Low Voltage Air Circuit Breakers





For Safety : Please read the instruction manual carefully before using the products in this catalog. Wiring and connection must be done by the person who has a specialized knowledge of electric construction and wiring.

FA Global Site

http://www.mitsubishielectric.com/fa/products/lvd/lvcb/index.html





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FACTORY AUTOMATION



GLOBAL IMPACT OF MITSUBISHI ELECTRIC



Through Mitsubishi Electric's vision, "Changes for the Better" are possible for a brighter future.

Changes for the Better

"Changes for the Better" represents the Mitsubishi Electric Group's attitude to "always strive to achieve something better", as we continue to change and grow. Each one of us shares a strong will and passion to continuously aim for change, reinforcing our commitment to creating "an even better tomorrow".

Mitsubishi Electric is involved in many areas including the following:

Energy and Electric Systems

A wide range of power and electrical products from generators to large-scale displays.

Electronic Devices

A wide portfolio of cutting-edge semiconductor devices for systems and products.

Home Appliance

Dependable consumer products like air conditioners and home entertainment systems.

Information and Communication Systems

Commercial and consumer-centric equipment, products and systems.

Industrial Automation Systems

Maximizing productivity and efficiency with cutting-edge automation technology.

OVERVIEW

Warranty **Product Outline Product Features Product Specification Closing method Appearance and Product structure Connections** Accessories **Electronic trip relay** Wiring diagram **Outline dimensions Technical information Ordering information** Service network



adding new value to society in diverse areas from automation to information systems. The creation of game-changing solutions is helping to transform the world, which is why we are honored to be recognized in the 2019 "Forbes Digital 100" as one of world's most influential digital corporations.

Our advances in AI and IoT are

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Warranty

Warranty period and warranty coverage

If any faults or defects (hereinafter "Failure") found to be the responsibility of Mitsubishi Electric occurs during use of the product within the warranty period, the product shall be repaired at no cost via the sales representative or Mitsubishi Electric Sales office. However, if repairs are required on-site at domestic or overseas locations, expenses to send an engineer will be charged.

1. Warranty period

The free guarantee period of the product is one year from the day of purchase.

2. Warranty coverage

- (1) The primary failure diagnosis should be performed by users. However, if required by users, Mitsubishi Electric or Mitsubishi Electric Service Company may be able to perform the diagnosis. In that case, for damages caused by any cause found to be the responsibility of Mitsubishi Electric, the diagnosis will be performed at no cost. For details, contact a distributor.
- (2) The coverage shall be limited to ordinary use within the usage state, usage methods, usage environment, and other conditions which follow the instructions and precautions given in the instruction manual, user's manual, and caution labels on the product.
- (3) Even within the warranty period, repair cost shall be charged for the following cases.
- [1] Failure occurring from inappropriate storage or handling, carelessness or negligence by the user. Failure caused by selection of hardware or software design on the user side.
- [2] Failure caused by modifications, etc. to the product by the user without any approvals from Mitsubishi Electric.
- [3] In case Mitsubishi Electric product is assembled into a user's device, failure that could have been avoided if functions or structures, judged as necessary in the legal safety measures the user's device is subject to or as necessary by industry standards, had been provided.
- [4] Failure that could have been avoided if the maintenance described in the user's manual has been performed.
- [5] Failure caused by external irresistible forces such as fires or abnormal voltages, and failure caused by natural disasters such as earthquakes, lightning, wind and water damages.
- [6] Failure caused by reasons unpredictable based on scientific technology standards at the time of shipment from Mitsubishi Electric.

[7] Any other failure found not to be the responsibility of Mitsubishi Electric or that admitted not to be so by the user.

In addition, the warranty applies only to the product delivered. It does not apply to the damage that is caused by the failure of the product.

3. The period to supply the spare parts after discontinuation of production

Mitsubishi Electric shall supply spare parts for five years after discontinuation of production. After five years, Mitsubishi Electric shall supply spare parts until the spare parts run out of stock.

Exclusion of loss in opportunity and secondary loss from warranty liability

Regardless of the warranty period, Mitsubishi Electric shall not be liable for compensation to:

- (1) Damages caused by any cause found not to be the responsibility of Mitsubishi Electric.
- (2) Loss in opportunity, lost profits incurred to the user by failures of Mitsubishi Electric product.
- (3) Damages whether foreseeable or not, secondary damages, compensation for accidents, and compensation for damages to products other than Mitsubishi Electric products, caused by exceptional situations.
- (4) Compensation for cost occurring secondarily from replacement work by the user, maintenance of on-site equipment and start-up test run and other operations.

Product applications

(1) When using the products listed in this catalogue, the following conditions must be confirmed and obeyed. The product must be used so that a failure that occurs to the product does not lead to a serious accident. When a damage or failure occurs, the external backup function or fail-safe function must be executed systematically.

- (2) The products listed in this catalogue are designed and manufactured as general-purpose products for application to the general industry field. Therefore, the warranty does not apply to the following special uses.
- [1] The use that has a significant influence on the public facilities such as nuclear power plants and other power plants of power companies.
- [2] The use for railway companies, government offices, etc. that require to build the special quality assurance system.
- and property.

If the products listed in this catalogue are used for the above mentioned special uses, Mitsubishi Electric does not take any responsibility for the quality, performance, and safety of the product, which includes, but is not limited to, default liability, defect liability, quality assurance liability, tort liability, and product liability. However, in case the special quality (beyond general specifications) is not required and the use is a limited purpose and the backup/ fail-safe functions are equipped with the facility. Mitsubishi Electric may determine that the products listed in this catalogue can be guaranteed. For details, consult a distributor or Mitsubishi Electric.

Safety precautions

- Before using this product, read "Safety precautions" and the user's manual carefully and use it correctly.
- Important safety instructions are given below. Strictly observe the instructions.
- Be sure to instruct the end user with these safety precautions.

Meaning of indications

J	
A DANGER	Incorrect handling of the p such as death or serious in
	Incorrect handling of the pa according to circumstances
\bigcirc	This means prohibition. Ne
	Warning for possible outbre

- Do not use the product under the conditions with over-rated current. Otherwise, ground-fault or short circuit
- Do not touch terminal area. There is a risk of electrical shock.

- The electrical work shall be performed by qualified personnel (electrical expert).
- Inspection and maintenance should be performed by qualified personnel (electrical expert). Before performing

- vibrations, or shocks, etc. To do so may cause a fire, malfunction of the circuit breaker or make it inoperative.
- water will not enter the circuit breaker. Failure to do so may cause malfunction or fire.
- When the circuit breaker trips automatically, remove the cause before turning on the handle. Failure to do so may cause an electric shock or a fire.
- Retighten the terminals periodically. Failure to do so may cause a fire.
- Use the product in 50/60 Hz. Failure to do so may cause malfunction, inoperativeness or fire.
- · Dispose of the product as industrial waste.

Changes in product specifications

The specifications of the product listed in this catalogue, manuals or technical documents are subject to change without prior notice.

[3] The use for aerospace equipment, medical equipment, railway equipment, combustion and fuel equipment, passenger vehicles, manned transportation equipment, recreational equipment, safety equipment, and air conditioner for servers and the cooling facilities that are expected to have a significant influence on life, body,

roduct will result in a hazardous situation, ijury.

roduct may result in a hazardous situation s.

ever ignore this instruction.

eak of a fire under certain conditions.

fault could occur due to dielectric breakdown, or explosion could occur due to a short circuit protection failure.

wiring works, turn off the upstream circuit breaker. Failure to do so may expose you to electrical shock.

• Tighten the terminal screw with the torgue specified in the instruction manual. Failure to do so may cause a fire. • Do not install or store in an abnormal environment with high temperature, high humidity, dust, corrosive gas, • Protect the circuit breaker so that foreign particles, such as dust, concrete powder and iron powder, and rain

Product Outline

World Super AE V Series C-class is All New Mitsubishi Air Circuit Breaker series.

