

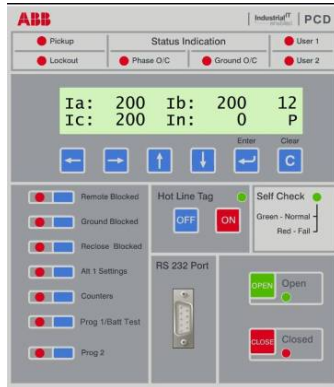
OVR Three-Phase Recloser and PCD Control

Style Guide 1VAL264001-SG

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Revision F

Now Offering a 3-Year Warranty Standard!



The OVR three-phase recloser style guide aids in the proper selection of your OVR three-phase style number. The OVR recloser consists of an upper unit, cable assembly, mounting frame, accessories, and the PCD control with cabinet. The PCD control provides all the protection and metering functions required by the unit. When ordering an OVR recloser, the style number must be given to the factory.

The options highlighted in gray are for a standard pole mounted recloser with basic PCD control.

Typical Style Code	R	1	1	5	1	Q	C	N	1	4	8	E	3	S	1	N	0	0
Digit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18



OVR Three-Phase Recloser Selection Tables

Table 1. Recloser Ratings

Voltage (kV)	BIL (kV)	Continuous Current (A)	Interrupting Rating (kA)	Style Code Digits 1-5
15	110	630	8	R1158
15	110	630	10	R1150
15	110	630	12.5	R1151
15	110	800	12.5	R1181
15	110	1000	12.5	R1111
15	110	630	16	R1152
15	110	800	16	R1182
15	110	1000	16	R1112
27	125	630	12.5	R2251
27	125	800	12.5	R2281
27	125	1000	12.5	R2211
27	125	630	16	R2252
27	125	800	16	R2282
27	125	1000	16	R2212
38	150	630	12.5	R3551
38	150	800	12.5	R3581
38	150	1250	12.5	R3521
38	150	630	16	R3552
38	150	800	16	R3582
38	150	1250	16	R3522
38	170	630	12.5	R3751
38	170	800	12.5	R3781
38	170	1250	12.5	R3721
38	170	630	16	R3752
38	170	800	16	R3782
38	170	1250	16	R3722

Table 2. Mounting Frame

Frame	Description	Style Code Digit 6
Pole w/ 6 Arrester Mtg bracket – Assembled	Galvanized steel pole mounting frame with provisions for mounting 6 arresters – Assembled	A
Pole w/ 6 Arrester Mtg bracket – Unassembled	Galvanized steel pole mounting frame with provisions for mounting 6 arresters – Unassembled	B
Pole w/ 6 Arrester Mtg & 3 PT C-Channel Mtg Bracket – Assembled	Galvanized steel pole mounting frame with provisions for mounting 6 arresters and integrated PT mounting bracket for up to (3) 150 KV or (3) 125kV BIL single or dual bushing PTs – Assembled	C
Pole w/ 6 Arrester Mtg & 3 PT C-Channel Mtg Bracket – Unassembled	Galvanized steel pole mounting frame with provisions for mounting 6 arresters and integrated PT mounting bracket for up to (3) 150 KV or (3) 125kV BIL single or dual bushing s – Unassembled	D
Pole w/ 6 Arrester Mtg & Flat PT Mtg Bracket – Assembled	Galvanized steel pole mounting frame with provisions for mounting 6 arresters and integrated PT mounting bracket. For up to (2) single or dual bushing 150kV BIL PTs or up to (3) single bushing 125kV BIL PTs - Assembled	H
Pole w/ 6 Arrester Mtg & Flat PT Mtg Bracket – Unassembled	Galvanized steel pole mounting frame with provisions for mounting 6 arresters and integrated PT mounting bracket. For up to (2) single or dual bushing 150kV BIL PTs or up to (3) single bushing 125kV BIL PTs - Unassembled	R
Pole w/ 6 Arrester Mtg & 6 PT Mtg Bracket, Hrztl Construction, Galvanized – Assembled (15 kV / 27 kV Only)	Galvanized steel pole mounting frame with provisions for mounting 6 arresters and integrated PT mounting bracket for 6 PTs utilized for standard distribution line construction – Assembled	G

