SEL-710-5 Motor Protection Relay

Standard Features

- **Protection**
  - Thermal Elements
  - Overcurrent
  - Over/Under Frequency
  - Over/Under Voltage
  - Breaker Monitoring
  - Breaker Failure
  - Broken Bar Detection
- **Hardware**
  - 3-Phase AC Current Inputs
    - Slot Z
  - Neutral AC Current Input
    - Slot Z
  - 3-Phase AC Voltage Inputs
    - Slot Z
  - 2 Digital Inputs (DI)
    - Slot A
  - 3 Digital Outputs (DO)
    - Slot A
  - Multimode Fiber ST (Port 2)
    - Slot B
- **Human Machine Interface (HMI)**
  - Display
  - Programmable Pushbuttons with Two Tri-Color LEDs each
  - 8 Target Tri-Color LEDs (6 Programmable)
  - Operator Control Interface
  - User Configurable Labels
  - EIA-232 Port (Port F)
  - Multi-language support
- **Protocols**
  - Modbus® RTU
  - SEL ASCII and Compressed ASCII
  - SEL Fast Meter, Fast Operate, Fast SER
  - SEL Fast Message
  - Ymodem File Transfer
  - SEL MIRRORED BITS Communications
- **Other**
  - Instruction Manual CD
  - ACSELERATOR QuickSet SEL-5030 Software

Part Number: **0 7 1 0 5 0** _

Advanced Firmware Features

None	0

User Interface

English	E
Spanish	S

Slot A Power Supply Voltage | Slot A Digital Input Voltage

110–250 Vdc (110–240 Vac) | 125 Vdc/Vac	1 A
110–250 Vdc (110–240 Vac) | 24 Vdc/Vac	1 B
110–250 Vdc (110–240 Vac) | 48 Vdc/Vac	1 C
110–250 Vdc (110–240 Vac) | 110 Vdc/Vac	1 D
110–250 Vdc (110–240 Vac) | 220 Vdc/Vac	1 G
110–250 Vdc (110–240 Vac) | 250 Vdc/Vac	1 H
24-48 Vdc | 125 Vdc/Vac	2 A
24-48 Vdc | 24 Vdc/Vac	2 B
24-48 Vdc | 48 Vdc/Vac	2 C
24-48 Vdc | 110 Vdc/Vac	2 D
24-48 Vdc | 220 Vdc/Vac	2 G
24-48 Vdc | 250 Vdc/Vac	2 H

Front Panel | Slot B IRIG-B/PTC Option

o PTC option only available on Slot B Processor boards with No Ethernet or Single 10/100BASE-T Ethernet options

2x16 LCD with 8 Pushbuttons | IRIG-B	0
2x16 LCD with 8 Pushbuttons | PTC	1
5" Color Touchscreen with 8 Pushbuttons | IRIG-B	A
5" Color Touchscreen with 8 Pushbuttons | PTC	B

Ethernet (Port 1) | Rear Serial Port (Port 3)

o EIA-485 available only with No Ethernet or Single 10/100BASE-T Ethernet options in slot B

None | EIA-232	0
None | EIA-485	1
Single 10/100BASE-T | EIA-232	2
Single 10/100BASE-T | EIA-485	3
Single 100BASE-FX MM LC | EIA-232	4
Dual 10/100BASE-T | EIA-232	6
Dual 100BASE-FX MM LC | EIA-232	8

IEC 61850 Protocol | DNP3 Protocol | IEC 60870-5-103 Protocol

o IEC 61850 available only for models with Ethernet options in Slot B

None	0
IEC 61850 Protocol	1
DNP3 Protocol	2
IEC 61850 Protocol | DNP3 Protocol	3
IEC 60870-5-103 Protocol	4
IEC 61850 Protocol | IEC 60870-5-103 Protocol	5
DNP3 Protocol | IEC 60870-5-103 Protocol	6
IEC 61850 Protocol | DNP3 Protocol | IEC 60870-5-103 Protocol	7

Slot C | Slot C Digital Input Voltage

o Only one (1) 3 DI / 4 DO / 1 AO card per chassis
o Only one (1) 4 AI / 4 AO card per chassis