The C-class has the solenoid mechanism inside its body. Developed to meet customers' expectation and needs.



World Super AE V Series AED1600-CV (1) 3

(1) Mitsubishi ACB Direct Drive 2 Rated Current (630, 1000, 1250, 1600 A) (3) AE V Series C-class





Product Features

Mitsubishi Electric offers new air circuit breaker, AE V Series C-class. It has the breaking capacity of 50 kA at 500 V AC and can provide with the appropriate suggestion for the market with the breaking capacity of 50 kA or less.

Specifications of AE V Series C-class compared to AE-SW Series (Existing model)

Breaking capac	ity (Ics = 100% Ic	u at 500 V AC)	Short time withs	tand current (Icw	1 s)	Short time v	ithstand current (Icw	(3s)
Rated current	Mitsubishi AE-SW Series	Mitsubishi AE V Series C-class	Rated current	Mitsubishi AE-SW Series	Mitsubishi AE V Series C-class	Rated curren	Mitsubishi AE-SW Series	Mitsubishi AE V Series C-class
630 A 1000 A 1250 A 1600 A	65 kA	Added 50 kA	630 A 1000 A 1250 A 1600 A	65 kA	Added 50 kA	630 A 1000 A 1250 A 1600 A	50 kA	Added 36 kA

Certificate

AE V Series C-class is certified by the following parties.

- China Compulsory Certificate system (CCC)
- Keuring van Elektrotechnische Materialen te Arnhem (KEMA)

Solenoid mechanism

The adoption of the solenoid mechanism brings positive effects on the circuit breakers.

ACB (solenoi Control voltage 110-125 V AC 220-250 V AC 110-125 V DC 220-250 V DC



Remote operation

Solenoid mechanism is adopted to AE V Series C-class for ON operation. So you don't need to purchase "Closing coil (CC)" and "Motor charging case of existing model

Just purchase "Shunt trip device (SHT)" to utilize remote control function easily in case of AE V Series C-class. It can be used for switching a power supply as well.

3 **Product Features**



Silent charging

No need to use motor charging device. Direct closing by Closing magnet. Charging noise is extremely low compared to our existing spring charge type ACB (AE-SW Series) and the impact inside panel can be reduced when charging

New Features Flexibility of Neutral pole (N pole) (Only 4-poles model)

It is possible to choose the N pole position either left or right side as needed by customers. The default position of N pole is right side. Please inform us before placing an order in case the N pole on the left side is needed.

- Standard of N pole position is on the right side unless otherwise instructed.
- N pole on the left side is specially made in case of 4-pole model.



New Features Permanent Shunt trip device (Permanent SHT)

SHT (Shunt trip device) is improved to "Permanent SHT without controller" as standard. This makes OFF lock possible.

■ Electronic trip relay (ETR) for AE V Series C-class

The ETR has the following types; "Without DP" and "With DP".

New Features Built-in drawout handle

AE V Series C-class is equipped with a built-in drawout handle as standard. Just insert a built-in drawout handle into the body after using it.



Built-in drawout handle



New Features UVT (INST) without controller



New UVT (INST) is only coil unit

UVT is newly designed. UVT controller is not needed for New ACB when operating time of UVT is instantaneous.











3 Product Features

Product Specification

Туре						AED630-CV	AED1000-CV	AED1250-CV	AED1600-CV		
Number of poles							3,	4			
Rated insulation voltage	e (V)		Ui			1000					
Impulse withstand volta	age (kV)		Uimp			12					
Rated operational volta	age (V AC 50/6	0 Hz)	Ue				50	00			
Suitability for isolation			IEC 60	947-2			Ye	es			
Pollution degree			IEC 60)664-1			:	3			
Environmental conditio	n for EMC		IEC 60)947-2			ŀ	Ą			
Circuit breaker as per l	EC 60947-2										
Rating of neutral pole (A)					630	1000	1250	1600		
Sensor ratings (A)						630	1000	1250	1600		
Rated current setting lr at 40°C	(A)		Gener (Rated 0.5 to	al use I current a 1.0 × In,	adjustable) 0.05 step	315-346.5-378- 409.5-441-472.5- 504-535.5-567- 598.5-630	500-550-600-650- 700-750-800-850- 900-950-1000	625-687.5-750- 812.5-875-937.5- 1000-1062.5-1125- 1187.5-1250	800-880-960- 1040-1120-1200- 1280-1360-1440- 1520-1600		
Utilization category							E	3			
Ultimate breaking capa 50/60 Hz (Note 1) (Note	icity (kA rms) e 7)		lcu	240-5	00 V AC		5	0			
Rated service breaking	capacity (kA r	ms)	lcs	%	lcu		10	0%			
Rated short-time withs	tand current (k	A rms)	Laun.		1 s		5	0			
50/60 Hz	× ×	,	ICW	:	3 s		3	6			
Rated making capacity (kA peak) Icm 2 50/60 Hz			240-5	00 V AC		10)5				
Breaking time between	tripping order	and arc	extincti	on (ms)		40 (Note 2)					
Closing time (ms)							30	00			
Switch-disconnector as	s per IEC 6094	7-3									
Operational current AC	-23A					630	1000	1250	1600		
Rated making capacity 50/60 Hz	(kA peak)		lcm	240-5	00 V AC	52.5					
Rated short-time withs	tand current (k	A rms)	Icw		1 s	50					
M : 1 /0 /:	0 0 0				3 S		3	6			
Maintenance/Connection	Mechanical	with re mainte manuf	egular o enance facturer	rdinary prescribe	ed by the	10000 (Note 3)					
Service life (Note 4) Electrical main pres man		with re mainte presce manue	th regular ordinary aintenance 2 escribed by the anufacturer		240-500 V AC	6000					
		Horizo	ontal				Avai	lable			
Connection (Note 5)		Vertic	al			Available					
		Front					Avai	lable			
		Fixed		3-	pole	410 × 340 × 294					
Dimensions (mm) (H ×	W × D)			4-	pole		410 × 425 × 294				
		Drawo	out	3-	pole	430 × 300 × 375					
				4-	pole		430 × 38	35 × 375			
		Fixed		3-	pole		3	7			
Weight (kg) (without ac	cessories)			4-	pole		4	3			
(Note 6)		Drawo	out	3-	pole		5	7			
				4-	pole		6	6			
Reverse connection				Pos	sible						

Note 1) The MCR is equipped as standard.

Note 2) This value indicates the operating time for the O operation at the time of short circuit interruption. (For the CO operation, the value is 135 ms.) For the product with a UVT, refer to page 16.

Note 3) The mechanical service life includes the electrical service life. Note 4) This is a guide of the service life when the regular maintenance specified by the manufacturer is performed. Regular maintenance means inspection, grease lubrication, as-needed replacement of prescribed component and so on.

Note 5) For the details on the connection method of terminals, refer to Available connections (on page 14).

Note 6) This weight indicates the weight of product with a electronic trip relay, which does not include other accessories. The values in the table are typical values and are not guaranteed values. Note 7) When the breaker without a trip relay (BARE) and the external OCR for general purpose are used, the breaking capacity is 25 kA.

Closing method

Solenoid mechanism



The breaker closes electrically.

- The following describes the closing methods.
- 1. The breaker closes by pressing the ON button. 2. The breaker closes electrically by remote operation
- and opens by pressing the OFF button.
- The indicator shows the ON or OFF state of the main contacts.
 - The breaker cannot be closed while the OFF button is being pressed. (Safety design)
 - OFF lock is enabled by padlock (Refer to page 12, 20) as standard.