Frame	Description	Style Code Digit 6
Pole w/ 6 Arrester Mtg & 6 PT Mtg Bracket, Hrztl Construction, Stainless Steel – Assembled (15 kV / 27 kV Only)	304 SS pole mounting frame with provisions for mounting 6 arresters and integrated PT mounting bracket for 6 PTs utilized for standard distribution line construction - Assembled	I
Pole w/ Arrester 6 Mtg & PT 6 Mtg Bracket, Vertical Construction, Galvanized – Assembled (15 kV / 27 kV Only)	Galvanized steel pole mounting frame with provisions for mounting 6 arresters and integrated PT mounting bracket for 6 PTs – utilized for vertical distribution line construction - Assembled	K
Pole w/ Arrester 6 Mtg & PT 6 Mtg Bracket, Vertical Construction, Stainless Steel – Assembled (15 kV / 27 kV Only)	304 SS pole mounting frame with provisions for mounting 6 arresters and integrated PT mounting bracket for 6 PTs utilized for vertical distribution line construction - Assembled	M
Substation Frame – (Fits Cooper footprint “pad”) Assembled*	Galvanized steel substation mounting frame to match Cooper recloser footprint (VTs mounted separately) – Assembled	V
Substation Frame – (Fits Cooper footprint “pad”) – Unassembled*	Galvanized steel substation mounting frame to match Cooper recloser footprint (VTs mounted separately) – Unassembled	W
Substation Frame w/ 3 PT Mtg Bracket (Fits Cooper footprint “pad”) – Assembled*	Galvanized steel substation mounting frame per Cooper footprint with integrated PT mounting bracket for 3 PTs – Assembled	X
Substation Frame w/ 3 PT Mtg Bracket (Fits Cooper footprint “pad”) – Unassembled*	Galvanized steel substation mounting frame per Cooper footprint with integrated PT mounting bracket for 3 PTs– Unassembled	Y
None	No Frame Supplied	N

* Note: 38 kV substation frame does not match Cooper footprint (5 inches wider).

Table 3. Control Cable Length

Control cable assembly actual length	Description (Connectors and cable can transfer current and voltage signals, as well as power, between cabinets)	Style Code Digit 7
10 feet [3 m] V and I (24-Pin)	10 foot [3 m] cable assembly (Substation Standard)	A
17 feet [5 m] V and I (24-Pin)	17 foot [5 m] cable assembly for voltage and current signals	L
20 feet [6 m] V and I (24-Pin)	20 foot [6 m] cable assembly for voltage and current signals	B
30 feet [9 m] V and I (24-Pin)	30 foot [9 m] cable assembly for voltage and current signals	C
35 feet [10 m] V and I (24-Pin)	35 foot [10 m] cable assembly for voltage and current signals	E
40 feet [12 m] V and I (24-Pin)	40 foot [12 m] cable assembly for voltage and current signals	D

Note: to mount cabinets 25 feet apart, select 30-foot cable for drip loop and spacing (add 5 feet)

Table 4. Cable Options for Control Power & PT Input (Digit 8 was previously a “-“ in the style number)

