

# Series A25 Absolute – Single Turn, Parallel Output



- Resolution to 14 Bits (16,384 counts/Rev)
- Parallel output
- Short Circuit Protected
- -25° C to +85° C Operating Temperature

As machine position control systems strive for higher and higher performance, being able to incorporate a feedback device which provides exact position data can be of substantial benefit. Dynapar brand Series A25 encoders provide a unique data output for each resolvable shaft position. By using absolute position rather than incremental count data, the shaft position can always be known, even after power interruptions or in the presence of electrical noise. System design can be simplified because there is no need to perform a reference cycle or return to home function to determine the true machine position.

Parallel outputs are available in binary or gray code.

## SPECIFICATIONS

### Mechanical

**Shaft Size:** 3/8"  
**Shaft Loading:** 24 lbs axial, 35 lbs radial  
**Shaft Tolerance:** +0/-0.0007  
**Starting Torque:** ≤0.2 in-oz  
**Weight:** 11 oz. (300 g.)  
**Shaft Speed:** 6,000 RPM

### Environmental

**Operating Temperature:** -25° to +85°C  
**Storage Temperature:** -25° to +85°C  
**Shock:** 100 G's for 3 msec duration  
**Vibration:** 10 to 500 Hz @ 10 G's  
**Enclosure Rating:** IP67

### Electrical - Parallel Outputs

**Accuracy** ± 1/2 LSB (± 1 LSB above 12 bit)  
**Power Requirements:** 5 VDC ±5% or 10-30V; 200 mA maximum  
**Code:** Absolute; natural binary or Gray Code  
**Data Output:** ±30 mA, short circuit protected  
**Control Inputs:** Active low, ≤20% of  $V_{(IN)}$ ; Inactive high, open or ≥70% of  $V_{(IN)}$   
**Latch Input:** Data outputs change with shaft position when high or open; data outputs inhibited from changing when low. Available only for models with 12 bit and below resolution  
**Direction Input:** Count up for CW shaft rotation when high or open; count down for CW shaft rotation when low. Available only for models with 13 bit and below resolution  
**Frequency Response:** 100 kHz maximum  
**Connectors:** End Mount 17 pin style MS3102A-20-29P; Side Mount 19 pin style PT07C-14-19P  
**Mating Connectors:** for End Mount MS3106A-20-29S; part #600207; for Side Mount PT06E-14-19S; part # 606219-0001  
**Mating Connector & Cable:** See "Cables", next page

## Electrical Connections

Pin	Function		107865 Cable Accessory* Color Code
	12 Bit 4096 CPR	10 Bit 1024 CPR	
A	Vin		Red
B	N.C.		Violet
C	Latch (binary only)		Green
D	Direction		Orange
E	Bit 1	N.C.	White
F	Bit 3	Bit 1	White/Brown
G	Bit 5	Bit 3	White/Orange
H	Bit 7	Bit 5	White/Green
J	Bit 8	Bit 6	White/Blue
K	Bit 9	Bit 7	White/Violet
L	Bit 11 (MS)	Bit 9 (MS)	White/Black/Brown
M	GND		Black
N	Bit 4	Bit 2	White/Red
P	Bit 0 (LS)	N.C.	Grey
R	Bit 2	Bit 0 (LS)	White/Black
S	Bit 6	Bit 4	White/Yellow
T	Bit 10	Bit 8	White/Grey

\*This is a mating connector/cable assembly. Color-coding information is provided here for reference.

Pin	Function		110158 Cable Accessory* Color Code
	12 Bit 4096 CPR	10 Bit 1024 CPR	
A	Bit 11 (MS)	Bit 9 (MS)	White/Black/Brown
B	Bit 10	Bit 8	White/Grey
C	Bit 9	Bit 7	White/Violet
D	Bit 8	Bit 6	White/Blue
E	Bit 7	Bit 5	White/Green
F	Bit 6	Bit 4	White/Orange
G	Bit 5	Bit 3	White/Yellow
H	Bit 4	Bit 2	White/Red
J	Bit 3	Bit 1	White/Brown
K	Bit 2	Bit 0 (LS)	White/Black
L	Bit 1	N.C.	White
M	Bit 0 (LS)	N.C.	Grey
N	N.C.	N.C.	
P	GND		Black
R	Direction		Orange
S	Case		Violet
T	GND		Yellow
U	Latch (binary only)		Green
V	Vin		Red

\*This is a mating connector/cable assembly. Color-coding information is provided here for reference.