Empty	0 X
Serial Communications (EIA-232/485)	A 0
3 DI / 4 DO / 1 AO (4-20 mA Range) | 125 Vdc/Vac	B A
3 DI / 4 DO / 1 AO (4-20 mA Range) | 24 Vdc/Vac	B B
3 DI / 4 DO / 1 AO (4-20 mA Range) | 48 Vdc/Vac	B C
3 DI / 4 DO / 1 AO (4-20 mA Range) | 110 Vdc/Vac	B D
3 DI / 4 DO / 1 AO (4-20 mA Range) | 220 Vdc/Vac	B G
3 DI / 4 DO / 1 AO (4-20 mA Range) | 250 Vdc/Vac	B H
4 DI / 4 DO Electromechanical | 125 Vdc/Vac	1 A
4 DI / 4 DO Electromechanical | 24 Vdc/Vac	1 B
4 DI / 4 DO Electromechanical | 48 Vdc/Vac	1 C
4 DI / 4 DO Electromechanical | 110 Vdc/Vac	1 D
4 DI / 4 DO Electromechanical | 220 Vdc/Vac	1 G

4 DI / 4 DO Electromechanical | 250 Vdc/Vac										1	H										
4 DI / 4 DO Fast High Current Hybrid | 125 Vdc/Vac										C	A										
4 DI / 4 DO Fast High Current Hybrid | 24 Vdc/Vac										C	B										
4 DI / 4 DO Fast High Current Hybrid | 48 Vdc/Vac										C	C										
4 DI / 4 DO Fast High Current Hybrid | 110 Vdc/Vac										C	D										
4 DI / 4 DO Fast High Current Hybrid | 220 Vdc/Vac										C	G										
4 DI / 4 DO Fast High Current Hybrid | 250 Vdc/Vac										C	H										
4 DI / 3 DO Electromechanical (2 Form C, 1 Form B) | 125 Vdc/Vac										D	A										
4 DI / 3 DO Electromechanical (2 Form C, 1 Form B) | 24 Vdc/Vac										D	B										
4 DI / 3 DO Electromechanical (2 Form C, 1 Form B) | 48 Vdc/Vac										D	C										
4 DI / 3 DO Electromechanical (2 Form C, 1 Form B) | 110 Vdc/Vac										D	D										
4 DI / 3 DO Electromechanical (2 Form C, 1 Form B) | 220 Vdc/Vac										D	G										
4 DI / 3 DO Electromechanical (2 Form C, 1 Form B) | 250 Vdc/Vac										D	H										
8 DO Electromechanical (Form A)										2	A										
8 DO Electromechanical (Form B)										2	B										
8 DO Electromechanical (6 Form A, 2 Form B)										2	C										
8 DO Electromechanical (2 Form A, 6 Form B)										2	D										
8 DO Electromechanical (4 Form A, 4 Form B)										2	G										
8 DI | 125 Vdc/Vac										3	A										
8 DI | 24 Vdc/Vac										3	B										
8 DI | 48 Vdc/Vac										3	C										
8 DI | 110 Vdc/Vac										3	D										
8 DI | 220 Vdc/Vac										3	G										
8 DI | 250 Vdc/Vac										3	H										
14 DI | 125 Vdc/Vac										4	A										
14 DI | 24 Vdc/Vac										4	B										
14 DI | 48 Vdc/Vac										4	C										
14 DI | 110 Vdc/Vac										4	D										
14 DI | 220 Vdc/Vac										4	G										
14 DI | 250 Vdc/Vac										4	H										
8 AI (±20 mA or ±10 V Range)										5	X										
4 AI / 4 AO (±20 mA or ±10 V Range)										6	X										

Slot D | Slot D Digital Input Voltage

o Only one (1) 3 DI / 4 DO / 1 AO card per chassis
o Only one (1) 4 AI / 4 AO card per chassis

Empty												0	X								
3 DI / 4 DO / 1 AO (4-20 mA Range) | 125 Vdc/Vac												B	A								

