

SEAM TRACKER™ SYSTEMS

MECHANIZED AUTOMATION



Seam Tracker Advanced Programming Control (K52021-1) with Advanced Pendant (K52023-1)

PRECISE AUTOMATED SEAM TRACKING

Lincoln Electric® tactile seam tracking systems deliver precise automated seam tracking for submerged arc, GMAW, FCAW and GTAW welding processes. Ideal for repetitive welding applications, these systems are recommended over manual and semi-automatic welding to improve quality and consistency while reducing operational costs. A range of standard systems or customized solutions are available to meet the requirements of many tough production environments.

Processes »

Submerged Arc, TIG, MIG, Flux-Cored

Applications »

Tanks, Pipes, Pressure Vessels, Beam and Stiffeners, Rims/Wheels, Wind Tower Sections

Input »



Product Numbers »

See page 4 for complete specs

FEATURES

- **Easy to Set Up**
- **Easy to Operate** – Operators can quickly learn to program and operate.
- **Simple System Selection** – (Pre-configured systems are available)
 - Select the desired level of automation – one of two controllers and matching pendants.
 - Choose a cross slide assembly based on load capacity required to handle the weight of the welding drive components.
 - Determine the travel stroke length of each axis necessary to complete the weld.
 - Select the application-specific seam sensor tip.
- **Advanced Controls Available** – Gain these additional capabilities with the Advanced Programming Control (APC) –
 - Program the entire sequence of the weld cycle as a position-based or time-based configuration.
 - Store up to 19 weld sequence programs.
- **Widespread Integration Capability** – Build a system around almost any welding power source, feeder and controlled group.

SEAM SENSOR ASSEMBLY

The seam sensor assembly is an electro-mechanical device that tracks the joint like a needle on a record. The 5-axis probe bracket positions the seam sensor assembly for optimal tactile tracking angles.

Seam Tracker™ Required Components:

Required for each Package:

- Probe Bracket Assembly
- Seam Sensor
- Drive Cable
- Sensor Cable
- Torch Clamp
- Sensor Tip

SYSTEM SELECTION

Step 1 – Select the desired level of automation – one of two controllers and matching pendants



Step 2 – Choose a cross slide assembly based on:

- Load capacity required to handle the weight of the welding drive components
- Determine the travel stroke length of each axis necessary to complete the weld



CS40
K52013-xxyy
Up to 6 in.
stroke

CS250
K52014-xxyy
Up to 60 in.
stroke*

CS450
K52015-xxyy
Up to 60 in.
stroke*

*Special Stroke Lengths are offered in 5 in. increments.

CS40 Cross Slide

- 40 lb. capacity 6 in. off of faceplate
- Great for inside of pipe with small payloads
- 24 ipm max correction rate
- Standard strokes are:
 - 3 in. x 3 in.
 - 6 in. x 6 in.

CS250 Cross Slide

- 250 lb. capacity 12 in. off of faceplate
- Our most common slide
- Accommodates 80% of the single arc applications
- 32 ipm max correction rate
- Standard strokes are:
 - 5 in. x 5 in.
 - 10 in. x 10 in.
- Up to 60 in. available

CS450 Cross Slide

- 450 lb. capacity 24 in. off of faceplate
- Great for twin arc applications where loads extend outward
- 17 ipm max correction rate
- Standard strokes are:
 - 5 in. x 5 in.
 - 10 in. x 10 in.
- Up to 60 in. available

Step 3 – Select the application-specific seam sensor tip – See back for details

KEY CONTROLS

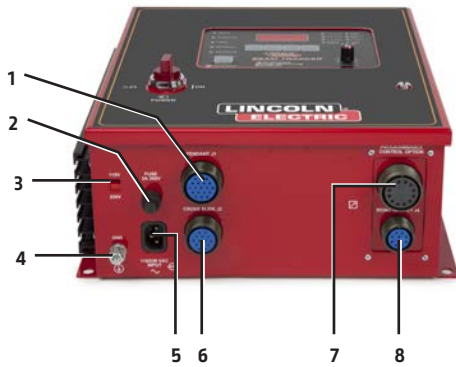
Seam Tracker™ Advanced Programming Control (APC)