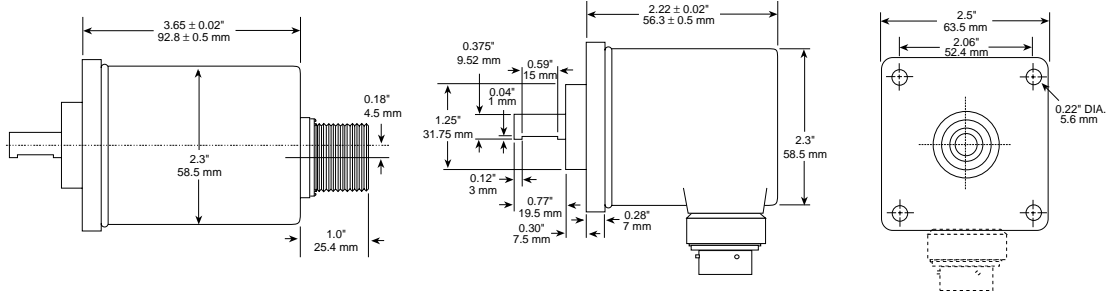
Pin	Function	112076 Cable Accessory* Color Code
	13 Bit 8192 CPR	
A	Bit 12 (MS)	White/Black/Brown
B	Bit 11	White/Grey
C	Bit 10	White/Violet
D	Bit 9	White/Blue
E	Bit 8	White/Green
F	Bit 7	White/Orange
G	Bit 6	White/Yellow
H	Bit 5	White/Red
J	Bit 4	White/Brown
K	Bit 3	White/Black
L	Bit 2	Blue
M	Bit 1	White
N	Bit 0 (LS)	Grey
P	GND	Black
R	Direction	Orange
S	Case	Violet
T	GND	Yellow
U	Latch	Green
V	Vin	Red

\*This is a mating connector/cable assembly. Color-coding information is provided here for reference.

Pin	Function	112077 Cable Accessory* Color Code
	14 Bit 16384 CPR	
A	Bit 13 (MS)	White/Black/Brown
B	Bit 12	White/Grey
C	Bit 11	White/Violet
D	Bit 10	White/Blue
E	Bit 9	White/Green
F	Bit 8	White/Orange
G	Bit 7	White/Yellow
H	Bit 6	White/Red
J	Bit 5	White/Brown
K	Bit 4	White/Black
L	Bit 3	Brown
M	Bit 2	Blue
N	Bit 1	White
P	Bit 0 (LS)	Grey
R	Direction	Orange
S	Case	Violet
T	GND	Black
U	Latch	Green
V	Vin	Red

\*This is a mating connector/cable assembly. Color-coding information is provided here for reference.

### A25 Dimensions



### Ordering Information

To order, complete the model number with code numbers from the table below:

Code 1: Model	Code 2: CPR	Code 3: Mechanical	Code 4: Interface	Code 5: Electrical	Code 6: Termination
<b>A25</b>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ordering Information					
<b>A25</b> 2.5" Absolute encoder, parallel output	<b>1024</b> 1024 counts/rev (10 bit) <b>4096</b> 4096 counts/rev (12 bit) <b>8192</b> 8192 counts/rev (13 bit) <b>0014</b> 16,384 counts/rev (14 bit)	<b>0</b> 3/8" Shaft, flange mount	<b>0</b> Parallel-Binary (push-pull) <b>1</b> Parallel-Gray code (push-pull)	<b>0</b> 5 VDC input power <b>1</b> 10 - 30 VDC input power	<b>0</b> End mount 17 pin connector <b>1</b> Side Mount 19 pin connector
Cables					
107865-0010	10 foot cable w/mating connector for 10, 12 bit A25 abs. encoder, 17 pin end-mount connector				
110158-0010	10 foot cable w/mating connector for 10, 12 bit A25 abs. encoder, 19 pin side-mount connector				
112076-0010	10 foot cable w/mating connector for 13 bit A25 abs. encoder, 19 pin side-mount connector				
112077-0010	10 foot cable w/mating connector for 14 bit A25 abs. encoder, 19 pin side-mount connector				