3 DI / 4 DO / 1 AO (4-20 mA Range) | 24 Vdc/Vac	B	B
3 DI / 4 DO / 1 AO (4-20 mA Range) | 48 Vdc/Vac	B	C
3 DI / 4 DO / 1 AO (4-20 mA Range) | 110 Vdc/Vac	B	D
3 DI / 4 DO / 1 AO (4-20 mA Range) | 220 Vdc/Vac	B	G
3 DI / 4 DO / 1 AO (4-20 mA Range) | 250 Vdc/Vac	B	H
4 DI / 4 DO Electromechanical | 125 Vdc/Vac	1	A
4 DI / 4 DO Electromechanical | 24 Vdc/Vac	1	B
4 DI / 4 DO Electromechanical | 48 Vdc/Vac	1	C
4 DI / 4 DO Electromechanical | 110 Vdc/Vac	1	D
4 DI / 4 DO Electromechanical | 220 Vdc/Vac	1	G
4 DI / 4 DO Electromechanical | 250 Vdc/Vac	1	H
4 DI / 4 DO Fast High Current Hybrid | 125 Vdc/Vac	C	A
4 DI / 4 DO Fast High Current Hybrid | 24 Vdc/Vac	C	B
4 DI / 4 DO Fast High Current Hybrid | 48 Vdc/Vac	C	C
4 DI / 4 DO Fast High Current Hybrid | 110 Vdc/Vac	C	D
4 DI / 4 DO Fast High Current Hybrid | 220 Vdc/Vac	C	G
4 DI / 4 DO Fast High Current Hybrid | 250 Vdc/Vac	C	H
4 DI / 3 DO Electromechanical (2 Form C, 1 Form B) | 125 Vdc/Vac	D	A
4 DI / 3 DO Electromechanical (2 Form C, 1 Form B) | 24 Vdc/Vac	D	B
4 DI / 3 DO Electromechanical (2 Form C, 1 Form B) | 48 Vdc/Vac	D	C
4 DI / 3 DO Electromechanical (2 Form C, 1 Form B) | 110 Vdc/Vac	D	D
4 DI / 3 DO Electromechanical (2 Form C, 1 Form B) | 220 Vdc/Vac	D	G
4 DI / 3 DO Electromechanical (2 Form C, 1 Form B) | 250 Vdc/Vac	D	H
8 DO Electromechanical (Form A)	2	A
8 DO Electromechanical (Form B)	2	B
8 DO Electromechanical (6 Form A, 2 Form B)	2	C
8 DO Electromechanical (2 Form A, 6 Form B)	2	D
8 DO Electromechanical (4 Form A, 4 Form B)	2	G
8 DI | 125 Vdc/Vac	3	A
8 DI | 24 Vdc/Vac	3	B
8 DI | 48 Vdc/Vac	3	C
8 DI | 110 Vdc/Vac	3	D
8 DI | 220 Vdc/Vac	3	G
8 DI | 250 Vdc/Vac	3	H
14 DI | 125 Vdc/Vac	4	A

14 DI | 24 Vdc/Vac												4	B								
14 DI | 48 Vdc/Vac												4	C								
14 DI | 110 Vdc/Vac												4	D								
14 DI | 220 Vdc/Vac												4	G								
14 DI | 250 Vdc/Vac												4	H								
8 AI (±20 mA or ±10 V Range)												5	X								
4 AI / 4 AO (±20 mA or ±10 V Range)												6	X								
10 RTD Inputs												9	X								

Slot E | Slot E Digital Input Voltage
o Only one (1) 3 DI / 4 DO / 1 AO card per chassis
o Only one (1) 4 AI / 4 AO card per chassis