FACE PLATE

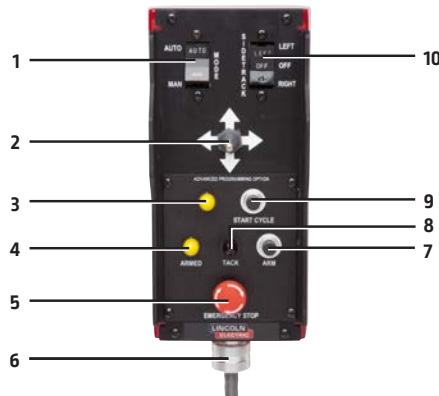
1. Function Indicator LEDs for Sequence Control
2. Program LED (19 Programs)
3. Timer Change Select Button
4. Lighted Power On/Off Switch
5. Threshold Knob – for Tack and/or Auto Cutoff
6. Adjustment Buttons
7. Features Enabled LEDs (Selected by Internal DIP Switches)
8. Digital Display

Seam Tracker™ Standard Control



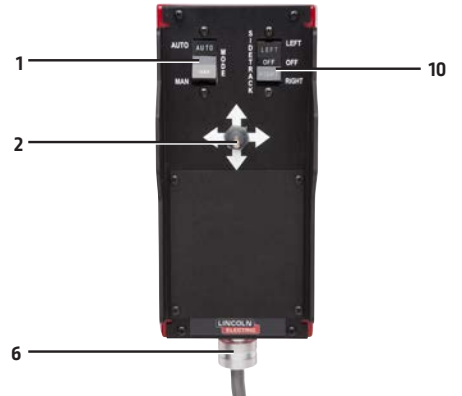
BOTTOM PLATE

1. Pendant J1 Connection
2. Fuse (2A, 250V)
3. 115/230 Input Voltage Switch
4. Protective Earth Connection
5. Input Cable Receptacle (115/230 VAC)
6. Cross Slide J2 Connection
7. Remote Output J3 Connection (Optional on Standard Control)
8. Remote Input J4 Connection



PENDANT

1. Mode – Auto or Manual
2. Joystick
3. Cycle Indicator Light
4. Tack Armed Light
5. Emergency Stop Button
6. Cable Strain Relief Connection
7. Tack Arm Button
8. Tack Light
9. Start Cycle Button
10. Sidetrack Control (Left/Off/Right)



SEAM TRACKER

	Seam Tracker™ Standard Control Package for CS250 and CS 450 (K52016-1)	Seam Tracker™ Standard Control Package for CS 40 (K52057-1)	Seam Tracker™ Standard Control Unit (K52020-1)	Seam Tracker™ Advanced Programming Control Package for CS250 and CS 450 (K52017-1)	Seam Tracker™ Advanced Programming Control Package for CS 40 (K52028-1)	Seam Tracker™ Advanced Programming Control Unit (K52021-1)
Semi-Automatic	•	•	•			
Fully Automatic				•	•	•

STANDARD SPECIFICATIONS

Product Name	Product Number	Load Capacity lb (kg) @ in (mm) from faceplate	Input Power Voltage/Phase/Hertz	H x W x D in (mm)	Weight lb (kg)
Seam Tracker™ Standard Control Package for CS250 and CS450 [Control, Pendant and Cables]	K52016-1	250 (113) @ 12 (305) 450 (204) @ 24 (610)	120/230/1/50/60	5 x 5 (127 x 127) 10 x 10 (254 x 254)	CS250: 5 x 5 = 105 (48) 10 x 10 = 118 (54) CS450: 5 x 5 = 162 (74) 10 x 10 = 178 (81)
Seam Tracker™ Standard Control Package for CS40 [Control, Pendant and Cables]	K52057-1	40 (18) @ 6 (152)		3 x 3 (76 x 76) 6 x 6 (152 x 152)	3 x 3 = 79 (36) 6 x 6 = 90 (41)
Seam Tracker™ Standard Control Unit	K52020-1	N/A		N/A	33 (15)
Seam Tracker™ Advanced Programming Control Package for CS250 and CS450 [Control, Pendant and Cables]	K52017-1	250 (113) @ 12 (305) 450 (204) @ 24 (610)		5 x 5 (127 x 127) 10 x 10 (254 x 254)	CS250: 5 x 5 = 105 (48) 10 x 10 = 118 (54) CS450: 5 x 5 = 162 (74) 10 x 10 = 178 (81)
Seam Tracker™ Advanced Programming Control Package for CS40 [Control, Pendant and Cables]	K52058-1	40 (18) @ 6 (152)		3 x 3 (76 x 76) 6 x 6 (152 x 152)	3 x 3 = 79 (36) 6 x 6 = 90 (41)
Seam Tracker™ Advanced Programming Control Unit	K52021-1	N/A		N/A	33 (15)