CB (solenoid) control rating							
Rated vo	ltage (V)	Applicable voltage range (V)	Applied voltage (V)	Current (Peak value) (A)	Operating time (s)	Criterion for power requirement	
	110 125	02 5 127 5	110	6.5			
110-125 AC	93.5-137.5	125	7.7		1000 VA		
(50/60 Hz) 220-250	187-275	220	3.3				
		250	3.9	< 0.2			
	440 425	02 5 127 5	110	7.1	S 0.5		
110-125 9		95.5-157.5	125	8.4		1000 W	
220-250	107.075	220	3.5				
	220-250	187-275	250	4.2			
ote) In conside	eration of the vo	tage drop, set the power	supply capacity for the se	plenoid not to be less that	n the operating voltage.		

Product Specification

- Note) The voltage is required to apply to the control circuit terminal block. The rated value and circuit diagram are shown below.



supply capacity f

Appearance and Product structure

Skeleton



Electrical accessories		6 Mechanical accessories
Auxiliary switch Shunt trip device Under voltage trip device	•	Push button cover Counter Cylinder lock Terminal cover Door frame Dust cover Interphase barrier

GB/T 14048.3

Fixed type



For the fixed type, lifting hooks (HP) are attached.

Drawout type



For the drawout type, a built-in drawout handle is attached.

Safety shutter lock Mis-insertion preventor Test jumper

7 Electronic trip relay

General use VS type with MCR switch Optional GF: Ground fault protection DP: Display Neutral CT

6 Appearance and Product structure

Connections

■ Overview (AED630-CV to AED1600-CV)



Available connections

Туре	LINE (upper) side/LOAD (lower) side	Abbreviation	AED630-CV/AED1000-CV/AED1250-CV/AED1600-CV
	Horizontal/Horizontal	FIX-HT	
	Vertical/Vertical	FIX-VT	
	Front/Front	FIX-FT	
	Horizontal/Vertical	FIX (HV)	
Fixed type (FIX)	Horizontal/Front	FIX (HF)	
(****)	Vertical/Horizontal	FIX (VH)	
	Vertical/Front	FIX (VF)	
	Front/Horizontal	FIX (FH)	
	Front/Vertical	FIX (FV)	Available
	Horizontal/Horizontal	DR-HT	Available
	Vertical/Vertical	DR-VT	
	Front/Front	DR-FT	
	Horizontal/Vertical	DR (HV)	
Drawout type (DR)	Horizontal/Front	DR (HF)	
	Vertical/Horizontal	DR (VH)	
	Vertical/Front	DR (VF)	
	Front/Horizontal	DR (FH)	
	Front/Vertical	DR (FV)	

Accessories

For breaker unit



Shunt trip device (SHT) 1



sindine trip device is a device to open the breaker by							
ed voltage pplicable voltage)	Frequency (AC)	Operating voltage	Inrush c power co	urrent and insumption	Steady power consumption (Note 1)	Operating time (Note 2)	
-30 V DC		24 V	4 A	100 W			
6.8-33 V)		30 V	5 A	150 W			
-60 V DC		48 V	2.5 A	120 W			
3.6-66 V)		60 V	3 A	180 W	00.1/4	0.05 s	
25 V AC/DC		100 V	1 A	100 VA	20 VA	max.	
50/60 Hz	E0/60 LI=	125 V	1.2 A	150 VA			
	50/00 HZ	200 V	1 A	200 VA			
40-275 V)		250 V	1.1 A	280 VA			

Note 1) While the voltage is applied to the input terminals (C1 and C2), the SHT keeps the breaker in the OFF position and the closing operation is cancelled. Therefore, the SHT can be used as a locking the breaker in the OFF position. (Breaker locking, in the OFF position, is released when the input voltage drops below 30% of the rated voltage. Release time is 1.0s or less.)

Note 2) In case of double rating of rated voltage, it is the value for the lower rating. (Example) In case of 24-30 V DC, it is operating time for 24 V DC.

Standard/Low capacity type

The shunt trip device is a device to open the breaker by remote control.



Option

Diode rectifier is not used for control source 24-30 V DC and 48-60 V DC.

8 Accessories

Under voltage trip device (UVT) 2



Standard³

*Standard if ETR is equipped.

This is the device that automatically trips the breaker when the circuit voltage drops below the nominal voltage.



There are 4 kinds of tripping time, INST, 0.5 s, 1.5 s, and 3 s. A trip terminal for forced OFF function is included as standard equipment.

Rated voltage	Frequency	Operating time	Pick-up	Pick-up Drop-out		Inrush current and power consumption		
Applicable voltage)	(AC)	(Time delay)	voitage	voitage	Operating voltage		consumption	
48 V DC (52.8 V max.)	-	□ INST (0.3 s max.)	31.2-40.8 V	21.6-33.6 V	48 V	3 A 150 W		
100-120 V AC/DC		1.5 s or more	65-85 V	45-70 V	100 V	2 A 200 VA	20 VA	
(132 V max.)	50/60 LI=	□ 3 s or more (Note 1) (Note 2) (Note 3)			120 V	2.4 A 300 VA		
200-240 V AC/DC	50/60 HZ		(Note 2)	100 170 1	00.440.14	200 V	1 A 200 VA	
(264 V max.)			130-170 V	90-140 V	240 V	1.1 A 280 VA		

Note 1) The UVT delay unit is built in the products with the operating time 0.5 s, 1.5 s, or 3 s. (The UVT delay unit requires 30 seconds to charge. The operating time shortens if the voltage becomes insufficient within 30 seconds after the voltage is started applying to UVT.)

Note 2) The operating time is a guarantee value when it drops from 85% or more of rated voltage. Note 3) Time delay should be allowed for 0.5 s between applying the voltage to the UVT and closing the breaker

Note 4) If a remote trip function is required, remove the shorting bar (DT1, DT2) and connect a normally closed switch, rated 10 mA at 30 V DC (Min. applicable load 15 V DC 1 mA or less) across them.







OCR alarm (AL) [MRE: Manual reset type]

pressed for resetting.

240

125

240

125

30

Switch rating

AC

(50/60 Hz)

DC



The gray manual reset button on the front side of the breaker will stick out continuously to the output OCR alarm (AL) if the breaker is tripped by the electronic trip relay. After tripping, the breaker cannot be turned ON unless the manual reset button is

AL in operation

it (A)	
Inductive load	
2	98
3	OCR alarm switch
0.2	97
0.4	L
3	
ST or GF.	

Note 1) This works when tripping occurs in LTD, STD, INS Note 2) The alarm continues to output until the manual reset button is pressed

3

5

0.2

0.4

4

Auxiliary switch Standard (LAX)/Low capacity type (LVAX)





• The a and b contacts may simultaneously be turned ON instantaneously at the time of switching contact; Pay attention to the contact state when designing circuits.

• The chattering time at the time of contact ON-OFF is below 0.025 s.

Cylinder lock (CYL)



The breaker is locked in the OFF state with the cylinder lock.

- it can be used for interlocking two or more breakers.
- Up to 5 types of cylinder locks can be manufactured.

Counter (CNT)



digit counter.

Push button cover (BC-L)



buttons. For the suitable size of a padlock, refer to page 20.

Door frame (DF)

to install the breaker. As for panel cut-out dimensions, refer to page 34.





8

Accessories

Interphase barrier (BA)



Option

For drawout type



This enhances the interphase insulation between the terminals of the breaker, and prevents short-circuit due to conductive objects or dust. It can be attached and detached easily. The interphase insulation is available for all connection methods.

Terminal cover (TTC)



The transparent terminal cover prevents users from careless touching to the live control terminals. International Protection is IP20 (IEC 60947-1 Annex C). The terminal cover is available

for both the fixed type breakers and the drawout type breakers.

Dust cover (DUC)



Option The dust cover prevents the dust or water from entering into the panel board due to the breaker panel cut.