Empty														0	X						
3 DI / 4 DO / 1 AO (4-20 mA Range) | 125 Vdc/Vac														B	A						
3 DI / 4 DO / 1 AO (4-20 mA Range) | 24 Vdc/Vac														B	B						
3 DI / 4 DO / 1 AO (4-20 mA Range) | 48 Vdc/Vac														B	C						
3 DI / 4 DO / 1 AO (4-20 mA Range) | 110 Vdc/Vac														B	D						
3 DI / 4 DO / 1 AO (4-20 mA Range) | 220 Vdc/Vac														B	G						
3 DI / 4 DO / 1 AO (4-20 mA Range) | 250 Vdc/Vac														B	H						
4 DI / 4 DO Electromechanical | 125 Vdc/Vac														1	A						
4 DI / 4 DO Electromechanical | 24 Vdc/Vac														1	B						
4 DI / 4 DO Electromechanical | 48 Vdc/Vac														1	C						
4 DI / 4 DO Electromechanical | 110 Vdc/Vac														1	D						
4 DI / 4 DO Electromechanical | 220 Vdc/Vac														1	G						
4 DI / 4 DO Electromechanical | 250 Vdc/Vac														1	H						
4 DI / 4 DO Fast High Current Hybrid | 125 Vdc/Vac														C	A						
4 DI / 4 DO Fast High Current Hybrid | 24 Vdc/Vac														C	B						
4 DI / 4 DO Fast High Current Hybrid | 48 Vdc/Vac														C	C						
4 DI / 4 DO Fast High Current Hybrid | 110 Vdc/Vac														C	D						
4 DI / 4 DO Fast High Current Hybrid | 220 Vdc/Vac														C	G						
4 DI / 4 DO Fast High Current Hybrid | 250 Vdc/Vac														C	H						
4 DI / 3 DO Electromechanical (2 Form C, 1 Form B) | 125 Vdc/Vac														D	A						
4 DI / 3 DO Electromechanical (2 Form C, 1 Form B) | 24 Vdc/Vac														D	B						
4 DI / 3 DO Electromechanical (2 Form C, 1 Form B) | 48 Vdc/Vac														D	C						
4 DI / 3 DO Electromechanical (2 Form C, 1 Form B) | 110 Vdc/Vac														D	D						
4 DI / 3 DO Electromechanical (2 Form C, 1 Form B) | 220 Vdc/Vac														D	G						
4 DI / 3 DO Electromechanical (2 Form C, 1 Form B) | 250 Vdc/Vac														D	H						

8 DO Electromechanical (Form A)	2 A
8 DO Electromechanical (Form B)	2 B
8 DO Electromechanical (6 Form A, 2 Form B)	2 C
8 DO Electromechanical (2 Form A, 6 Form B)	2 D
8 DO Electromechanical (4 Form A, 4 Form B)	2 G
8 DI | 125 Vdc/Vac	3 A
8 DI | 24 Vdc/Vac	3 B
8 DI | 48 Vdc/Vac	3 C
8 DI | 110 Vdc/Vac	3 D
8 DI | 220 Vdc/Vac	3 G
8 DI | 250 Vdc/Vac	3 H
14 DI | 125 Vdc/Vac	4 A
14 DI | 24 Vdc/Vac	4 B
14 DI | 48 Vdc/Vac	4 C
14 DI | 110 Vdc/Vac	4 D
14 DI | 220 Vdc/Vac	4 G
14 DI | 250 Vdc/Vac	4 H
8 AI (±20 mA or ±10 V Range)	5 X
4 AI / 4 AO (±20 mA or ±10 V Range)	6 X
4 Arc-Flash Detection Inputs / 3 Motor DIFF AC Current Inputs (1A/5A)	7 4
3 Synchronous Motor Inputs / 3 Motor DIFF AC Current Inputs (1A/5A)	7 5
8 Arc-Flash Detection Inputs	7 6

Slot Z Current and/or Voltage Inputs

1 Amp Phase, 1 Amp Neutral, 3-Phase AC Voltages (300 Vac)	8 1
1 Amp Phase, 5 Amp Neutral, 3-Phase AC Voltages (300 Vac)	8 2
1 Amp Phase, 2.5 mA High Sense Neutral, 3-Phase AC Voltages (300 Vac)	8 3
5 Amp Phase, 5 Amp Neutral, 3-Phase AC Voltages (300 Vac)	8 5
5 Amp Phase, 1 Amp Neutral, 3-Phase AC Voltages (300 Vac)	8 6
5 Amp Phase, 2.5 mA High Sense Neutral, 3-Phase AC Voltages (300 Vac)	8 7