Available w/Voltage Sensing	LV Cable Options	HV Cable Options	Description	Style Code Digit 8
Y	-	-	No connector provided.	N
Y	(1) 2-Pin Connector w/ 20 ft cable Control power input directly into Control Cabinet		(1) 2-pin connector with 20 ft cable utilized for control power input to low voltage cabinet where an external plug is required	2
Y	(1) 2-Pin Connector w/ 20 ft cable Control power directly into Control cabinet & PT voltages directly into High Voltage Cabinet	(1) 5-Pin Connector w/ 15 ft cable	(1) 5- pin voltage transformer plug with 15 ft cable required to input phase voltages to the high voltage cabinet for direct connection to the PCD (3 potential transformers maximum) and (1) 2-pin power plug with 20 ft cable utilized when control power into the low voltage cabinet requires a plug	3
Y	(1) 5-Pin Connector w/ 40 ft cable Control power & LCM input when desired to bring directly into Control Cabinet		(1) 5-pin voltage transformer plug with 40 ft cable for low voltage cabinet, required to put phase voltages and control power connection to pole mounted transformers for direct connection to the PCD/LCM (4 PTs maximum) Used with loop control and voltage sensing	6
Y	(1) 5-Pin Connector w/ 40 ft cable and (1) 2-Pin Connector w/40 ft cable Control power (2-pin) & LCM input (5-pin) directly into Control Cabinet		(1) 5-pin voltage transformer plugs with 40 ft cable for low voltage cabinet, required to put phase voltages and control power connection to pole mounted transformers for direct connection to the LCM (3 PTs maximum) Used with loop control and voltage sensing and includes 2 Pin power plug with 40 ft cable for control power for the PCD	7
Y		(1) 5-Pin Connector w/ 15 ft cable Control power and/or phase PTs input directly into High Voltage Cabinet	(1) 5-pin voltage transformer plugs with 15 ft cable for high voltage cabinet, required to put phase voltages and control power connection to the high voltage cabinet for direct connection to the PCD (3 PTs maximum)	5
N		(2) 5-Pin Connectors w/ 15 ft cable Control power and/or phase PTs input directly into High Voltage Cabinet for PCD & LCM	(2) 5-pin PT plugs with 15 ft cable for high voltage cabinet, required to put phase voltages and control power connection to the high voltage cabinet for direct connection to the PCD (6 potential transformers for Loop Scheme) Available only when Voltage Sensing not selected	0
N	(1) 2-Pin Connector w/ 20 ft cable Phase PT input directly into High Voltage Cabinet for PCD & LCM & control power input directly into Control Cabinet	(2) 5-Pin Connectors w/ 15 ft cable	(2) 5- pin voltage transformer plugs with 15 ft cable required to input phase voltages to the high voltage cabinet for direct connection to the PCD (6 potential transformers maximum) and (1) 2-pin power plug with 20 ft cable utilized when control power into the low voltage cabinet requires a plug Available only when Voltage Sensing not selected	4

Table 5. Control Power Voltage & I/O (Previously Table 4, Digits 9-10)

Voltage & Input / Output Contacts	Description	Style code Digits 9-10
15 & 27 kV ONLY		
120/240 VAC (90 – 265 VAC / 250 VDC); No Inputs, Outputs or Alarms; Batteries	120/240 VAC (90 – 265 VAC / 250 VDC Power) with no inputs, outputs, includes self-check alarm Form C contact; Recloser batteries with up to 48 hour carryover included. 12 VDC 8 W auxiliary power fused output for radio/modem (field adjustable to 24 VDC)	10
120/240 VAC (90 – 265 VAC / 250 VDC); 6 Inputs, 4 Outputs & Alarm; Batteries	90 – 265 VAC / 250 VDC Power with 6 inputs and 4 outputs (user available), includes self-check alarm Form C contact; Recloser batteries with up to 48 hour carryover included. 12 VDC 8 W auxiliary power fused output for radio/modem (field adjustable to 24 VDC)	14
125 VDC; 4 Inputs, 3 Outputs & Alarm	125 VDC Power with 4 inputs and 3 outputs (user available) and self-check alarm Form C contact	53
125 VDC; 8 Inputs, 7 Outputs & Alarm	125 VDC Power with 8 inputs and 7 outputs (user available) and self-check alarm Form C contact	54
38 kV ONLY		
120 / 240 VAC; No Inputs, Outputs or Alarms; Batteries	120/240 VAC Power with no inputs, outputs, includes loss of source alarm contact, Recloser batteries with up to 48 hour carryover included; Includes ISD / OVR interface	31
120 / 240 VAC; 6 Inputs, 4 Outputs & Alarm; Batteries	85 – 265 VAC/VDC Power with 6 inputs and 4 outputs (user available) and includes loss of source alarm contact; Recloser batteries with up to 48 hour carryover included; Includes ISD / OVR interface	32
48 VDC; 4 Inputs, 3 Outputs & Alarm	48 VDC Power with 4 inputs and 3 outputs (user available) and includes loss of source alarm contact; Includes ISD / OVR interface	33
48 VDC; 8 Inputs, 7 Outputs & Alarm	48 VDC Power with 8 inputs and 7 outputs (user available) and includes loss of source alarm contact; Includes ISD / OVR interface	34
125 VDC; 4 Inputs, 3 Outputs & Alarm	125 VDC Power with 4 inputs and 3 outputs (user available) and includes loss of source alarm contact; Includes ISD / OVR interface	35
125 VDC; 8 Inputs, 7 Outputs & Alarm	125 VDC Power with 8 inputs and 7 outputs (user available) and includes loss of source alarm contact; Includes ISD / OVR interface	36