Protection degree is IP54. DUC can be locked by the padlock. (The padlock should be supplied by the customer.) For the suitable size of the padlock, refer to page 20. Consult us for details.

1 Cell switch



5 Mis-insertion preventor

Cell switch (CL)



CL3

1

CL4 2 1 1

1 1 Operating sequence

Draw	vout position of bre	Disconne	
	Display position of	DISCONNECT	
	drawout operation		
ction	CL-C (CONNECTED)	quence ct)	OFF
Switch fund	CL-T (TEST)	over se	OFF
	CL-D (DISCONNECTED)	Change (a	ON

Note) The setting can be changed by customers later A preliminary setting of CL at factory shipment is as follows. CL1: 1C, CL2: 1C1D, CL3: 1C1T1D, CL4: 2C1T1D

Shorting b contact (SBC)



SBCs can be mounted.

Operating sequence

Main circuit	Disconnecte
Display position of drawout operation	DISCONNECT TI
Change-over sequence of SBC (b contact)	ON

8

Option	

This is the switch to show the drawout status (CONNECTED, TEST, and DISCONNECTED) of the breaker. An arbitrary combination up to 4 pieces is available.

Switch rating

ed	Co	nn	ected
EST	СС	N	NECT
			ON
ON			
0	DFF		

Voltage (V)		Current (A)		
		Resistive load	Inductive load	
AC	250	10	10	
(50/60 Hz)	125	10	10	
	250	3	1.5	
DC	125	10	6	
	30	10	10	
Contacts max.		Total 4	c max.	



When moving the breaker from the connected position to the test positions, this contact is used to short-circuit the auxiliary switch (LAXb), thus maintaining the

correct sequence of operation of the external control circuit. When ordering, SBC with the same number of contacts as auxiliary switches (LAXb) will be provided. Up to 5

	Connected
ST	CONNECT
OFF	

8 Accessories

Safety shutter (SST)



The safety shutters cover the conductors (cradle side) and prevent contact with them when the breaker is pulled out.

Safety shutter lock (SST-Lock)



This kit is used to lock the safety shutter using a padlock (the padlock to be customer's supply). The safety shutter close when the breakers are drawn out to prevent accidental contact with the main contacts. This kit is used for the safety shutters both in the line side and load side.

The safety shutter is locked while the breaker is open, and is unlocked automatically by inserting the breaker.

Mis-insertion preventor (MIP)



This prevents from other breakers unspecified from inserting into the cradle, and 5 patterns in maximum are available.

Drawout interlock



Standard

Optio

Optio

Option

This is the safety device that prevents insertion and drawout operation. When the breaker is ON, the drawout handle cannot be inserted, and insertion and drawout operation cannot be done unless the OFF button is pressed.

*Standard equipment in case of Drawout type



This is the device that locks automatically the drawout mechanism at "TEST" or "CONNECT" positions during insertion and drawout operation. When the lock plate is pushed in, lock is released and operation can be continued.

*Standard equipment in case of Drawout type

Padlock



A padlock can be arranged at the lock plate. Thereby, it is possible to prevent the connection position from being changed unnecessarily. As for outline dimensions of the padlock, please refer to the left figure.

Note 1) For the breaker, only the padlock with ø 5 is available. For the BC-L, Position lock, and SST-Lock, DUC the padlock with ø 5 or ø 6 is available. Note 2) The padlock is available for the push button cover, safety shutter lock, and position lock.

Operating position of drawout type





Test jumper (TJ)



is equipped as standard shipment. An extension cable (5 m) is providable.



Electronic trip relay

Feature



Power supply option

It provides the control power source for the trip indicator LED and DP. Please select a Power supply type from P3 or P4,

which include Power supplys with output contact. (The overcurrent protection and ground fault protection (GF)* can work with power from the internal CT, even if the control power source is off.)

Main setting

The characteristic setting function of the overcurrent protection according to application can be set. ETR for general use (Type: S1) has the setting dials for LTD, STD, and INST operating characteristics. The 4-pole breaker provides the neutral 100% protection as standard.

Optional setting option

Ground fault protection (GF) can be added as needed.

Note *) For Ground fault protection, it works under the rated current (In) setting of 0.2-1.0 thout Control power source.

A Display option

The measuring data (current) and alarms can be displayed with this module.

B RUN and ERR, LED standard

This indicator displays the ETR situation (Run and/or Error).

C Load current LED standard

This indicator shows the actual current-carrying level. The LED of 60, 80, 100, or OVER lights. When the load current exceeds 60% of Iu, the LED of 60 lights. When the load current exceeds the pickup current of LTD, the LED of OVER lights, and the breaker will be tripped after the predetermined time.

D Pre-alarm (PAL LED and Current setting dial) standard

This indicator displays the Pre-alarm situation when the setting current is exceeded.

E Trip indicator LED standard

This indicator displays the trip cause. (Self-holding type) If the output contact for this trip indicator is required, The power supply module should be selected from Type P3 or P4.

F TEST terminal standard

This TEST terminal is used for the field testing of characteristics with Mitsubishi Tester "Y-2005" (refer to page 27).

G RESET button standard

With this RESET button, trip indicator, display data such as a fault cause and fault current and Pre-alarm are reseted. When the Type P3 or P4 is equipped, the resetting from the control circuit terminal becomes possible. Additionally, this RESET button provides a lock function

of LTD and STD characteristics on the INST testing with Mitsubishi Tester "Y-2005".

OCR alarm (AL) standard

When the breaker is tripped by the overcurrent or ground fault protection (GF), this device continuously outputs the alarm signal until the alarm is reset. For details, refer to page 16.

Neutral pole overcurrent protection (NP) standard

When the humanics in load current become higher, the current on the neutral pole may exceed the rated current. This Neutral pole overcurrent protection prevents the troubles caused by higher Harmonics.

• Power supply module

Туре	Rated volta	age (V) Applica	ble voltage range (V)	Criterion for power requirement (VA)	Alarm output	
P3	100-240 AC (5 100-125	50/60 Hz)/ DC	85-264 AC 85-138 DC	15	5 output contacts	
P4	24-60 1	DC	18-72 DC	10	5 output contacts	
contact capa	city (Type P3 and	P4) <				
				Current (A)		
Voltage (V)		Re	Resistive load		Inductive load	
		cosø = 1.0			cosø = 0.4 L/R = 0.7	
AC	240	1			0.5	
(50/60 Hz)	120		1		1	
125			0.1 0.05		0.05	
00	30		1		1	
ote 1) The ove ote 2) Factory	rcurrent protection and setting of 5 output con	d ground fault protection o tacts is as follows.	perates without control p	ower source.		
	(1) LTD	2 STD/INST	(3) GF	④ PAL	(5) ERR.	
	Self-holding	Self-holding	Refer to lower to	able Automatic reset	Automatic reset	

		Curre	nt (A)
Voltage (V)		Resistive load	
		cosø = 1.0	
AC	240	1	
(50/60 Hz)	120	1	
DC	125	0.1	
	30	1	
1.1. () The second		the second data to the second	



Automatic reset: The output will be reset if it backs to normal conditio

• Type of Electronic trip relay





VS1NA

VS1GF

Type: VS1

Optional function

NA: Without optional setting GF: Ground fault protection DP: Display DPGF: Display & Ground fault protection

9



Note) When using an ETR with DP, select the power supply type.

For general purpose: Type S1

Operating characteristic curve (for general purpose: Type S1)



Note 1) (O operation) When Tsd = "0.06" setting, operating time is 0.04-0.1 s.	
When Tsd = "0.1" setting, operating time is 0.1 s ±50%.	
(CO operation) When Tsd = "0.06, 0.1" setting, operating time is 0.04-0.1	15 s.



