°C) |
| **Mounting Torque** | 3242: 500 inch-lbf max  
3243: 50 inch-lbf max  
3342: 500 inch-lbf max  
3343: 50 inch-lbf max  
3290: 350 inch-lbf max  
3291: 350 inch-lbf max  
3390: 350 inch-lbf max  
3391: 350 inch-lbf max |
| **Standard Wetted Parts** | DyMax coated 15-5 PH SST |
| **Approvals & Certifications** | ATEX/IECEx Intrinsically Safe  
SIL 2 (pressure output) & PL’c’ (relay output)  
FM & CSA Explosion Proof  
Additional Approvals are Available |
### Ordering Guide for Models SPX3242

<table>
<thead>
<tr>
<th>Model</th>
<th>242</th>
</tr>
</thead>
</table>
| Approval | C = Explosion Proof, Dust Ignition Proof / CSA  
E = Explosion Proof, Dust Ignition Proof / FM  
S = Intrinsically Safe / ATEX  
N = No Approvals |
| Diaphragm Material | A = DyMax Coated 15-5 PH SST  
M = Hastelloy  
P = Inconel |
| Process Connection | 00 = 1/2-20 UNF  
05 = M18 x 1.5 Thread |
| Pressure Units | B = BAR  
C = KPa  
K = Kgf/cm²  
M = MPa  
P = PSI |
| Option Code |
| Temperature Sensor | ZZ = No Thermocouple / RTD  
TA = 3-Wire RTD  
TB = 4-20mA Output |
| Electrical Connections | AC = PT1H-10-6P Connector  
AG = PT1H-12-8P Connector  
CA = 1/2-14 NPT Conduit with 42” Leads  
AF = PCIH-12-8P Connector Threaded Style |
| Communications | A = HART not included with zero & span  
B = HART with zero & span  
C = HART with zero & span & turndown  
F = HART without zero & span |
| Flex Length | AA = No flex  
DD = 18” (46cm)  
FF = 30” (76cm) |
| Snout Length | AW = 3”, 7.6cm  
CE = 6”, 15 cm  
DP = 9”, 23cm  
FE = 12.5”, 32cm  
GH = 15”, 38cm |
| Pressure Range | 14 = 500 psi; 35 Bar  
35 Kgf/cm²  
3.5 MPa  
3,500 KPa  
15 = 750 psi  
50 Bar  
50 Kgf/cm²  
5 MPa  
5,000 KPa  
16 = 1,000 psi  
70 Bar  
70 Kgf/cm²  
7 MPa  
7,000 KPa  
17 = 1,500 psi  
100 Bar  
100 Kgf/cm²  
10 MPa  
10,000 KPa  
20 = 3,000 psi  
200 Bar; 200 Kgf/cm²  
20 MPa  
20,000 KPa  
21 = 5,000 psi  
350 Bar; 350 Kgf/cm²  
35 MPa  
35,000 KPa  
22 = 7,500 psi  
500 Bar; 500 Kgf/cm²  
50 MPa  
50,000 KPa  
23 = 10,000 psi  
700 Bar; 700 Kgf/cm²  
70 MPa  
70,000 KPa |

1 Other configurations are available. Please consult factory.
Ordering Guide for Models SPX3243

Model
243

Approval
C = Explosion Proof, Dust Ignition Proof / CSA
E = Explosion Proof, Dust Ignition Proof / FM
S = Intrinsically Safe / ATEX
N = No Approvals

Diaphragm Material
A = DyMax Coated 15-5 PH SST
M = Hastelloy
P = Inconel

Process Connection
25 = Standard Flange

Pressure Units
B = BAR
C = KPa
K = Kg/cm²
M = MPa
P = PSI

Temperature Sensor
ZZ = No Thermocouple / RTD
TA = 3-Wire RTD
TB = 4-20mA Output

Electrical Connections
AC = PT1H-10-6P Connector
AG = PT1H-12-8P Connector
CA = 1/2-14 NPT Conduit with 42” Leads
AF = PCH1-12-8P Connector Threaded Style

Communications
A = HART not included with zero & span
B = HART with zero & span
C = HART with zero & span & turndown
F = HART without zero & span

Flex Length
AA = No flex
DD = 18” (46cm)
FF = 30” (76cm)

Snout Length
AW = 3”, 7.6cm
CE = 6”, 15 cm
DP = 9”, 23cm
FE = 12.5”, 32cm
GH = 15”, 38cm

