

# Transformer Protection and Monitoring Features

[selinc.com/products/comparisons/transformer-protection-and-monitoring](http://selinc.com/products/comparisons/transformer-protection-and-monitoring)

■ Standard feature    + Model option

*f* This function may be created using relay, device word bits, analog quantities, and timers.

Features	SEL-487E	SEL-387E	SEL-387	SEL-387A	SEL-787	SEL-787-2/-3/-4	SEL-587	SEL-2414
<b>Applications</b>								
Breaker Failure Protection	■	<i>f</i>	<i>f</i>	<i>f</i>	■	■	<i>f</i>	<i>f</i>
Transformer and Machine Current Differential	■	■	■	■	■	■	■	
Low-Impedance Bus Differential	■	■	■		■	■		
Underfrequency Load Shedding	■	<i>f</i>			+	+		
Undervoltage Load Shedding	■	<i>f</i>			+	+		
Three-Phase Current Inputs	5	3	4	2	2	2, 3, or 4	2	+
Three-Phase Voltage Inputs	2	1			1*	1*		1*
<b>Protection Elements</b>								
24 Overexcitation (Volts/Hertz)	■	■			+	+		
25 Synchronism Check				+		+		
27I Inverse Time Undervoltage (Phase, Phase to Phase, Sequential, Vsync)						+		
27/59 Under-/Overvoltage	■	■			+	+		
32 Directional Power	■				+	+		
46 Current Unbalance	■							
49 Equipment Thermal Monitoring	■		+	■	■	■		
50FO Flashover Protection	<i>f</i>	<i>f</i>			<i>f</i>	<i>f</i>		
50 (N,G) Overcurrent (Neutral, Ground)	■	■	■	■	■	■	■	■
50P Phase Overcurrent	■	■	■	■	■	■	■	■
50Q Negative-Sequence Overcurrent	■	■	■	■	■	■	■	■
51 (N,G) Time Overcurrent (Neutral, Ground)	■	■	■	■	■	■	■	■
51P Phase Time Overcurrent	■	■	■	■	■	■	■	■
51Q Negative-Sequence Time Overcurrent	■	■	■	■	■	■	■	■
67 (P,G,Q) Directional Overcurrent (Phase, Ground, Negative Sequence)	■							
81 Under-/Overfrequency	■	■			+	+		
81R Rate-of-Change-of-Frequency	<i>f</i>							
87 Phase Differential	■	■	■	■	■	■	■	
REF Restricted Earth Fault	■	■	■	+	+	■		

# Transformer Protection and Monitoring Features, Continued

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<b>Instrumentation and Control</b>								
SELogic Control Equations	■	■	■	■	■	■	■	■
Voltage Check on Closing	<i>f</i>	<i>f</i>			<i>f</i>	+		
Transformer Cooling Fan Control	<i>f</i>				<i>f</i>	<i>f</i>		■
Nonvolatile Latch Control Switches	■	■	■	■	■	■		■
SELogic Remote Control Switches	■	■	■	■	■	■	■	■
SELogic Local Control Switches	■	■	■	■	■	■		■
Analog Control Variables								■
Display Points	■	■	■	■	■	■		■
Multiple Settings Groups	■	■	■	■	■	■		
Substation Battery Monitor	■	■	■	■		+		<i>f</i>
Breaker Wear Monitor	■	■	■	■		■	■	■
Event Report (Multicycle Data)	■	■	■	■	■	■		■
Sequential Events Recorder	■	■	■	■	■	■	■	■
Instantaneous Meter	■	■	■	■	■	■	■	■
Demand Meter	■	■	■	■	■	■	■	■
Load and Temperature Profile Report	■				■	■		■
Resistance Temperature Detector (RTD) Inputs			+		+	+		+
Built-In Web Server	■	■				■		
IEEE C37.118 Synchrophasors	■				■	■		
EtherNet/IP						+		
IEC 61850	+	+			+	+		+
IEC 61850 Edition 2	+				+	+		+
Simple Network Time Protocol (SNTP)	■				■	■		■
Parallel Redundancy Protocol (PRP)	■					■		■
IEEE 1588 Precision Time Protocol Version 2 (PTPv2)	+					+		
Time-Domain Link (TiDL) Technology	+							
Through-Fault Monitor	■	■	+	■	■	■		■
Thermal Model/SEL-2600 RTD Module Communications	■		+	■	■	■		■
<b>Miscellaneous Features</b>								
Spanish Language Support						■		
Connectorized (Quick Disconnect) Available	+	+	+			+	+	+