CROSS SLIDE ASSEMBLIES

Product Name	Product Number	Load Capacity lb (kg) @ in (mm) from faceplate	Travel Speed ipm (m/min)	H x W x D in (mm)	Weight lb (kg)
CS40 Cross Slide 3 x 3 (76x76)	K52013-0303	40 (18) @ 6 (152)	24 (0.61) max	3 x 3 (76 x 76)	19 (9)
CS40 Cross Slide 6 x 6 (152x152)	K52013-0606			6 x 6 (152 x 152)	22 (10)
CS250 Cross Slide 5 x 5 (127x127)	K52014-0505	250 (113) @ 12 (305)	32 (0.81) max	5 x 5 (127 x 127)	60 (27)
CS250 Cross Slide 10x10 (254x254)	K52014-1010			10 x 10 (254 x 254)	73 (33)
CS450 Cross Slide 5 x 5 (127x127)	K52015-0505	450 (204) @ 24 (610)	17 (0.43) max	5 x 5 (127 x 127)	107 (49)
CS450 Cross Slide 10x10 (254x254)	K52015-1010			10 x 10 (254 x 254)	120 (54)

TRAVEL/TRACKING SPECIFICATIONS

Product Name	Product Number	Standard Stroke Lengths in (mm)	Minimum Envelope Stroke in (mm)	Tracking Accuracy in (mm)	Travel Speed ipm (m/min)	Tracking Controls
Seam Tracker™ Standard Control Package for CS250 and CS450 [Control, Pendant and Cables]	K52016-1	5 x 5 (127 x 127) 10 x 10 (254 x 254)	CS250: 5 x 5 (127 x 127) stroke = 17 (432) diameter CS450: 10 x 10 (127 x 127) stroke = 22.5 (572) diameter	Within 0.005 (0.127)	CS250: 32 (0.81) max CS450: 17 (0.43) max	Automatic Control with Seam Sensor or Manual Up/Down and Left/Right with Pendant
Seam Tracker™ Standard Control Package for CS40 [Control, Pendant and Cables]	K52057-1	3 x 3 (76 x 76) 6 x 6 (152 x 152)	3 x 3 (76 x 76) stroke = 12 (305) diameter		24 (0.61) max	
Seam Tracker™ Advanced Programming Control Package for CS250 and CS450 [Control, Pendant and Cables]	K52017-1	5 x 5 (127 x 127) 10 x 10 (254 x 254)	CS250: 5 x 5 (127 x 127) stroke = 17 (432) diameter CS450: 10 x 10 (127 x 127) stroke = 22.5 in (572 mm) diameter		CS250: 32 (0.81) max CS450: 17 (0.43) max	
Seam Tracker™ Advanced Programming Control Package for CS40 [Control, Pendant and Cables]	K52058-1	3 x 3 (76 x 76) 6 x 6 (152 x 152)	3 x 3 (76 x 76) stroke = 12 (305) diameter		24 (0.61) max	

WHAT'S INCLUDED

Product Name	Product Number	Standard Seam Tracking Systems						Complete Advanced Programming Control Systems					
		ST140 3 x 3 in (76 x 76 mm) Standard System One-Pak® K52004-0303	ST140 6 x 6 in (152 x 152 mm) Standard System One-Pak K52004-0606	ST250 5 x 5 in (127 x 127 mm) Standard System One-Pak K52007-0505	ST250 10 x 10 in (254 x 254 mm) Standard System One-Pak K52007-1010	ST450 5 x 5 in (127 x 127 mm) Standard System One-Pak K52010-0505	ST450 10 x 10 in (254 x 254 mm) Standard System One-Pak K52010-1010	ST140 3 x 3 in (76 x 76 mm) System w/APC One-Pak® K52005-0303	ST140 6 x 6 in (152 x 152 mm) System w/APC One-Pak® K52005-0606	ST250 5 x 5 in (127 x 127 mm) System w/APC One-Pak K52008-0505	ST250 10 x 10 in (254 x 254 mm) System w/APC One-Pak K52008-1010	ST450 5 x 5 in (127 x 127 mm) System w/APC One-Pak K52011-0505	ST450 10 x 10 in (254 x 254 mm) System w/APC One-Pak K52011-1010
SEAM TRACKER™ CONTROL – SELECT ONE													
Advanced Programming Control	K52021-1							•	•	•	•	•	•
Standard Control	K52020-1	•	•	•	•	•	•						
PENDANT – SELECT ONE													
Advanced Process Pendant w/ 10 ft (3 m) Cable	K52023-1							•	•	•	•	•	•
Standard Pendant w/ 10 ft (3 m) Cable	K52022-1	•	•	•	•	•	•						
CABLES													
4 ft (1.2 m)	K52033-1	•	•	•	•	•	•	•	•	•	•	•	•
10 ft (3 m)	K52030-1			•	•	•	•			•	•	•	•
CROSS SLIDE ASSEMBLY – SELECT ONE													
CS40 Cross Slide 3x3 (76x76)	K52013-0303	•							•				
CS40 Cross Slide 6x6 (152x152)	K52013-0606		•							•			
CS250 Cross Slide 5x5 (127x127)	K52014-0505			•							•		
CS250 Cross Slide 10x10 (254x254)	K52014-1010				•							•	
CS450 Cross Slide 5x5 (127x127)	K52015-0505					•							•
CS450 Cross Slide 10x10 (254x254)	K52015-1010						•						•
SEAM SENSOR COMPONENTS													
Seam Sensor Assembly	K52019-1	•	•	•	•	•	•	•	•	•	•	•	•
Five Axis Probe Bracket	KP52026-1	•	•	•	•	•	•	•	•	•	•	•	•
Weld Torch Mounting Kit	KP52027-1	•	•	•	•	•	•	•	•	•	•	•	•
Sensor Insulator	KP52029-1	•	•	•	•	•	•	•	•	•	•	•	•
Seam Sensor Tip PT012 1/8 in (3.2 mm)	KP52028-1	•	•	•	•	•	•	•	•	•	•	•	•