Pressure Range
14 = 500 psi; 35 Bar 35 Kg/cm² 3.5 MPa 3,500 KPa
15 = 750 psi 50 Bar 50 Kg/cm² 5 MPa 5,000 KPa
16 = 1,000 psi 70 Bar 70 Kg/cm² 7 MPa 7,000 KPa
17 = 1,500 psi 100 Bar 100 Kg/cm² 10 MPa 10,000 KPa
20 = 3,000 psi 200 Bar; 200 Kg/cm² 20 MPa 20,000 KPa
21 = 5,000 psi 350 Bar; 350 Kg/cm² 35 MPa 35,000 KPa
22 = 7,500 psi 500 Bar; 500 Kg/cm² 50 MPa 50,000 KPa
23 = 10,000 psi 700 Bar; 700 Kg/cm² 70 MPa 70,000 KPa

Other configurations are available. Please consult factory.
Ordering Guide for Models SPX3342

<table>
<thead>
<tr>
<th>Model</th>
<th>342</th>
</tr>
</thead>
</table>
| Approval | C = Explosion Proof, Dust Ignition Proof / CSA  
E = Explosion Proof, Dust Ignition Proof / FM  
S = Intrinsically Safe / ATEX  
N = No Approvals |
| Diaphragm Material | A = DyMax Coated 15-5 PH SST  
M = Hastelloy  
P = Inconel |
| Process Connection | 00 = 1/2-20 UNF  
05 = M18 x 1.5 Thread |
| Pressure Units | B = BAR  
C = KPa  
K = Kgf/cm²  
M = MPa  
P = PSI |
| Electrical Connections | AC = PT1H-10-6P Connector  
AG = PT1H-12-8P Connector  
CA = 1/2-14 NPT Conduit with 42” Leads  
AF = PCIH-12-8P Connector Threaded Style |
| Temperature Sensor | ZZ = No Thermocouple / RTD  
TA = 3-Wire RTD  
TB = 4-20mA Output |
| Communications | A = HART not included with zero & span  
B = HART with zero & span  
C = HART with zero & span & turndown  
F = HART without zero & span |
| Flex Length | AA = No flex  
DD = 18” (46cm)  
FF = 30” (76cm) |
| Snout Length | AW = 3”, 7.6cm  
CE = 6”, 15 cm  
DP = 9”, 23cm  
FE = 12.5”, 32cm  
GH = 15”, 38cm |
| Pressure Range | 14 = 500 psi; 35 Bar; 35 Kg/cm²  
15 = 750 psi; 50 Bar; 50 Kg/cm²  
16 = 1,000 psi; 70 Bar; 70 Kg/cm²  
17 = 1,500 psi; 100 Bar; 100 Kg/cm²  
20 = 3,000 psi; 200 Bar; 200 Kg/cm²  
21 = 5,000 psi; 350 Bar; 350 Kg/cm²  
22 = 7,500 psi; 500 Bar; 500 Kg/cm²  
23 = 10,000 psi; 700 Bar; 700 Kg/cm² |

Other configurations are available. Please consult factory.
Ordering Guide for Models SPX3343

**Pressure Units**
- B = BAR
- C = KPa
- K = Kgf/cm²
- M = MPa
- P = PSI

**Diaphragm Material**
- A = DyMax Coated 15-5 PH SST
- M = Hastelloy
- P = Inconel

**Process Connection**
- 25 = Standard Flange

**Option Code**
- Temperature Sensor
  - ZZ = No Thermocouple / RTD
  - TA = 3-Wire RTD
  - TB = 4-20mA Output

- Electrical Connections
  - AC = PT1H-10-6P Connector
  - AG = PT1H-12-8P Connector
  - CA = 1/2-14 NPT Conduit with 42" Leads
  - AF = PCIH-12-8P Connector Threaded Style

- Communications
  - A = HART not included with zero & span
  - B = HART with zero & span
  - C = HART with zero & span & turndown
  - F = HART without zero & span

- Flex Length
  - AA = No flex
  - DD = 18" (46cm)
  - FF = 30" (76cm)

- Snout Length
  - AW = 3", 7.6cm
  - CE = 6", 15 cm
  - DP = 9", 23cm
  - FE = 12.5", 32cm
  - GH = 15", 38cm

**Pressure Range**
- 14 = 500 psi; 35 Bar
- 15 = 750 psi; 50 Bar
- 16 = 1,000 psi; 70 Bar
- 17 = 1,500 psi; 100 Bar
- 20 = 3,000 psi; 200 Bar; 200 Kg/cm²
- 21 = 5,000 psi; 350 Bar; 350 Kg/cm²
- 22 = 7,500 psi; 500 Bar; 500 Kg/cm²
- 23 = 10,000 psi; 700 Bar; 700 Kg/cm²

**Approval**
- C = Explosion Proof, Dust Ignition Proof / CSA
- E = Explosion Proof, Dust Ignition Proof / FM
- S = Intrinsically Safe / ATEX
- N = No Approvals

1 Other configurations are available. Please consult factory.
Ordering Guide for Models SPX3290

Model 290

Approval
C = Explosion Proof, Dust Ignition Proof / CSA
E = Explosion Proof, Dust Ignition Proof / FM
S = Intrinsically Safe / ATEX
N = No Approvals

