

SEL-751 Feeder Protection Relay

Standard Features

- **Protection**
 - Overcurrent
 - Over / Under Frequency
 - Harmonic Blocking
 - Breaker Monitoring
 - Breaker Failure
 - IEC Thermal Element
- **Hardware**
 - 3-Phase AC Current Inputs
 - Slot Z
 - Neutral AC Current Input
 - Slot Z
 - 2 Digital Inputs (DI)
 - Slot A
 - 3 Digital Outputs (DO)
 - Slot A
 - IRIG-B Time Code Input
 - 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**
 - IEEE C37.118 Synchrophasors
 - Modbus® RTU
 - SEL ASCII and Compressed ASCII
 - SEL Fast Meter, Fast Operate, Fast SER
 - SEL Fast Message
 - Ymodem File Transfer
 - SEL MIRRORRED BITS Communications
 - Event Messenger
- **Other**
 - Instruction Manual CD
 - ACSELERATOR SEL-5030 Software

Part Number:

7	5	1																			
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Advanced Firmware Features

◦ Arc Sense technology for HIF detection is applicable for low-impedance grounded systems

None				0																	
Reclosing				1																	
Directional ◦ Requires 4 ACI / 3 AVI card in Slot Z				2																	
Arc Sense ◦ Requires 4 ACI / 3 AVI card in Slot Z				3																	
Reclosing and Directional ◦ Requires 4 ACI / 3 AVI card in Slot Z				4																	
Reclosing, Directional, and Arc Sense ◦ Requires 4 ACI / 3 AVI card in Slot Z				5																	
Advanced Directional ◦ Advanced Directional includes directional protection for ungrounded, low-impedance, high-impedance and Petersen coil grounded systems and requires 200 mA neutral CT selection ◦ Requires 4 ACI / 3 AVI card in Slot Z				6																	
Reclosing and Advanced Directional ◦ Advanced Directional includes directional protection for ungrounded, low-impedance, high-impedance and Petersen coil grounded systems and requires 200 mA neutral CT selection ◦ Requires 4 ACI / 3 AVI card in Slot Z				7																	
Reclosing, Advanced Directional, and Arc Sense ◦ Advanced Directional includes directional protection for ungrounded, low-impedance, high-impedance and Petersen coil grounded systems and requires 200 mA neutral CT selection ◦ Requires 4 ACI / 3 AVI card in Slot Z				8																	

User Interface

English										0							
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

2x16 LCD With 4 Pushbuttons																	1
2x16 LCD With 8 Pushbuttons																	0
5" Color Touchscreen With 4 Pushbuttons																	B
5" Color Touchscreen With 8 Pushbuttons																	A

Ethernet (Port 1) | Multimode Fiber ST (Port 2) | Rear Serial Port (Port 3)

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

None None EIA-232																	A
None None EIA-485																	B
Single 10/100BASE-T None EIA-232																	C
Single 10/100BASE-T None EIA-485																	D
Single 100BASE-FX MM LC None EIA-232																	E
Dual 10/100BASE-T None EIA-232																	F
Dual 100BASE-FX MM LC None EIA-232																	G
None Single MM ST Fiber-Optic Serial EIA-232																	0
None Single MM ST Fiber-Optic Serial EIA-485																	1
Single 10/100BASE-T Single MM Fiber-Optic Serial EIA-232																	2
Single 10/100BASE-T Single MM Fiber-Optic Serial EIA-485																	3
Single 100BASE-FX MM LC Single MM ST Fiber-Optic Serial EIA-232																	4
Dual 10/100BASE-T Single MM ST Fiber-Optic Serial EIA-232																	6
Dual 100BASE-FX MM LC Single MM ST Fiber-Optic Serial 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 Selectable)									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 Selectable)									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 Selectable)										6	X						
Vsync (300 Vac) / Vbat (300 Vdc) / 4 Arc- Flash Detection Inputs o To achieve 2-5 ms operate times for Arc-Flash Protection a 4 DI / 4 DO Fast High Current Interrupting Card is required o Requires 4 ACI / 3 AVI card in Slot Z										7	0						

LEA Vsync (8Vac) / Vbat (300 Vdc) / 4 Arc-Flash Detection Inputs o To achieve 2-5 ms operate times for Arc-Flash Protection a 4 DI / 4 DO Fast High Current Interrupting Card is required o Requires 4 ACI / 3 AVI card in Slot Z	L 0
8 Arc-Flash Detection Inputs o To achieve 2-5 ms operate times for Arc-Flash Protection a 4 DI / 4 DO Fast High Current Interrupting Card is required	7 7

Slot Z Voltage Inputs

None	A
3-Phase AC Voltage (300 Vac)	8
3-Phase LEA AC Voltage (8 Vac)	L

Slot Z Current Inputs

1 Amp Phase, 1 Amp Neutral	1
1 Amp Phase, 5 Amp Neutral	2
1 Amp Phase, 200 mA Neutral o Non-directional relays can order this CT for SEF protection	3
5 Amp Phase, 5 Amp Neutral	5
5 Amp Phase, 1 Amp Neutral	6
5 Amp Phase, 200 mA Neutral o Non-directional relays can order this CT for SEF protection	7

