



# SETRON 3WL Air Circuit Breakers

Switching, Protection, Measuring and Monitoring Devices



The SETRON 3WL air circuit breakers are particularly flexible and communication-capable. They ideally fulfill the increased requirements for air circuit breakers, above all in respect of operation and monitoring of network events when using electronic control systems. The quality of this series is setting standards around the world.

■ **Flexible and communication-capable**

The SETRON 3WL circuit breaker takes into account the higher requirements around the world. It can be used flexibly as an infeed, distribution, coupling and outgoing switch, it is easy to use and universally communication-capable. Connected to an electronic control system, it offers comprehensive possibilities for monitoring of network events.

■ **Versatile in use**

With only three sizes, the SETRON 3WL covers a power range from 630 A to 6300 A. At the upper power range it is the smallest in its class. All types are characterized by the modular design and universal, uniform accessories.

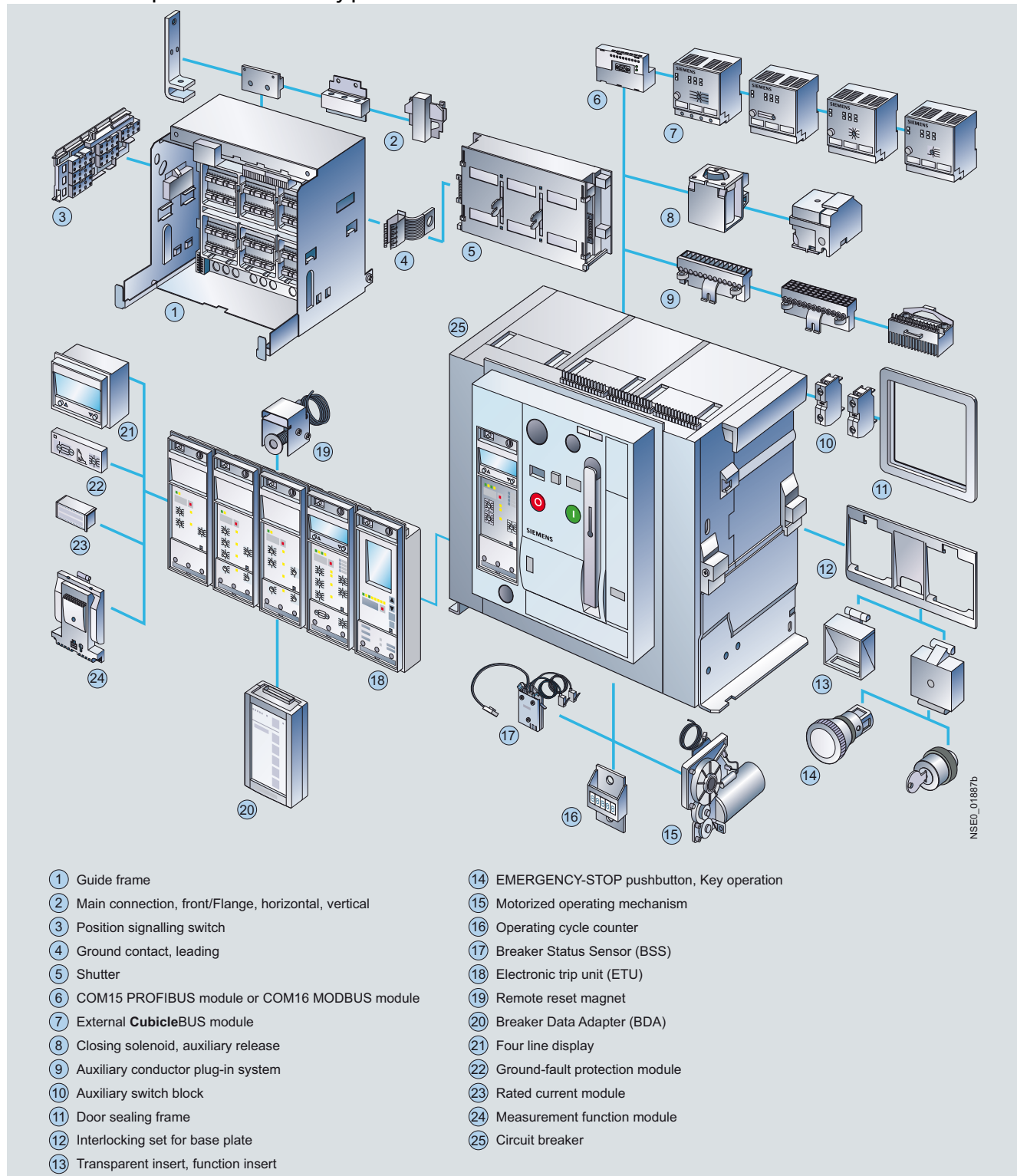
## Highlights

- Universal communication solutions, also in combination with the 3VL molded case circuit breaker
- Flexibility and variable possibilities for use with extensive accessories
- Simple planning, assembly and retrofitting as a result of the modular design