Diaphragm Material
A = DyMax Coated 15-5 PH SST
M = Hastelloy
P = Inconel

Process Connection
69 = No Flange

Pressure Units
B = BAR
C = KPa
K = Kgf/cm²
M = MPa
P = PSI

Option Code

Temperature Sensor
ZZ = No Thermocouple / RTD
TA = 3-Wire RTD
TB = 4-20mA Output

Electrical Connections
AC = PT1H-10-6P Connector
AG = PT1H-12-8P Connector
CA = 1/2-14 NPT Conduit with 42” Leads
AF = PCIH-12-8P Connector Threaded Style

Communications
A = HART not included with zero & span
B = HART with zero & span
C = HART with zero & span & turndown
F = HART without zero & span

Flex Length
AA = No flex
DD = 18” (46cm)
FF = 30” (76cm)

Snout Length
AW = 3”, 7.6cm
CE = 6”, 15 cm
DP = 9”, 23cm
FE = 12.5”, 32cm
GH = 15”, 38cm

Pressure Range
14 = 500 psi; 35 Bar; 35 Kg/cm²; 3.5 MPa; 3,500 KPa
15 = 750 psi; 50 Bar; 50 Kg/cm²; 5 MPa; 5,000 KPa
16 = 1,000 psi; 70 Bar; 70 Kg/cm²; 7 MPa; 7,000 KPa
17 = 1,500 psi; 100 Bar; 100 Kg/cm²; 10 MPa; 10,000 KPa
20 = 3,000 psi; 200 Bar; 200 Kg/cm²; 20 MPa; 20,000 KPa
21 = 5,000 psi; 350 Bar; 350 Kg/cm²; 35 MPa; 35,000 KPa
22 = 7,500 psi; 500 Bar; 500 Kg/cm²; 50 MPa; 50,000 KPa
23 = 10,000 psi; 700 Bar; 700 Kg/cm²; 70 MPa; 70,000 KPa

Other configurations are available. Please consult factory.
Ordering Guide for Models SPX3291

Model
291

Approval
C = Explosion Proof, Dust Ignition Proof / CSA
E = Explosion Proof, Dust Ignition Proof / FM
S = Intrinsically Safe / ATEX
N = No Approvals

Diaphragm Material
A = DyMax Coated 15-5 PH SST
M = Hastelloy
P = Inconel

Process Connection
48 = Flat Faced Flange

Pressure Units
B = BAR
C = KPa
K = Kg/cm²
M = MPa
P = PSI

Option Code
Temperature Sensor
ZZ = No Thermocouple / RTD
TA = 3-Wire RTD
TB = 4-20mA Output

Electrical Connections
AC = PT1H-10-6P Connector
AG = PT1H-12-8P Connector
CA = 1/2-14 NPT Conduit with 42” Leads
AF = PCIH-12-8P Connector Threaded Style

Communications
A = HART not included with zero & span
B = HART with zero & span
C = HART with zero & span & turndown
F = HART without zero & span

Flex Length
AA = No flex
DD = 18” (46cm)
FF = 30” (76cm)

Snout Length
AW = 3”, 7.6cm
CE = 6”, 15 cm
DP = 9”, 23cm
FE = 12.5”, 32cm
GH = 15”, 38cm

Pressure Range
14 = 500 psi; 35 Bar; 35 Kg/cm²; 3.5 MPa; 3,500 KPa
15 = 750 psi; 50 Bar; 50 Kg/cm²; 5 MPa; 5,000 KPa
16 = 1,000 psi; 70 Bar; 70 Kg/cm²; 7 MPa; 7,000 KPa
17 = 1,500 psi; 100 Bar; 100 Kg/cm²; 10 MPa; 10,000 KPa
20 = 3,000 psi; 200 Bar; 200 Kg/cm²; 20 MPa; 20,000 KPa
21 = 5,000 psi; 350 Bar; 350 Kg/cm²; 35 MPa; 35,000 KPa
22 = 7,500 psi; 500 Bar; 500 Kg/cm²; 50 MPa; 50,000 KPa
23 = 10,000 psi; 700 Bar; 700 Kg/cm²; 70 MPa; 70,000 KPa

1 Other configurations are available. Please consult factory.
Ordering Guide for Models SPX3390

Model 390

Approval
C = Explosion Proof, Dust Ignition Proof / CSA
E = Explosion Proof, Dust Ignition Proof / FM
S = Intrinsically Safe / ATEX
N = No Approvals

Diaphragm Material
A = DyMax Coated 15-5 PH SST
M = Hastelloy
P = Inconel

Process Connection
69 = No Flange

Pressure Units
B = BAR
C = KPa
K = Kgf/cm²
M = MPa
P = PSI

Temperature Sensor
ZZ = No Thermocouple / RTD
TA = 3-Wire RTD
TB = 4-20mA Output

Electrical Connections
AC = PT1H-10-6P Connector
AG = PT1H-12-8P Connector
CA = 1/2-14 NPT Conduit with 42” Leads
AF = PCIH-12-8P Connector Threaded Style