Conformal Coat

None	0
Conformally Coated Circuit Boards	1

Accessories

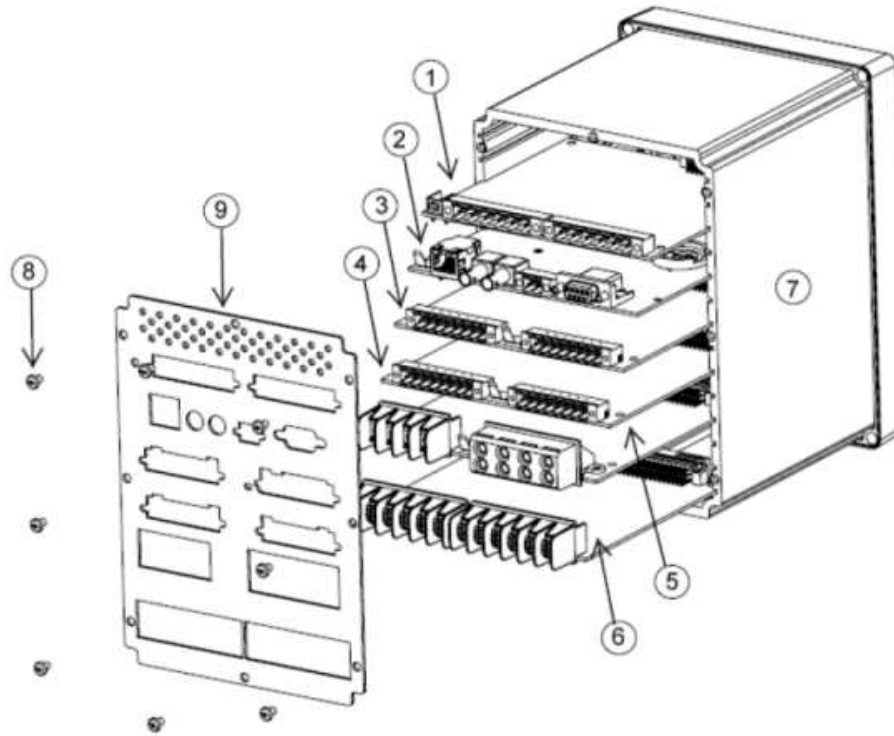
Literature		
Printed Instruction Manual	P M 7 5 1 - 0 1	
Configurable Label Kit (2 sheet kit)*	9 2 6 0 1 3 6	
Configurable Label Kit (25 sheet kit)*	9 2 6 0 1 3 7	
SEL Cables		
SEL-C804 Multimode Fiber-Optic Arc-Flash Detection (AFD) Sensors (configurable length)*	Please see Online MOT or contact SEL 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-C234 EIA-232 Serial Cable, SEL-751 to DTE Device (9-Pin Female) (configurable length)*	Please see Online MOT or contact SEL REP or CSR for ordering information.	
SEL-C227A EIA-232 Serial Cable, SEL-751 to DTE Device (25-Pin Female) (configurable length)*	Please see Online MOT or contact SEL REP or CSR for ordering information.	

SEL-C222 EIA-232 Serial Cable, SEL-751 to DCE Device (25-Pin Female) (configurable length)*	Please see Online MOT or contact SEL REP or CSR for ordering information.
SEL-C272 EIA-232 Serial Cable, SEL-751 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-751 to SEL Communications Processor (with IRIG-B signal) (configurable length)*	Please see Online MOT or contact SEL REP or CSR for ordering information.
SEL-CA605 CAT5e, Shielded Twisted Pair (STP) Ethernet Cable (configurable length)*	Please see Online MOT or contact SEL REP or CSR for ordering information.
SEL-C805 200 μ m Multimode Fiber-Optic Cable (configurable length)*	Please see Online MOT or contact SEL REP or CSR for ordering information.
SEL-C807 62.5/200 μ m Multimode Fiber-Optic Cable (configurable length)*	Please see Online MOT or contact SEL REP or CSR for ordering information.
SEL-C808 62.5/125 μ m Multimode Fiber-Optic 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.
- Order 2 AVI / 4 AFDI Card for Vsync, VBat, Arc Flash Detection Input.
- The protocols Sntp and Modbus TCP are included in the STANDARD offering with Ethernet option.
- DNP3 LAN/WAN are included with DNP3 and Ethernet option.
- Download ACSELERATOR QuickSet SEL-5030 software for free at <https://www.selinc.com/softwareolutions/>. ACSELERATOR QuickSet on CD (503001WX4) is available upon request.
- The SEL-751 can be ordered 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-751 option cards are orderable separately for field installation. Use WI-12625 and contact your SEL representative to order option cards.
- For Arc-Flash Detection Point Sensors, Bare-Fiber Sensors, or Cable Accessories, see SEL-C804 Multimode Fiber-Optic Arc-Flash Detection (AFD) Sensors and C814 Arc-Flash Detection (AFD) Fiber Cables and Accessories.
- 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-751 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.

Chassis Card Slot Configuration Example



- | | |
|---|-------------------------------|
| ① SELECT Power Supply Card with I/O (Slot A) | ⑥ SELECT AC/AVI Card (Slot Z) |
| ② SELECT Processor and Communications Card (Slot B) | ⑦ Device Case |
| ③ SELECT I/O Expansion Card (Slot C) | ⑧ Rear Panel Mounting Screws |
| ④ SELECT I/O Expansion Card (Slot D) | ⑨ Rear Panel |
| ⑤ SELECT I/O Expansion Card (Slot E) | |

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

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