Table 6. Control and Faceplate Options (Previously Table 5, Digit 11)

Type of Relay	Description	Style code Digit 11
PCD ANSI Faceplate; Excludes Firmware Options	PCD with ANSI faceplate, red close and green trip button, front RS-232 port, large view LCD, integral tagging function; Excludes load profile, oscillography, power quality and programmable curve software	E
PCD ANSI Faceplate, Includes Firmware Options	PCD with ANSI faceplate, red close and green trip button, front RS-232 port large view LCD, integral tagging function; Includes load profile, oscillography, power quality and programmable curve software	3
PCD ANSI Faceplate with Single-Phase Tripping; Excludes Firmware Options	PCD with ANSI faceplate, red close and green trip button, front RS-232 port, large view LCD, integral tagging function; Single-phase tripping; Excludes load profile, oscillography, power quality and programmable curve software	F
PCD ANSI Faceplate with Single-Phase Tripping; Includes Firmware Options	PCD with ANSI faceplate, red close and green trip button front RS-232 port, large view LCD, integral tagging function; Single-phase tripping; Includes load profile, oscillography, power quality, and programmable curve software	1
PCD IEC Faceplate; Excludes Firmware Options	PCD with IEC faceplate, green close button and red trip button; Excludes load profile, oscillography, power quality and programmable curve software	D
PCD IEC Faceplate; Includes Firmware Options	PCD with IEC faceplate, green close button and red trip button; Includes load profile, oscillography, power quality and programmable curve software	9
PCD IEC Faceplate with Single-Phase Tripping; Excludes Firmware Options	PCD with IEC faceplate, green close button and red trip button; Single-phase tripping; Excludes load profile, oscillography, power quality and programmable curve software	C
PCD IEC faceplate with Single-Phase Tripping; Includes Firmware Options	PCD with IEC faceplate, green close button and red trip button; Single-phase tripping; Includes load profile, oscillography, power quality, and programmable curve software	7

Table 7. Voltage Sensing & Pickup Settings (Field Adjustable) (Previously Table 6, Digit 12)

Pickup Setting – Ground	Pickup Setting – Phase	No Sensitive Earth Fault Style Code Digit 12	Includes SEF Style Code Digit 12
External PT Voltage Sensing (120 VAC input)			
10-160 A	20-320 A	A	B
10-160 A	100-1600 A	X	Y
50-800 A	20-320 A	C	D
50-800 A	100-1600 A	E	F
Internal Voltage Sensing SEF Included			
10-160 A	20-320 A	See Note	H
10-160 A	100-1600 A	See Note	K
50-800 A	20-320 A	See Note	M
50-800 A	100-1600 A	See Note	Q

Note: The pickup setting may be field adjusted to the low or high range via jumpers on the PT/CT input circuit board. Sensitive Earth Fault is now a standard feature. Use of Non-SEF is for only recommend for existing customers.

Table 8. Communication Ports and Protocol (Previously Table 7, Digit 13)

Communication Ports	Description	Style code Digit 13
No Communication Module RS-232 port (non-isolated, on CPU)	Includes one non-isolated RS-232 port (on CPU) only for externally isolated SCADA communication and local programming	0
Com2a Module RS-232 (isolated) RS-485 (isolated) Fiber (star connected only)	One isolated RS-232, RS-485 and Fiber Optic Port for SCADA communication and control programming. All ports are radial connected (one at a time), with selection of port set by jumpers on module	2
Com5 Module (Loop Control Ready) RS-232 (isolated) RS-485 (isolated)	One isolated RS-232 and RS-485 Port for SCADA communication and control programming. All ports are radial connected (one at a time), with selection of port using jumpers on module.	5
Com5 Module (w/ Loop Control Module) RS-232 (isolated) RS-485 (isolated)	One isolated RS-232 and RS-485 Port for SCADA communication and control programming. All ports are radial connected (one at a time), with selection of port using jumpers on module. (Includes processor for loop control and Loop Control Interface Module - LCM)	6

Note: All PCDs are supplied with DNP 3.0, MODBUS™ RTU and MODBUS™ ASCII protocols. All units have two independent communications ports. The front port is a 9 pin RS-232 port that supports MODBUS ASCII only and the rear port(s) supports all protocols. All units are Loop Control Ready.