Adjustable setting range

No.	Setting item	Mark	Adjustable setting range	Accuracy	Factory default value
Α	Current setting	Ir	0.5-1.0 (step 0.05) × In (CT rating)	-	1.0
K	Uninterrupted current	lu	0.8-1.0 × Ir (step 0.02), Pick-up current: 1.15 × Iu	1.05 × Iu…Non Pick-up 1.25 × Iu…Pick-up	1.0
L	LTD time	ΤL	12-25-50-100-150 s at lu × 2	±20%	150
М	STD pick-up current	Isd	1.5-2-2.5-3-4-5-6-7-8-9-10 × Ir	±15%	10
Ν	STD time	Tsd	$\frac{0.5\text{-}0.4\text{-}0.3\text{-}0.2\text{-}0.1\text{-}0.06\text{-}0.06\text{-}0.1\text{-}0.2\text{-}0.3\text{-}0.4\text{-}0.5\text{ s}}{^{(\uparrow t \text{ OFF})}}$ at lsd × 1.5	±20% (Note)	0.5 (l ² t ON)
J	INST/MCR pick-up current	li	$\frac{16\text{-}12\text{-}10\text{-}8\text{-}6\text{-}4\text{-}2\text{-}2\text{-}4\text{-}6\text{-}8\text{-}10\text{-}12\text{-}16}{}(\text{MST}) \times \text{Ir}$	±15%	16 (INST)
G	Pre-alarm current	lp	lu × 0.68-1.0 (step 0.04) -OVER	±10%	OVER
-	Pre-alarm time	Тр	1/2 TL at lu × 2 (after 1/2 TL, PAL contact output turns on.)	±20%	_

— li

The table and the figure include both optional display Pre-alarm current "OVER" setting is lu × 1.15. Note) (O operation) When Tsd = "0.06" setting, operating time is 0.04-0.1 s.

(CO operation) When Tsd = "0.1" setting, operating time is $0.1 \pm 50\%$. (CO operation) When Tsd = "0.06, 0.1" setting, operating time is 0.04-0.15 s.

Note 2) I²t is selectable: ON or OFF. Note 3) When CO operation, max. breaking time is 0.135 s.

9 **Electronic trip relay**

Optional function for electronic trip relay

Ground fault protection (GF)



The ground fault protection (GF) of several hundred amperes is available.

This function can be selected for trip or alarm (no trip). Power supply is necessary for this function, even if there is not power supply, it can function at 0.2 × In or higher.

Setting item	Mark	Adjustable setting range	Accuracy	Factory default value	
GF pick-up current	lg	0.1-0.2-0.3-0.4-0.5-0.6-0.7-0.8-0.9-1.0 × In	±20%	1.0	
GF time	Tg	3-1.5-0.8-0.5-0.3-0.15-<0.1 -<0.1-0.15-0.3-0.5-0.8-1.5-3 s TRIP ALARM (at 1.5 × lg)	±20% (Note)	3 s (TRIP)	
Alarm output	-	Setting for TRIP: Self-holding/Setting for ALARM: Automatic reset	-	Setting for TRIP (Self-holding	
vote) When Tg = "0.1" setting, operating time is 0.1 s ±50%.					

When Tg = "0.15" setting, operating time is 0.15 s ±30%

Neutral CT (NCT) *Only use for AE V Series

Option

Option



The Neutral CT is used for ground fault protection when the 3-pole breaker is used on a 3-phase 4-wire system and for the overcurrent protection on N phase. Please use this CT in combination with ground fault protection (GF). As for the outline dimensions, refer to page 34. The length of the cable (attached) for NCT is 2 m.





Neutral Current Transformer type name NCT-06-V AED630-CV 630 NCT-10-V AED1000-CV 1000 NCT-12-V AED1250-CV 1250 NCT-16-V AED1600-CV 1600

For outline dimensions, please refer to page 34



Ground fault protection characteristic curve

Note) When Tg = "0.1" setting, operating time is 0.1 s $\pm 50\%$ When Tg = "0.15" setting, operating time is 0.15 s ±30%

Display (DP)







Field test device (Y-2005)



- 2000 0000000000	
Test items	LTD, STD, INS
Range of signal output	Voltage signal
Dimensions	220 mm (W) ×
Time counter	0.000 to 999.9
Input voltage	100-240 V AC
Weight	4.5 kg

MCR

With this MCR switch, at the time of breaker closing from OFF to ON the INST (Instantaneous) characteristic works, and then after breaker is in closed (ON) position the INST characteristic becomes ineffective. This controlling function of INST characteristic is useful for the protection on the short-circuit fault at the time of closing and also for expanding the selective combination with branch breakers after closed. MCR is equipped as standard.

Electronic trip relay circuit diagram for general use



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1 Power supply CT

Energy is supplied for the operation of the overcurrent tripping and ground fault tripping (GF) function of the electronic trip relay.

Note) For the N pole, the above diagram shows the (Standard) case that the accessories are equipped on the right side

2 Current sensor coil

The current in each phase flowing through the breaker is detected. An air core coil which has good linearity is adopted.

3 Power supply circuit

This part converts power supply CT energy to constant voltage for respective circuits in the ETR.

4 Micro controller

The Micro controller integrates each phase current waveform from the Current sensor coil and performs processing for overcurrent protection and others.

5 Characteristic setting

This setting provides the characteristic setting of the ETR.

6 LEDs

The load current LED gives a figure of current in percent by CT energy. Trip indicator and pre-alarm are indicated by control power supply. RUN and ERR. LED indicate breaker's condition by control power supply or ten-odd percent of CT energy.

7 Trip indicator

This outputs contact signals of fault cause (including pre-alarm) and an other alarms. A control supply is necessary for this function.

Setting procedure



1. Prepare a small flat tipped screwdriver.

Insert the flat tipped screwdriver into the opening of the ETR cover.

Then, lightly turn the screwdriver to the upside as shown in the left figure, and the ETR cover will open.

3. There are two kinds of switches for characteristics setting and for trip indicator reset. They should be used as follows.

1 Adjustable in steps

Rotary code switch is used. Do not set the switch at points between steps. The setting value is the same when the switch is positioned at the thick line. (Set the switch with a torque of $0.02 \text{ N} \cdot \text{m}$ or below.)

Note) If the switch is set at points between steps, the characteristics setting value will be decided at either end of steps.

2 Push button

This is for temporary operation, and press it with force of 3N or less.

4. For ETR with Display, there is a slide type switch (Frequency selector switch) as the left side picture shows.

1 Frequency selector switch

Do not set the switch at points between the slide. When operating the switch, use a flat tipped screwdriver of the following size.

- <)]	Side view o	of the flat tip

5. When the characteristic is set up, use a device like a field test device, etc to make sure that the required characteristic has been set.

6. When sealing, seal the ETR cover by using the sealing hole at the top of the ETR cover.

Wiring diagram

The following diagram shows the case that accessories are fully equipped. For the N pole, the following diagram shows the (Standard) case that the accessories are equipped on the right side.



Outline dimensions

Drawout type AED630-CV, AED1000-CV, AED1250-CV, AED1600-CV









Front terminal

5

4P' 3P

<

Operating panel center

Neutral pole

left (option)

Outline

of breaker

With the N pole on the left side (Optional)



Note) The product can be installed with the N pole on the opposite side if specified.

3F

Fixed type AED630-CV, AED1000-CV, AED1250-CV, AED1600-CV







4P 3F





Note) The product can be installed with the N pole on the opposite side if specified.

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11 Outline dimensions



Panel cut-out, Front terminal adapter, Drawout handle, Lifting hook (HP)





Lifting hook (HP)



HP is standard equipment for Fixed for Fixed type.