# Series A25 Absolute – Single Turn, Industrial Bus



CE

- **Single-turn. Multi-turn also available**
- **Resolution up 14 Bits**
- **Choice of 3 bus networks**
- **-25° C to +85° C Operating Temperature**

As machine position control systems strive for higher and higher performance, being able to incorporate a feedback device which provides exact position data can be of substantial benefit. Dynapar brand Series A25 encoders provide a unique data output for each resolvable shaft position. By using absolute position rather than incremental count data, the shaft position can always be known, even after power interruptions or in the presence of electrical noise. System design can be simplified because there is no need to perform a reference cycle or return to home function to determine the true machine position.

Single turn devices are offered with resolution ranging from .5° (720 counts per rev) to 14 bit (16,384 counts per rev).

## SPECIFICATIONS

### Mechanical

**Shaft Size:** 3/8"  
**Shaft Loading:** 24 lbs axial, 35 lbs radial  
**Shaft Tolerance:** +0/-0.0007  
**Starting Torque:** ≤0.2 in-oz  
**Weight:** 11 oz. (300 g.)  
**Shaft Speed:** 6,000 RPM

### Environmental

**Operating Temperature:** -25° to +85°C  
**Storage Temperature:** -25° to +85°C  
**Shock:** 100 G's for 3 msec duration  
**Vibration:** 10 to 500 Hz @ 10 G's  
**Enclosure Rating:** IP67

### Electrical - DeviceNet

**Accuracy:** ± 1/2 LSB (± 1 LSB above 12 bit)  
**Power Requirements:** 10 - 30 VDC;  
200 mA maximum  
**Code:** Binary  
**Current for feed through supply:** 3 Amp  
**Interface:** CAN High Speed per ISO/DIS  
11898, CAN specification 2.0 B  
**Protocol:** DeviceNet according to Rev. 2.0  
programmable encoder  
**Update Rate:** 5 ms  
**Baud Rate:** DIP switch selectable 125, 250,  
500 Kbps  
**MAC ID:** DIP switch settable

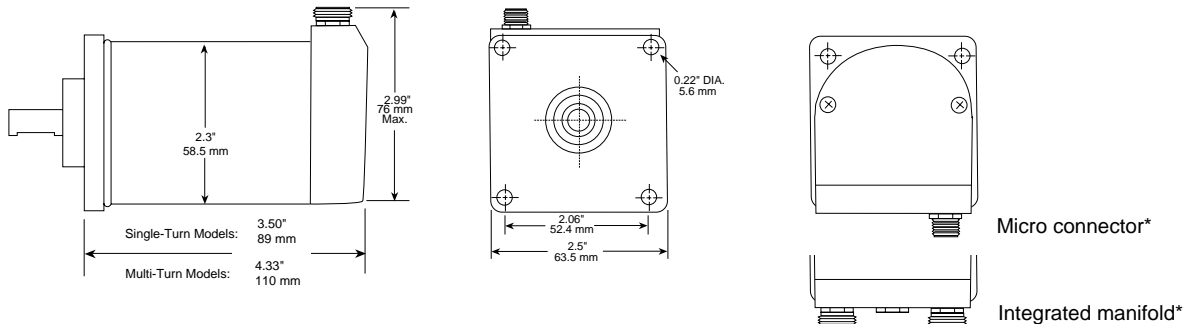
### Electrical - Profibus

**Accuracy** ± 1/2 LSB (± 1 LSB above 12 bit)  
**Power Requirements:** 10 - 30 VDC  
200 mA maximum  
**Code:** Binary  
**Current for feed through supply:** 2 Amp  
**Interface:** RS-485  
**Protocol:** Profibus DP w/class 2 encoder  
profile  
**Baud Rate:** Automatically set by master  
between 9.6 Kbps and 12 Mbps  
**Device Address:** DIP switch settable  
**Programmable Functions:** direction,  
resolution per rev, total resolution, preset