ACCESSORIES

Part Number	Description	Part Number	Description	Part Number	Description
K52019-1	Seam Sensor Assembly	KP52047-1	PT006 Tip 1/16 in (1.6 mm) Round	KP52037-1	ST01 Tip, Blade and Roller
KP52026-1	Five-Axis Probe Bracket	KP52028-1	PT012 Tip 1/8 in (3.2 mm) Round	KP52038-1	ST03 Tip, Side Extension
KP52027-1	Weld Torch Mounting Kit	KP52053-1	PT025 Tip 1/4 in (6.4 mm) Ball	KP52039-1	ST07 Tip, Tack Weld Groove
K52033-1	Sensor Cable Assembly – 4 ft (1.2 m)	KP52052-1	PT038 Tip 3/8 in (9.5 mm) Ball	KP52040-1	ST09 Tip, Two-Wheel Override
K52030-1	Drive Cable – 10 ft (3 m)	KP52051-1	PT050 Tip 1/2 in (12.7 mm) Ball	KP52041-1	ST04 Tip, Curved Side Extension
KP52029-1	Sensor Insulator	KP52050-1	PT063 Tip 5/8 in (16 mm) Ball	KP52042-1	ST12 Tip, Single Wheel
KP52054-1	High Temperature Sensor Insulator Assembly	KP52049-1	PT075 Tip 3/4 in (19 mm) Ball	KP52043-1	ST08 Tip, Tack Weld Fillet
KP52055-1	TX03 Extension Tip, 3 in (76 mm)	KP52048-1	PT100 Tip 1 in (25 mm) Ball	KP52044-1	ST11 Tip, Curved
KP52056-1	High Temperature Sensor Insulator			KP52045-1	ST13 Tip, Twin Tip



Seam Sensor K52019-1 shown with Extension Tip and 1/8 in tip

For best welding results with Lincoln Electric® equipment, always use Lincoln Electric consumables. Visit www.lincolnelectric.com for more details.

CUSTOMER ASSISTANCE POLICY

The business of The Lincoln Electric Company® is manufacturing and selling high quality welding equipment, consumables, and cutting equipment. Our challenge is to meet the needs of our customers and to exceed their expectations. On occasion, purchasers may ask Lincoln Electric for information or advice about their use of our products. Our employees respond to inquiries to the best of their ability based on information provided to them by the customers and the knowledge they may have concerning the application. Our employees, however, are not in a position to verify the information provided or to evaluate the engineering requirements for the particular weldment. Accordingly, Lincoln Electric does not warrant or guarantee or assume any liability with respect to such information or advice. Moreover, the provision of such information or advice does not create, expand, or alter any warranty on our products. Any express or implied warranty that might arise from the information or advice, including any implied warranty of merchantability or any warranty of fitness for any customers' particular purpose is specifically disclaimed.

Lincoln Electric is a responsive manufacturer, but the selection and use of specific products sold by Lincoln Electric is solely within the control of, and remains the sole responsibility of the customer. Many variables beyond the control of Lincoln Electric affect the results obtained in applying these types of fabrication methods and service requirements.

Subject to Change – This information is accurate to the best of our knowledge at the time of printing. Please refer to www.lincolnelectric.com for any updated information.

The Lincoln Electric Company
 22801 St. Clair Avenue · Cleveland, OH · 44117-1199 · U.S.A.
www.lincolnelectric.com