■ Neutral CT (NCT)

Neutral CT (NCT)



Technical information

Precautions for connecting

Use M12 bolts, plain washers, and spring washers to connect the conductor. Clean the surface of conductor to be connected to the (silver plating) ACB terminal of circuit breaker and securely tighten the bolts with a correct torque (M12: $45 \pm 5 \text{ N} \cdot \text{m}$).

The ACB terminal which is applicable to connect the conductor is different depending on the shape of the terminal. Refer to the outline dimensions on page 32, 33.

Standard tightening torque





Use small washers to connect so that the washers do not overlap with each other.

Since the fault current flowing through the conductors causes large electromagnetic forces, the conductors should be secured firmly, using the values in the below table as a reference. Max. distance between the fixing support and ACB conductor strip should be less than 200 mm.

Electromagnetic force in N per 1 m conductor (three phase short circuit)

\swarrow	Туре	AED630-CV to AED1600-CV
	Conductor distance (mm)	
	Prospective fault current kA (pf)	
	30 (0.2)	7700
	42 (0.2)	15100
	50 (0.2)	21400

When selecting conductors to be connected to AE V breakers, ensure that they have a sufficient current capacity. Refer to the following table.

Conductor size (Ambient temperature: 40°C at open air) (Compliance with IEC 60947-1)

Rated current connecting	Conductors (Copper bus bar)			
Max. (A)	Arrangement	Quantity (Note)	Conduc	
630		2		
1000	With long	2		
1250	surface vertical	2	1	
1600		2	1	

Note) The values indicate the quantity per pole and terminal.

The above table shows the suitable connecting conductor size based on IEC 60947-1, which is assured from the test under Ambient temp. 40°C, Open air and testing configuration as shown in the right figure.

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Arc space

When a short-circuit current is interrupted, discharged hot gas blows out from the exhaust port of the arc chute chamber, so provide a clearance as shown in the following table.



Dimensions		(mm	
Туре		AED630-CV to AED1600-CV	
Applicable voltage		500 V AC or less	
	А	0 (Note 1)	
Fixed type	в	50	
	С	162	
	D	50 (Note 2)	
	А	0	
Drewant turns	в	50	
Drawout type	С	240	
	D	50 (Note 2)	

e 1) 300 mm or more clearance is necessary to inspect the arc Note 2) The wiring space required for the control terminal block.

Service conditions

1. Normal service condition

Under ordinary conditions that the following normal working conditions are all satisfied, the AE V Series air circuit breaker may be used unless otherwise specified.

1. Ambient temperature

A range of +40°C max. to -5°C min. is recommended. And the average over 24 hours must not exceed +35°C.

- 2. Altitude
- 2000 m (6600 feet) or less

3. Environmental conditions

The air must be clean, and the relative humidity must be 85% or less at +40°C max. Do not use and store the product in atmospheres with sulfide gas and ammonia gas etc. $(H_2S \leq 0.01 \text{ ppm}, \text{ } SO_2 \leq 0.1 \text{ ppm}, \text{ } \text{NH}_3 \leq 0.25 \text{ ppm.})$

4. Installation conditions

When installing the AE V Series air circuit breaker, refer to the installation instructions in the catalogue and instruction manual.

5. Storage temperature

A range of max. +60°C to min. -20°C is recommended to bestored.

And the average over 24 hours must not exceed +35°C.

6. Guideline for replacement

Within approx. 15 years. Please refer to the instruction manual.

Precautions on installation

Installation direction



Grounding terminal

Unless otherwise specified, ground a grounding terminal for safety.

2. Special service conditions

In case of special service condition, the service life may become shorter in some cases.

1. Special environmental conditions

High temperature and/or high humidity Corrosive gas

2. High ambient temperature

If the ambient temperature exceeds +40°C, the uninterrupted current rating will be reduced. Since the derating value is different depending on the applicable standard, refer to page 37.

3. High altitude

Since the heat radiation rate is reduced for use at the 2000 m or higher, accordingly the operating voltage, continuous current capacity, and breaking capacity are derated. Moreover, the insulation durability is also decreased owing to the atmospheric pressure. Please inquire us for further details.

Tiahtenina toraue

M12

45 ±5

Internal resistance, reactance and power consumption (per pole)

Туре	Connections	Internal resistance (mΩ)	Reactance (mΩ)	Power consumption (W)
	Fixed type	0.017	0.11	7
AED030-CV	Drawout type	0.037	0.15	15
	Fixed type	0.017	0.11	17
AED1000-CV	Drawout type	0.037	0.15	37
AED1250-CV	Fixed type	0.017	0.11	27
	Drawout type	0.037	0.15	58
	Fixed type	0.017	0.11	44
AED 1000-CV	Drawout type	0.037	0.15	95

The values are typical values per pole (in unused condition). Please regard it as a reference.

Deratings by ambient temperature

able 1 Deratings of Max. rated current by ambient temperature (Vertical connection) (A)					
Standard	Ambient temperature	AED630-CV	AED1000-CV	AED1250-CV	AED1600-CV
	40°C	630	1000	1250	1600
	45°C	560	1000	1250	1600
IEC 60947-2 (Standard 40°C)	50°C	500	1000	1250	1600
(otaliaala io o)	55°C	500	1000	1250	1590
	60°C	440	1000	1250	1540

Table 2 Deratings of Max. rated current by ambient temperature (Horizontal connection)

					(* *)
Standard	Ambient temperature	AED630-CV	AED1000-CV	AED1250-CV	AED1600-CV
	40°C	630	1000	1250	1600
	45°C	560	1000	1250	1600
IEC 60947-2 (Standard 40°C)	50°C	500	1000	1250	1560
(otalidard 40 0)	55°C	500	1000	1250	1500
	60°C	440	1000	1200	1430

Table 3 Deratings of Max. rated current by ambient temperature with Display

In case extension, display (DP1) are attached, the following derating values shown in this table are applied.

Standard	Ambient temperature	AED630-CV	AED1000-CV	AED1250-CV	AED1600-CV
	40°C	630	1000	1250	1600
	45°C	560	1000	1250	1600
IEC 60947-2 (Standard 40°C)	50°C	500	1000	1250	1440
	55°C	-	-	-	-
	60°C	-	-	-	-

(1) The above table shows the maximum rated current per each ambient temperature for drawout type breaker with vertical connection (at brandnew product), when breaker and bus bar are installed in open air (2) Connection bus bar is according to IEC 60947-1. As for ambient temperature exceeding 60°C, please inquire us.

(3) The above table shows the maximum rated current at the ambient temperature.

(4) The above table shows the values calculated by the values measured under the test conditions specified in the IEC 60947-2, which are not actual values. With the circuit breaker mounted to the panel verify the values under the test conditions specified in the IEC 61439-1 and others. Note) Set the proper values using the assembly verification in consideration of the influence of the heat of other devices in the panel, heat capacity of the connecting conductor, supply and exhaust, and air convection in the panel.

Technical information

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511		uns	lable	ale	applieu.	

(A)

Discrimination table

AE V Series air circuit breakers provide easy selective coordination with branch circuit breakers. For the selective coordinations, refer to the following table.