Communications
A = HART not included with zero & span
B = HART with zero & span
C = HART with zero & span & turndown
F = HART without zero & span

Flex Length
AA = No flex
DD = 18” (46cm)
FF = 30” (76cm)

Snout Length
AW = 3”, 7.6cm
CE = 6”, 15 cm
DP = 9”, 23cm
FE = 12.5”, 32cm
GH = 15”, 38cm

Option Code

Pressure Range

<table>
<thead>
<tr>
<th>Pressure Code</th>
<th>Pressure Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>500 psi; 3500 KPa</td>
</tr>
<tr>
<td>15</td>
<td>750 psi; 5000 KPa</td>
</tr>
<tr>
<td>16</td>
<td>1000 psi; 7000 KPa</td>
</tr>
<tr>
<td>17</td>
<td>1500 psi; 10000 KPa</td>
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<tr>
<td>20</td>
<td>3000 psi; 20000 KPa</td>
</tr>
<tr>
<td>21</td>
<td>5000 psi; 35000 KPa</td>
</tr>
<tr>
<td>22</td>
<td>7500 psi; 50000 KPa</td>
</tr>
<tr>
<td>23</td>
<td>10000 psi; 70000 KPa</td>
</tr>
</tbody>
</table>

Other configurations are available. Please consult factory.
Ordering Guide for Models SPX3391

Model 391

Approval
C = Explosion Proof, Dust Ignition Proof / CSA
E = Explosion Proof, Dust Ignition Proof / FM
S = Intrinsically Safe / ATEX
N = No Approvals

Diaphragm Material
A = DyMax Coated 15-5 PH SST
M = Hastelloy
P = Inconel

Process Connection
48 = Flat Faced Flange

Pressure Units
B = BAR
C = KPa
K = Kgf/cm²
M = MPa
P = PSI

Pressure Range
14 = 500 psi; 35 Bar; 35 Kg/cm²; 3.5 MPa; 3,500 KPa
15 = 750 psi 50 Bar 50 Kg/cm² 5 MPa 5,000 KPa
16 = 1,000 psi 70 Bar 70 Kg/cm² 7 MPa 7,000 KPa
17 = 1,500 psi 100 Bar 100 Kg/cm² 10 MPa 10,000 KPa
20 = 3,000 psi 200 Bar 200 Kg/cm² 20 MPa 20,000 KPa
21 = 5,000 psi 350 Bar 350 Kg/cm² 35 MPa 35,000 KPa
22 = 7,500 psi 500 Bar 500 Kg/cm² 50 MPa 50,000 KPa
23 = 10,000 psi 700 Bar 700 Kg/cm² 70 MPa 70,000 KPa

Option Code
T = Temperature Sensor
ZZ = No Thermocouple / RTD
TA = 3-Wire RTD
TB = 4-20mA Output

Electrical Connections
AC = PT1H-10-6P Connector
AG = PT1H-12-8P Connector
CA = 1/2-14 NPT Conduit with 42” Leads
AF = PT1H-12-8P Connector Threaded Style

Communications
A = HART not included with zero & span
B = HART with zero & span
C = HART with zero & span & turndown
F = HART without zero & span

Flex Length
AA = No flex
DD = 18” (46cm)
FF = 30” (76cm)

Snout Length
AW = 3”, 7.6cm
CE = 6”, 15 cm
DP = 9”, 23cm
FE = 12.5”, 32cm
GH = 15”, 38cm

Other configurations are available. Please consult factory.
FILE NAME: SPX-T 3342
OUTLINE DWG

NOTE:
1. ALL DIMENSIONS ARE INCHES [MILLIMETERS].
2. EXPOSED SURFACES ARE STAINLESS STEEL.

ELECTRICAL HOUSING, CONNECTOR
BENDIX CONNECTOR
PTIH-12-8P
PTIH-10-8P
PGH-12-8P
OR EQUIVALENT

BENDIX CONNECTOR
PTIH-12-8P
PTIH-10-8P
PGH-12-8P
OR EQUIVALENT

SCALE SHEET
TITLE
DRAWN
CHECKER
APPROVED
DRAWING NUMBER
SCALE
DATE

NOTES:
1. ALL DIMENSIONS ARE INCHES [MILLIMETERS].
2. EXPOSED SURFACES ARE STAINLESS STEEL.
GUARDIAN SERIES CONNECTORS

NOTE:
1. THESE CONNECTOR OPTIONS ARE AVAILABLE ON MOST OF THE CONFIGURATIONS SHOWN ON THE PREVIOUS SHEETS.