Conformal Coat

None	0
Conformally Coated Circuit Boards*	1

Accessories

Literature		
	Printed Instruction Manual	PM7102-02
	Configurable Label Kit (2 sheet kit)*	9260136

	Configurable Label Kit (25 sheet kit)*	9260137
Hardware		
	Synchronous Motor Voltage Divider Module*	915900294
SEL Cables		
	SEL-C222 EIA-232 Serial Cable, SEL Relay to DCE Device (25-Pin Female) (configurable length)*	Please see Online MOT or contact SEL REP or CSR for ordering information.
	SEL-C227A EIA-232 Serial Cable, SEL Relay to DTE Device (25-Pin Female) (configurable length)*	Please see Online MOT or contact SEL REP or CSR for ordering information.
	SEL-C234 EIA-232 Serial Cable, SEL Relay to DTE Device (9-Pin Female) (configurable length)*	Please see Online MOT or contact SEL REP or CSR for ordering information.
	SEL-C272 EIA-232 Serial Cable, SEL Relay to SEL Communications Processor (without IRIG-B signal) (configurable length)*	Please see Online MOT or contact SEL REP or CSR for ordering information.
	SEL-C273 EIA-232 Serial Cable, SEL Relay to SEL Communications Processor (with IRIG-B signal) (configurable length)*	Please see Online MOT or contact SEL REP or CSR for ordering information.
	SEL-C804 Multimode Fiber-Optic Arc-Flash Detection (AFD) Sensors*	Please see Online MOT or contact SEL REP or CSR for ordering information.
	SEL-C805 200 µm Multimode Fiber-Optic Cable (configurable length)*	Please see Online MOT or contact SEL REP or CSR for ordering information.
	SEL-C807 62.5/200µm Multimode Fiber-Optic Cable (configurable length)*	Please see Online MOT or contact SEL REP or CSR for ordering information.
	SEL-C808 62.5/125 µm Multimode Fiber-Optic Cable*	Please see Online MOT or contact SEL REP or CSR for ordering information.

	SEL-C814 Arc-Flash Detection (AFD) Fiber Cables and Accessories (configurable length and number of splices) *	Please see Online MOT or contact SEL REP or CSR for ordering information.
	SEL-CA605 CAT 5e, Shielded Twisted Pair(STP) Ethernet Cable (configurable length)*	Please see Online MOT or contact SEL REP or CSR for ordering information.

Additional Information

- Base unit includes slots A, B (EIA-232), Z, HMI, and Front EIA-232 Port.
- The protocols SNTP and Modbus TCP are included in the STANDARD offering with Ethernet option.
- DNP3 LAN/WAN are included with DNP3 and Ethernet options.
- Download ACSELERATOR QuickSet SEL-5030 software for free at https://www.selinc.com/softwaresolutions/. ACSELERATOR QuickSet on CD (503001WX4) is available upon request.
- The SEL-710-5 comes standard with a CD manual. One complimentary printed instruction manual is available upon request with each product purchased.
- A configuration kit is provided for the front panel configurable labels (packaged in the shipping box). For additional kits, order SEL part number 9260136 (2 Sheet Kit) or 9260137 (25 Sheet Kit).
- For additional remote I/O capability, order SEL-2505 Remote I/O Module that is SEL-2812 compatible (ST option only).
- Order external AC powered RTD module SEL-2600A or external DC powered RTD module SEL-2600D using WI-5997 to interface remote external resistive temperature devices (RTD) or use internal RTD inputs option in Slot D.
- The SEL-710-5 option cards are orderable separately for field installation. Use WI-11297 and contact your SEL representative to order option cards.
- For relay wire termination kits, please see Application Note AN2014-08 on the SEL website or contact SEL REP or CSR for ordering information.
- For SEL-710-5 Mounting Accessories including adapter plates, dust protectors, etc go to https://selinc.com/applications/mountingselector/.
- ACSELERATOR Bay Screen Builder SEL-5036 software is available with touchscreen models.
- All Digital Outputs are Form-A unless noted otherwise

Making Electric Power Safer, More Reliable, and More Economical®

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