230 V AC sym kA

	Main airauit breaker		AED-CV			
	Unit brooki		AED630-CV	AED1000-CV	AED1250-CV	AED1600-CV
Dranak	circuit brocker		50	50	50	50
Branch		7.5				30
	NF32-SV	7.5	7.5	7.5	7.5	7.5
	NV32-SV	10	10	10	10	10
	NF63-SV	15	15	15	15	15
	NV63-SV	15	15	15	15	15
	NF63-HV	25	25	25	25	25
	NV63-HV	25	25	25	25	25
	NF125-SV	50	27 (50)	50	50	50
	N\/125-S\/	50	27 (50)	50	50	50
	NE125-SEV	85	16 (50)	29 (50)	38 (50)	50
		05	10 (50)	23 (50)	30 (50)	50
	NV125-SEV	65	16 (50)	29 (50)	38 (50)	50
	NF125-SGV	85	16 (50)	31 (50)	42 (50)	50
	NF125-LGV	90	9.5 (50)	37 (50)	50	50
	NF125-HV	100	27 (50)	50	50	50
	NV125-HV	100	27 (50)	50	50	50
	NF125-HEV	100	9.5 (50)	33 (50)	50	50
	NV125-HEV	100	9.5 (50)	33 (50)	50	50
	NE125-HGV	100	9.5 (50)	37 (50)	50	50
	NE160_SGV	85	16 (50)	30 (50)	40 (50)	50
	NE160 L CV	00	0.5 (50)	25 (50)	40 (50)	50
	NF 100-LGV	90	9.5 (50)	30 (50)	50	00
	NF160-HGV	100	9.5 (50)	35 (50)	50	50
	NF250-SV	85	16 (50)	29 (50)	38 (50)	50
Ŧ	NV250-SV	85	16 (50)	29 (50)	38 (50)	50
Ż	NF250-SEV	85	16 (50)	29 (50)	38 (50)	50
Ŧ	NV250-SEV	85	16 (50)	29 (50)	38 (50)	50
NF.	NF250-SGV	85	16 (50)	29 (50)	38 (50)	50
7	NE250-LGV	90	9.5 (50)	33 (50)	50	50
N	NF250_HV	100	9.5 (50)	33 (50)	50	50
~ ~		100	9.5 (50)	33 (50)	50	50
N/S		100	9.5 (50)	33 (50)	50	50
ŭ,	NF250-HEV	100	9.5 (50)	33 (50)	50	50
~	NV250-HEV	100	9.5 (50)	33 (50)	50	50
	NF250-HGV	100	9.5 (50)	33 (50)	50	50
	NF400-SW	85	-	16 (50)	23 (50)	35 (50)
	NV400-SW	85	-	16 (50)	23 (50)	35 (50)
	NF400-SEW	85	9.5 (50)	16 (50)	23 (50)	35 (50)
	NV400-SEW	85	9.5 (50)	16 (50)	23 (50)	35 (50)
	NE400-HEW	100	9.5 (50)	16 (50)	23 (50)	35 (50)
	NV400-HEW	100	9.5 (50)	16 (50)	23 (50)	35 (50)
	NE400 REW	150	0.5 (50)	16 (60)	22 (50)	35 (50)
	NF400-REW	150	9.5 (50)	10 (50)	23 (50)	35 (50)
	NV400-REW	150	9.5 (50)	16 (50)	23 (50)	35 (50)
	NF630-SW	85	_	-	19 (50)	28 (50)
	NV630-SW	85	-	-	19 (50)	28 (50)
	NF630-SEW	85	-	14 (50)	19 (50)	28 (50)
	NV630-SEW	85	-	14 (50)	19 (50)	28 (50)
	NF630-HEW	100	-	14 (50)	19 (50)	28 (50)
	NV630-HEW	100	_	14 (50)	19 (50)	28 (50)
	NF630-REW	150	_	14 (50)	19 (50)	28 (50)
	NE800-SEW	85	-	(00)	19 (50)	26 (50)
	NI/200 SEW	0.5	-	_	10 (50)	20 (30)
	NF000-SEW	65	-	-	19 (50)	20 (5U)
	NF800-HEW	100	-	-	19 (50)	26 (50)
	NV800-HEW	100	-	-	19 (50)	26 (50)
	NF800-REW	150	-	-	19 (50)	26 (50)
	NF63-CV	7.5	7.5	7.5	7.5	7.5
	NV63-CV	7.5	7.5	7.5	7.5	7.5
	NF125-CV	30	15 (30)	30	30	30
	NV125-CV	30	15 (30)	30	30	30
ç	NE250-CV	36	9.5 (36)	21 (36)	36	36
Ň	NIV250-CV	36	0.5 (36)	21 (36)	36	26
0	NE400 OW	50	9.5 (50)	21 (30)	30	30
Ľ	NF400-CW	50	-	16 (50)	23 (50)	35 (50)
	NV400-CW	50	-	16 (50)	23 (50)	35 (50)
	NF630-CW	50	-	-	19 (50)	28 (50)
	NV630-CW	50	-	-	19 (50)	28 (50)
	NF800-CEW	50	-	-	19 (50)	26 (50)
	NF125-RGV	150	27 (50)	50	50	50
	NF125-UV	200	39 (50)	50	50	50
~	NE250-RGV	150	14 (50)	40 (50)	50	50
Ц.	NE250-10V	200	16 (50)		50	50
~		200	10 (50)	0U	0 /CO	00 (50)
	INF4UU-UEW	200	9.5 (50)	14 (50)	та (50)	28 (50)
	NF800-UEW	200	-	-	19 (50)	24 (50)

ranch	circuit breaker	50	
/ dino/ii	NF32-SV	2.5	2.5
	NV32-SV	5	5
	NE63-SV	75	75
	NV63-SV	75	75
	NE63-HV	10	10
	NV63-HV	10	10
	NF125-SV	25	14 (25)
	NV125-SV	25	14 (25)
	NE125-SEV	36	9.5 (36)
	NV125-SEV	36	9.5 (36)
	NF125-SGV	36	9.5 (36)
	NF125-LGV	50	9.5 (50)
	NE125-HV	50	14 (50)
	NV125-HV	50	14 (50)
	NE125-HEV	65	9.5 (50)
	NV125-HEV	65	9.5 (50)
	NE125-HGV	65	9.5 (50)
	NE160-SGV	36	9.5 (36)
	NF160-LGV	50	9.5 (50)
	NF160-HGV	65	9.5 (50)
	NE250-SV	36	9.5 (36)
_	NV250-SV	36	9.5 (36)
±	NE250-SEV	36	9.5 (36)
NH	N/250 SEV	30	9.5 (30)
-	NE250-SCV	36	9.5 (36)
Ş.	NE250 L CV	50	0.5 (50)
NF	NE250 LIV	50	9.5 (50)
s->	NV/250 HV/	65	9.5 (50)
S/N		65	9.5 (50)
ц		05	9.5 (50)
		65	9.5 (50)
	NF400 CM/	40	9.5 (50)
	NF400-SW	42	_
	NE400 SEW	42	-
	NF400-SEW	42	9.5 (42)
	NE400 UEW	42	9.5 (42)
		65	9.5 (50)
		125	9.5 (50)
		125	0.5 (50)
	NE630_SW	125	9.5 (50)
	NV630-SW	42	
	NEG20 SEW/	42	
	NV620 SEW	42	_
		42	
		65	_
	NEG20 DEW	125	_
	NEROO SEW	120	_
	NV800-SEW	42	
	NE800-HEW	42	
	NV800_HEW	65	
		125	
		2.5	-
	NV63_CV	2.5	2.5
	NE125_CV	10	10
	NIV/125-CV	10	10
ပ္	NE250_CV	15	0.3 (15)
ž	NV/250_CV	15	9.3 (15)
C L	NF400-CW	25	5.5 (15)
z	NV400-CW	25	_
	NE630-CW	36	
	NV630-CW	36	
	NE800-CEW	36	_
	NF125-RGV	125	27 (50)
	NF125-LIV	200	39 (50)
-	NF250-RGV	125	14 (50)
Ξ-	NE250-LIV	200	16 (50)
~	NF400-LIEW	200	9.5 (50)
		200	0.0 (00)

200

440 V AC sym kA

NF800-UEW

• The values in the table represent the max. rated current for both Series AE V air circuit breakers and branch breakers, and the selective coordination applies when the AE V series air circuit breakers instantaneous pick up is set to maximum.

• The numerals shown in parentheses are for AE V with MCR. (When set MCR.)