# Air Circuit Breakers

## 3WL air circuit breakers

### Overview of components and accessory parts



Modular design of the circuit breaker with universally standardized accessories

## Overview

### Benefits when it comes to planning

- Only 3 sizes with the same accessories to cover all current ranges
- 4 power levels for the short-circuit capacities for all applications

## Benefits

### Critical advantages for switchgear manufacturers:

- Compact construction saves storage and switch cabinet costs (size 1 (up to 1600 A) fits in a 400 mm-wide switchboard panel, devices of size 3 (up to 6300 A) fit in an 800 mm-wide switchboard panel)
- 4 switching capacity power levels: Cheap solution for all customer requirements
- Fast and reliable parameterization
- Reduced costs and higher productivity through communication capability
- Preventative maintenance through early information and subsequent reaction can prevent the risk of expensive plant shut-downs
- Effective diagnostics management: Measured values are the basis for efficient load management, for drawing up power demand profiles and for assigning energy to cost centers
- Long life of circuits and switchgear. Service life extension through simple replacement of the main switches

## Field of application

- As incoming-feeder, distribution, tie, and outgoing-feeder circuit breakers in electrical installations
- For switching and protecting motors, capacitors, generators, transformers, busbars and cables.

The AC devices are available as circuit breakers and non-automatic air circuit breakers. DC devices are available as non-automatic air circuit breakers.

- Consistent modularity simplifies construction and subsequent adjustment
- Specific retrofittable modules for electronic releases
- Universal communication concept for PROFIBUS or Modbus

### Added value in operation

- Very high reliability and very long service life
- Provision of data for the construction, e.g. load management (display of overload on PMC) via communication
- Ready-to-close indicator
- Various connection methods for simple and ideal customer connection, delivered ex works
- Very high current-carrying capacity
- Considerable additional benefits as a result of the connection possibilities for external input and output modules

### International standards and approvals

- IEC 60947-2
- DIN VDE 0690 Part 1
- Climate-proof acc. to DIN IEC 68 Part 30-2
- CCC, Gost
- Shipbuilding, e.g.: GL, ABS, LRS, PRS.

Designs according to UL 489 are also available for international use. 3WL air circuit breakers/non-automatic air circuit breakers according to UL 489 up to 5000 A, see Catalog LV 16. (Order no. E86060-K 1816-A101-A2-7600).



Figure 1: 3WL air circuit breaker, withdrawable



Figure 2: 3WL air circuit breaker, fixed mounting

## Technical specifications



Size I



Size II



Size III

### Air circuit breakers

#### 3WL air circuit breakers/non-automatic air circuit breakers up to 6300 A (AC)

#### 3WL non-automatic air circuit breakers up to 4000 A (DC)

Size		I, II, III			II	
Rated current $I_n$	A	630, 800, 1000, 1250, 1600, 2000, 2500, 3200, 4000, 5000, 6300			1000, 2000, 4000	
Number of poles		3-pole, 4-pole			3-pole, 4-pole	
Rated operational voltage $U_e$	V AC V DC	... 690/1000/1150 --			-- ... 1000	
Rated ultimate short-circuit breaking capacity at 500 V AC	kA	Size I 55/66	Size II 66/80/100	Size III 100/150 (3-pole), 130 (4-pole)	30/25/20 (at 300/600/1000 V DC)	
Endurance	Operating cycles	20000	15000	10000	15000	
Mounting position						
Degree of protection With cover Without cover (with door sealing frame)		IP55 IP41			IP55 IP41	
Dimensions 3-/4-pole						
		W mm	320/410	460/590	704/914	460/590
	Fixed mounting	H mm	434	434	434	434
		D mm	291	291	291	291
	Withdrawable	H mm	465,5	465,5	465,5	465,5
D mm		471	471	471	471	471



Type

ETU15B<sup>1)</sup>

ETU25B

ETU27B

ETU45B

ETU76B

### Electronic releases for SENTRON 3WL circuit breakers

Overload protection	✓	✓	✓	✓	✓
Short-time delayed short-circuit protection	--	✓	✓	✓	✓
Instantaneous short-circuit protection	✓	✓	✓	✓	✓
Neutral conductor protection	--	--	✓	✓	✓
Ground-fault protection	--	--	✓	□	□
Zone Selective Interlocking	--	--	--	□	□
LCD, 4-line	--	--	--	□	--
LCD, graphic	--	--	--	--	✓
Communication through PROFIBUS DP	--	--	--	□	□
Measurement function <i>Plus</i>	--	--	--	□	□
Selectable parameter sets	--	--	--	--	✓
Parameters freely programmable	--	--	--	--	✓
<b>CubicleBUS</b>	--	--	--	✓	✓

- ✓ Standard
- Not available
- Optional

<sup>1)</sup> ETU15B cannot be used with 3WL circuit breakers, size III.

3WL air circuit breakers/non-automatic air circuit breakers according to UL 489 up to 5000 A, see Catalog LV 16.

SENTRON transfer switching control unit for ATSE, see chapter "Monitoring devices".