Table 9. Bushing Terminal Connectors (Previously Table 8, Digit 14)

Connector	Description	Style code Digit 14
Stud terminal	Threaded stud is 1" – 12 thread	S
NEMA 2-Hole Pad	NEMA 2-hole pad (6 included)	2
NEMA 4-Hole Pad	NEMA 4-hole pad (6 included)	4
Clamp	Clamp type connector (#6-800 MCM) (6 included)	C

Note: Stud is 1" – 12 thread

Table 10. Heater Preset Voltage (Field Adjustable to 120 or 240 VAC) (Previously Table 9, Digit 15)

Preset Voltage	Description	Style code Digit 15
120 VAC	120 VAC Heater in both cabinets (Field Adjustable to 240 VAC)	1
240 VAC	240 VAC Heater in both cabinets (Field Adjustable to 120 VAC)	2

Table 11. Standard Dynamic Accessories (Digit 16 – Previously a “-“ in the style number)

Accessories	Description	Style code Digit 16
None	No accessories required	N
69 Switch	Block close function from yellow handle (Not available with (2) 5-pin option. Not available with (1) 5-pin option and voltage sensing. Requires selection of inputs and outputs from table 5)	A
Transfer Switch (83)	Transfer switch to transfer control power from primary to secondary source (PTs must be available on line and load side)	B
Potential Test Switch	Potential test switch	C
Current Test Switch	Current test switch	D
Current & Potential Test Switches	(1) Potential test switch & (1) Current test switch	E

Note: If more than one feature is required, choose other feature(s) from the table 12

Style Code Digit 17-18
00 for Standard – Style numbering will change for specials & dynamic accessories

Table 12. Dynamic Accessories – Specific to unit, will change last four digits of style number (Previously Table 10, Digits 17 – 18)

Accessories	Description
Radio Package	Radio package
69 Switch	Block close function from yellow handle (not available with (2) 5-pin option or single 5 pin option in high voltage cabinet with voltage sensing)
Transfer Switch	Transfer switch to transfer from primary to secondary source (PTs must be available on both sides, (2) 5-pin connectors should be selected) or 5 pin connector in LV cabinet should be selected
Potential Test Switch	Potential test switch
Current Test Switch	Current test switch
Current & Potential Test Switches	(1) Potential test switch & (1) Current test switch
Wiring for 1 Potential Transformer	Wiring and mounting for (1) PT on assembled recloser frame (PT not included)
Wiring for 3 Potential Transformers	Wiring and mounting for (3) PTs on assembled recloser frame (PT not included)
Wiring for 6 Potential Transformers	Wiring and mounting for (6) PTs on assembled recloser frame (PT not included)
Wiring for 4 Potential Transformers	Wiring and mounting for (4) PTs on assembled recloser frame (PT not included)

Note: Mounting and wiring of PTs requires assembled frame

Table 13. Static Accessories – Not specific to a unit, will be ordered as a separate line item

Style Number	Accessories	Description
12A00481G02	Cable Locking Sleeve	Tamper resistant cable locking sleeve – 24-pin connector
12A00482G02	Cable Locking Sleeve	Tamper resistant cable locking sleeve – 2-pin connector or 5-pin connector in LV unit
1B009360H01	15 kV / 27 kV Animal Guard (Straight)	Animal guard (straight shape, order 3 or 6 respectively) (15-27 kV only)
1B009380H01	38kV Animal Guard (Straight)	Animal guard (straight shape, order 3 or 6 respectively) (38 kV only)
1B009356H07	Cable Animal Guard with Straight pins	36" long 1" diameter cable maximum for installing on non-insulated cable normally used with animal guards listed above, order 3 or 6 respectively
1B009356H10	PT Animal Guard	Animal guard for PT connection (order 1 for each single bushing PT and 2 for each 2 bushing PT)
1B009360H02	Animal Guard (L Shaped)	Animal guard (L-shape, order 3 or 6 respectively) (15-27 kV only)



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