### Electrical - Interbus

**Accuracy:** ± 1/2 LSB (± 1 LSB above 12 bit)  
**Power Requirements:** 10 - 30 VDC  
200 mA maximum  
**Code:** Binary  
**Interface:** RS-485 for remote bus  
**Protocol:** Interbus w/ ENCOM profile K3  
**Update Rate:** 600 µs  
**Baud Rate:** 500 Kbps  
**Programmable functions:** direction, scaling  
factor, preset, offset

### A25 Dimensions



**\* Industrial Bus Interfaces**



**Micro Connector:**  
Simple plug-in connection from a "T" drop off the DeviceNet trunk line

**Integrated Manifold:**  
Provides direct in and out connection to bus trunk line

### Ordering Information

To order, complete the model number with code numbers from the table below:

Code 1: Model	Code 2: CPR	Code 3: Mechanical	Code 4: Interface	Code 5: Electrical	Code 6: Termination
A25	□ □ □ □	□	□	□	□
Ordering Information					
<b>A25</b> 2.5" Absolute encoder, single-turn, bus interface	<b>1024</b> 1024 counts/rev (10 bit) <b>4096</b> 4096 counts/rev (12 bit) <b>8192</b> 8192 counts/rev (13 bit) <b>0014</b> 16,384 counts/rev (14 bit)	<b>0</b> 3/8" Shaft, flange mount	<b>D</b> DeviceNet <b>P</b> Profibus <b>I</b> Interbus	<b>1</b> 10 - 30 VDC input power	<b>M</b> Integrated bus manifold  available only when code 4 = D  <b>E</b> 5 pin Micro connector
Accessories					
ACAB-F90MS1 ACAB-F90MS2 ACAB-F90FS1 ACAB-F90FS2 ACON-MFF	5 pin DeviceNet cable, female 90°, male straight, 1 meter, Micro connector 5 pin DeviceNet cable, female 90°, male straight, 2 meters, Micro connector 5 pin DeviceNet cable, female 90°, female straight, 1 meter, Micro connector 5 pin DeviceNet cable, female 90°, female straight, 2 meters, Micro connector DeviceNet splitter, male, female, female				

# Series A25 Absolute – Multi-Turn, Industrial Bus



CE

- **Multi-turn**
- **Resolution to 26 Bits (16,384 counts/Rev)**
- **Choice of 3 bus networks**
- **Short Circuit Protected**
- **-25° C to +85° C Operating Temperature**

As machine position control systems strive for higher and higher performance, being able to incorporate a feedback device which provides exact position data can be of substantial benefit.

Dynapar brand Series A25 multi-turn encoders provide a unique data output for each resolvable shaft position over multiple turns, providing unique position outputs for each shaft position up to 4096 rotations. By using absolute position rather than incremental count data the shaft position can always be known, even after power interruptions or in the presence of electrical noise. System design can be simplified because there is no need to perform a reference cycle or return to home position to determine the true machine position.

Bus network connection offers low wiring cost, enhanced diagnostics and reduced total installed cost.

## SPECIFICATIONS

### **Mechanical**

**Shaft Size:** 3/8"  
**Shaft Loading:** 24 lbs axial, 35 lbs radial  
**Shaft Tolerance:** +0/-0.0007  
**Starting Torque:** ≤0.2 in-oz  
**Weight:** 11 oz. (300 g.)  
**Shaft Speed:** 6,000 RPM

### **Environmental**

**Operating Temperature:** -25° to +85°C  
**Storage Temperature:** -25° to +85°C  
**Shock:** 100 G's for 3 msec duration  
**Vibration:** 10 to 500 Hz @ 10 G's  
**Enclosure Rating:** IP67

### **Electrical - DeviceNet**

**Accuracy:** ± 1/2 LSB (± 1 LSB above 12 bit)  
**Power Requirements:** 10 - 30 VDC;  
200 mA maximum  
**Code:** Binary  
**Current for feed through supply:** 3 Amp  
**Interface:** CAN High Speed per ISO/DIS  
11898, CAN specification 2.0 B  
**Protocol:** DeviceNet according to Rev. 2.0  
programmable encoder  
**Update Rate:** 5 ms  
**Baud Rate:** DIP switch selectable 125, 250,  
500 Kbps  
**MAC ID:** DIP switch settable