38

AE	AED-CV				
AED1000-CV	AED1250-CV	AED1600-CV			
50	50	50			
2.5	2.5	2.5			
5	5	5			
7.5	7.5	7.5			
7.5	7.5	7.5			
10	10	10			
10	10	10			
25	25	25			
25	25	25			
17 (36)	27 (36)	36			
17 (36)	27 (36)	36			
20 (36)	31 (36)	36			
25 (50)	40 (50)	50			
37 (50)	50	50			
37 (50)	50	50			
22 (50)	33 (50)	50			
22 (50)	33 (50)	50			
25 (50)	40 (50)	50			
18 (36)	28 (36)	36			
23 (50)	36 (50)	50			
23 (50)	36 (50)	50			
17 (36)	27 (36)	36			
17 (36)	27 (36)	36			
17 (36)	27 (36)	36			
17 (36)	27 (36)	30			
17 (30)	20 (50)	50			
22 (50)	33 (50)	50			
22 (50)	33 (50)	50			
22 (50)	33 (50)	50			
22 (50)	33 (50)	50			
22 (50)	33 (50)	50			
15 (42)	19 (42)	23 (42)			
15 (42)	19 (42)	23 (42)			
15 (42)	19 (42)	23 (42)			
15 (42)	19 (42)	23 (42)			
15 (50)	19 (50)	23 (50)			
15 (50)	19 (50)	23 (50)			
15 (50)	19 (50)	23 (50)			
15 (50)	19 (50)	23 (50)			
-	19 (42)	21 (42)			
-	19 (42)	21 (42)			
15 (42)	19 (42)	21 (42)			
15 (42)	19 (42)	21 (42)			
15 (50)	19 (50)	21 (50)			
15 (50)	19 (50)	21 (50)			
15 (50)	19 (50)	21 (50)			
-	19 (42)	21 (42)			
-	19 (42)	21 (42)			
-	19 (50)	21 (50)			
-	19 (50)	21 (50)			
-	19 (50)	21 (50)			
2.5	2.5	2.5			
2.5	2.5	2.5			
10	10	10			
10	10	10			
15	15	10			
15 (25)	10 (25)	22 (25)			
15 (25)	19 (20)	23 (25)			
-	10 (20)	20 (20)			
_	19 (36)	21 (36)			
_	19 (36)	21 (36)			
50	50	50			
50	50	50			
40 (50)	50	50			
50	50	50			
14 (50)	19 (50)	28 (50)			
_	19 (50)	24 (50)			

12 Technical information

Ordering information

World Super AE V series (C-class) Air Circuit Breaker and Switch Disconnector

Customer name:	Order ref no:	Quantity:
To indicate customer's choices, please check And input the appropriate information in the re	the applicable square boxes ⊠ ctangles	
Type P.6 AED 1600 - CV	Number of poles 3P 24P (Standard: No	eutral pole on right side)
Current setting Ir 1600 A	Control voltage 110-125 V DC 220	D-250 V DC □ 110-125 V AC 🗹 220-250 V AC
Equipment type	JT Ambient temperature 1 40°C (Standard)	Others C
Main circuit terminal P.14 P.14 Horizontal/Horizontal (HT) Vertical/Vertical (VT) Front/Front (FT)	Horizontal/Vertical (HV) Horizon Vertical/Horizontal (VH) Vertical/Horizontal (FH) Front/Horizontal (FH)	ontal/Front (HF) al/Front (VF) Vertical (FV)
Electronic trip relay (ETR) With ETR Type VS1 GF • Option NA: With DP: Disp GF: Grou DPGF: D	P3 Neutral C al function • Power su p3: 100-240 P3: 100-240 p4: 24-60 V P4: 24-60 V ay P0: No pow nd fault protection Connection isplay & Ground fault protection 3.4.3 W	T (NCT) ipply 0 V AC/100-125 V DC with output contact 7 DC with output contact er supply 1
□ BARE (without ETR) (Note 3) Electrical accessories for breaker unit P. ☑ Auxiliary switch (AX) - ☑ Standard (□ Low capac	5-17 LAX) ty type (LVAX) $\nabla I = 0$ $\nabla I = 0$ 2 (1a1b) $\nabla I = 0$ ∇I	ed current may be reduced. (Refer to page 37.) 3-pole breaker is used with the ground fault protection and neutral pr rent protection of the 3-phase 4-wire system, a neutral CT is required. ation is based on Switch-disconnector (IEC 60947-3).
 ✓ Shunt trip device (SHT) 24-30 48-60 100-1 ✓ 200-2 ✓ Under voltage trip device (UVT) 48 V DC ✓ 100-120 V AC/DC 200-240 V AC/DC 	V DC 8 (4a4b) V DC 10 (5a5b) 25 V AC/DC Time delay ✓ Instantaneous (INST) 0.5 s 1.5 s 3.0 s	
Mechanical accessories P.17-21	Drawout type accessories Lifting hock (HP) Mis-insertion preventor (MIP) Test jumper (TJ) Safety shutter (SST) Safety shutter lock (SST-Lock) Cell switch (CL) (1 or 2 or 3 or 4) Shorting b-contact (SBC) (1 or 2 or 3 or 4 or 5)	suer

World Super AE V series (C-class) Air Circuit Breaker and Switch Disconnector

Customer name:		Order ref no:	Quantity:	
o indicate customer's c and input the appropriat	hoices, please check the a e information in the rectan	applicable square boxes ⊠ gles		
Type P.6 AE	ED -CV	Number of poles 3P 4P (Standard	: Neutral pole on right side)	
Current setting Ir	A	Control voltage 🗌 110-125 V DC 🗍	220-250 V DC 🔲 110-125 V AC 🗌 220-250 V AC	
Equipment type	FIXED DRAW OUT	Ambient temperature 40°C (Standard)	□ Others °C	
Main circuit terminal	P.14 ontal (HT)	Horizontal/Vertical (HV)	izontal/Front (HF) tical/Front (VF) nt/Vertical (FV)	
Electronic trip relay (ETR) e VS1 - Optional fu NA: Without o DP: Display - GF: Ground fa DPGF: Displa	Inction Pional setting P3: 100-2 P4: 24-60 P0: No pi Neutral P3: 100-2 P4: 24-60 P0: No pi Nult protection S @ 3 W S @ 3 Ø 4 W	CT (NCT) supply 240 V AC/100-125 V DC with output contact 0 V DC with output contact ower supply ion V	
Electrical accessories for breaker unit P.15-17 Auxiliary switch (AX) Standard (LAX) Low capacity type (LVAX) 6 (3a3b) Shunt trip device (SHT) 24-30 V DC 48-60 V DC 100-125 V AC/DC 200-250 V AC/DC			Note 1) The rated current may be reduced. (Refer to page 37.) Note 2) When a 3-pole breaker is used with the ground fault protection and neutral po overcurrent protection of the 3-phase 4-wire system, a neutral CT is required. Note 3) Specification is based on Switch-disconnector (IEC 60947-3).	
☐ Under voltage tri	p device (UVT) Ti C/DC	me delay Instantaneous (INST) 0.5 s 1.5 s 3.0 s		
Mechanical accessor Cylinder lock (CN R0220 (Stand R501 R502 R503 R504 Counter (CNT) Terminal cover (1 Door frame (DF) Dust cover (DUC Push button cove	ies P.17-21 *Draw /L) Lift dard) Mii Tre Sa Ce Sa TTC) Sh :) Ce :)	vout type accessories ing hock (HP) s-insertion preventor (MIP) st jumper (TJ) fety shutter (SST) fety shutter lock (SST-Lock) II switch (CL) 	k rissuer	



no:		

13 Ordering information

Service network

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Low voltage: MCCB, MCB



Medium voltage: VCE



Power monitoring, energy manage









Numerical Control (NC







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