## Switching capacity

Size	I				II				III							
Type	3WL11				3WL12				3WL13							
Switching capacity class	N	(N)	S	(S)	N	(N)	S	(S)	H	(H)	H	(H)	C 3-pole	(C)	C 4-pole	(C)
<b>Short-circuit breaking capacity</b>																
Rated operational voltage $U_e$ up to 415 V AC																
$I_{cu}$	kA	55	66	66	66	80	100	100	100	100	100	150	130			
$I_{cs}$	kA	55	66	66	66	80	100	100	100	100	100	150	130			
$I_{cm}$	kA	121	145	145	145	176	220	220	220	220	220	330	286			
Rated operational voltage $U_e$ up to 500 V AC																
$I_{cu}$	kA	55	66	66	66	80	100	100	100	100	100	150	130			
$I_{cs}$	kA	55	66	66	66	80	100	100	100	100	100	150	130			
$I_{cm}$	kA	121	145	145	145	176	220	220	220	220	220	330	286			
Rated operational voltage $U_e$ up to 690 V AC																
$I_{cu}$	kA	42	50	50	50	75	85	85	85	85	85	150	130			
$I_{cs}$	kA	42	50	50	50	75	85	85	85	85	85	150	130			
$I_{cm}$	kA	88	105	105	105	165	187	187	187	187	187	330	286			
Rated operational voltage $U_e$ up to 1000 V/1150 V AC																
$I_{cu}$	kA	--	--	--	--	--	50	50	50	50	50	70 <sup>4)</sup>	70 <sup>4)</sup>			
$I_{cs}$	kA	--	--	--	--	--	50	50	50	50	50	70 <sup>4)</sup>	70 <sup>4)</sup>			
$I_{cm}$	kA	--	--	--	--	--	105	105	105	105	105	154 <sup>4)</sup>	154 <sup>4)</sup>			
<b>Rated short-time withstand current <math>I_{cw}</math> of the circuit breakers<sup>3)</sup></b>																
0.5 s	kA	55	66	66	66	80	100	100	100	100	100	100	100	100	100	100
1 s	kA	42	50	50	50	66	80	80	80	80	80	100	100	100	100	100
2 s	kA	29,5	35	35	39	46	65 <sup>1)/70<sup>2)</sup></sup>	65 <sup>1)/70<sup>2)</sup></sup>	65 <sup>1)/70<sup>2)</sup></sup>	65 <sup>1)/70<sup>2)</sup></sup>	65 <sup>1)/70<sup>2)</sup></sup>	80	80	80	80	80
3 s	kA	24	29	29	32	37	50 <sup>1)/65<sup>2)</sup></sup>	50 <sup>1)/65<sup>2)</sup></sup>	50 <sup>1)/65<sup>2)</sup></sup>	50 <sup>1)/65<sup>2)</sup></sup>	50 <sup>1)/65<sup>2)</sup></sup>	65	65	65	65	65
<b>Short-circuit breaking capacity <math>I_{cc}</math> of the non-automatic air circuit breakers</b>																
Up to 500 V AC	kA	55	66	66	66	80	100	100	100	100	100	100	100	100	100	100
Up to 690 V AC	kA	42	50	50	50	75	85	85	85	85	85	100	100	100	100	100
Up to 1,000 V /1150 V AC	kA	--	--	--	--	--	50 <sup>4)</sup>	50 <sup>4)</sup>	50 <sup>4)</sup>	50 <sup>4)</sup>	50 <sup>4)</sup>	70 <sup>4)</sup>	70 <sup>4)</sup>	70 <sup>4)</sup>	70 <sup>4)</sup>	70 <sup>4)</sup>

Size	II			
Type	3WL12			
Switching capacity class	DC			
<b>Short-circuit breaking capacity</b>				
Up to 220 V DC $I_{cc}$	kA	35		
Up to 300 V DC $I_{cc}$	kA	30		
Up to 600 V DC $I_{cc}$	kA	25		
Up to 1000 V DC $I_{cc}$	kA	20		
<b>Rated short-time withstand current <math>I_{cw}</math></b>				
0.5 s	kA	--		
1 s	kA	35 <sup>5)/30<sup>6)/25<sup>7)/20<sup>8)</sup></sup></sup></sup>		
2 s	kA	--		
3 s	kA	--		

- (N) Circuit breaker with ECO switching capacity N
- (S) Circuit breaker with standard switching capacity S
- (H) Circuit breaker with high switching capacity H
- (C) Circuit breakers with very high switching capacity C
- (DC) Non-automatic air circuit breakers with DC switching capacity

- 1) Size II with  $I_{n \max} \leq 2500$  A.
- 2) Size II with  $I_{n \max} = 3200$  A and  $I_{n \max} = 4000$  A.
- 3) At a rated voltage of  $\geq 690$  V the  $I_{cw}$  value of the circuit breaker cannot be greater than the  $I_{cu}$  or  $I_{cs}$  value at 690 V.
- 4) Rated operational voltage  $U_e = 1150$  V.
- 5) At  $U_e = 220$  V DC.
- 6) At  $U_e = 300$  V DC.
- 7) At  $U_e = 600$  V DC.
- 8) At  $U_e = 1000$  V DC.

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