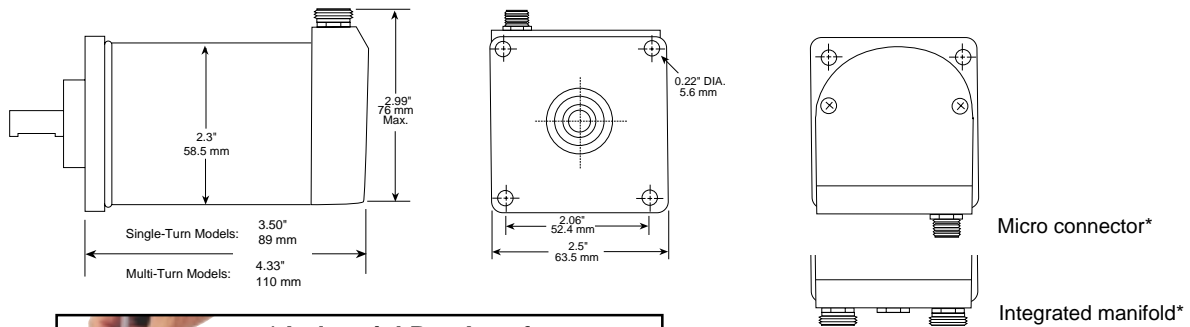
### **Electrical - Profibus**

**Accuracy** ± 1/2 LSB (± 1 LSB above 12 bit)  
**Power Requirements:** 10 - 30 VDC  
200 mA maximum  
**Code:** Binary  
**Current for feed through supply:** 2 Amp  
**Interface:** RS-485  
**Protocol:** Profibus DP w/class 2 encoder  
profile  
**Baud Rate:** Automatically set by master  
between 9.6 Kbps and 12 Mbps  
**Device Address:** DIP switch settable  
**Programmable Functions:** direction,  
resolution per rev, total resolution, preset

### **Electrical - Interbus**

**Accuracy:** ± 1/2 LSB (± 1 LSB above 12 bit)  
**Power Requirements:** 10 - 30 VDC  
200 mA maximum  
**Code:** Binary  
**Interface:** RS-485 for remote bus  
**Protocol:** Interbus w/ ENCOM profile K3  
**Update Rate:** 600 μs  
**Baud Rate:** 500 Kbps  
**Programmable functions:** direction, scaling  
factor, preset, offset

### A25 Dimensions



**\* Industrial Bus Interfaces**

**Micro Connector:**  
Simple plug-in connection from a "T" drop off the DeviceNet trunk line

**Integrated Manifold:**  
Provides direct in and out connection to bus trunk line

### Ordering Information

To order, complete the model number with code numbers from the table below:

Code 1: Model	Code 2: CPR	Code 3: Mechanical	Code 4: Interface	Code 5: Electrical	Code 6: Termination
A25	□ □ □ □	□	□	□	□
Ordering Information					
<b>A25 2.5"</b> Absolute encoder, multi-turn, bus interface	1212 4096 counts/rev, multiturn (24 bit) 1213 8192 counts/rev, multiturn (25 bit) 1214 16,384 counts/rev, multiturn (26 bit)	0 3/8" Shaft, flange mount	D DeviceNet P Profibus I Interbus	1 10 - 30 VDC input power	M Integrated bus manifold available only when code 4 = D E 5 pin Micro connector
Accessories					
ACAB-F90MS1 ACAB-F90MS2 ACAB-F90FS1 ACAB-F90FS2 ACON-MFF	5 pin DeviceNet cable, female 90°, male straight, 1 meter, Micro connector 5 pin DeviceNet cable, female 90°, male straight, 2 meters, Micro connector 5 pin DeviceNet cable, female 90°, female straight, 1 meter, Micro connector 5 pin DeviceNet cable, female 90°, female straight, 2 meters, Micro connector DeviceNet splitter, male, female, female				