

# The essential guide for power supplies and transformers

helping you easily  
select the right product

## 2010



# Power Supplies & Transformers

## Universal Power Supplies



single/three phase  
100-500 V 72 W-960 W

### *Performance and service for your automated systems*

*A new generation of regulated switch mode power supplies for single and three-phase networks delivering 3 A to 40 A.*

*Their extremely wide operating range and their integration of a large number of new functions make them the new reference in universal power supply.*

## Optimum, Modular Power Supplies

### *Simple and compact*

*Designed for simple applications and machines, optimum and modular power supplies are primarily appreciated for their highly compact size.*



single phase  
100-240 V 7 W-145 W

## Dedicated Power Supplies



single phase  
100-240 V 60 W-240 W

### *Tailor-made for your repetitive machines...*

*Designed for simple and repetitive commercial machines, a range of competitive high quality dedicated power supplies.*

# Contents

- Modular, Optimum, Universal Power supplies  
**Phaseo ABL7, ABL8** ..... 2 to 5
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Discover 2 and 3 pages the fonction modules to answer for the different problemes as network cut, 24 VDC circuit overlaod and availability

## Filtered Rectified Power Supplies

### *Ruggedness serving your applications*

*Filtered rectified models are used for supply of circuits not requiring output voltage regulation, such as: solenoid valves, contactors, etc.*

*Their simple and proven technology enables them to offer greatly extended working life.*



*single/three phase  
230-400 V / 12 W-1440 W*

## Transformers

### *A response to each requirement*

*3 transformer ranges: the high performance Universal range with double windings and innovative product design, the Optimum range, a generation of proven products with single winding and the Economy range for repetitive automated systems.*



*single phase  
230-400 V 25 VA-2500 VA*

# More service...

## Network cuts

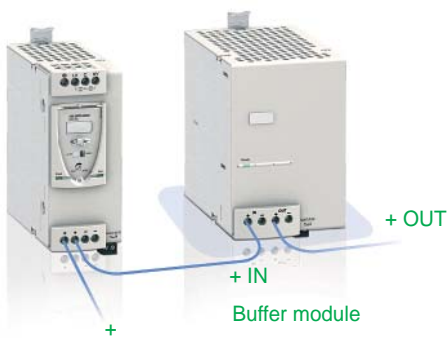
Network voltage interrupts create equipment operating irregularity that can result in production losses and even require maintenance team intervention for restarting.

### Phaseo universal solutions can:

- Render microcuts «transparent» for equipment
- Enable equipment stop with necessary data backup, so allowing restart without problems at return of network voltage.

### Buffer module solution

Microcuts < few secondes



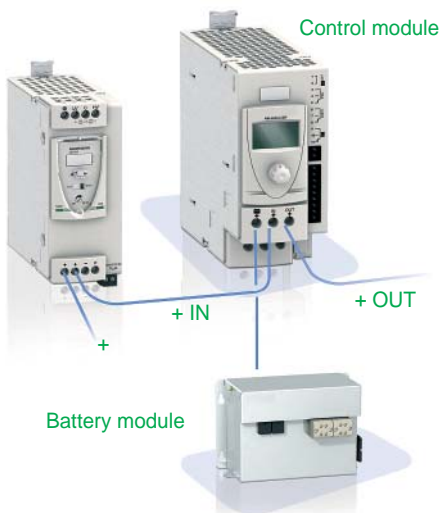
### Simple and efficient

- No setting required
- Diagnostic relay contact (module charge state)
- Standard and backup circuit separation possible.



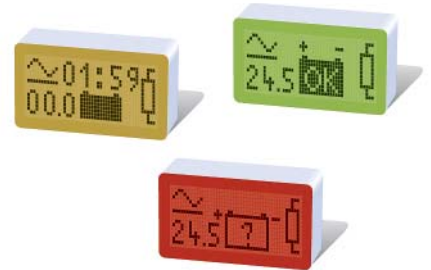
### Battery backup solution

Cuts > few secondes



### Total confidence

- Battery state automatic test
- Advanced and user-friendly diagnostics:
  - Power supply operation
  - Battery operation
  - Fault presence.

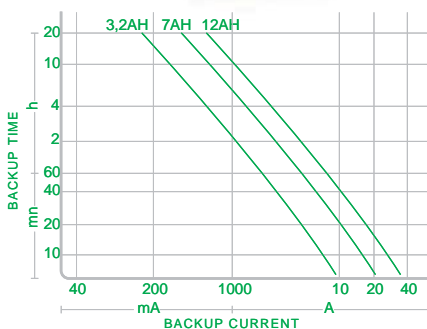


### Flexible and adaptable

- 2 current supply modules are available:
  - Backup until complete battery discharge (battery is however disconnected before overdischarge)
  - Backup for an adjustable time period, keeping energy in reserve in case of a closely following cut.

### Quick installation

- Copy of configuration between 2 modules using memory cartridge
- Quick configuration of battery control module by a single selector switch and display pictograms.



## 24 VDC circuit overload

Protection of circuits supplied in DC low voltage has traditionally been by fuses or electromechanical circuit-breakers. In certain cases (notably short-circuits) this protection is not sufficiently selective, and electronic protection of the power supply suspends low voltage supply before downstream protections can react.

**The Phaseo solution is a 4-starter electronic protection module, dedicated to ABL 8R/W Universal power supplies.**

Each of these starters is adjustable from 1 to 10 A.

### High-performance solution ensuring service continuity

- Selectivity enabling isolation of fault circuits only
- Advanced diagnostics by LED and relay contact
- Manual opening of each circuit by switch
- Lead-sealed settings.

### Minimised stock levels

- 1 product reference each covering 1 to 10 A.

### Starter protection solution



Protection module



## Availability

On certain equipment, the consequences of a 24 V control voltage breakdown can be extremely detrimental and can justify paralleling 2 or more power supplies to maintain faultless operating continuity.

**The Phaseo solution consists of coupling 2 universal power supplies with an electronic redundancy module.**

**The primaries of these power supplies can be on the same or on different networks.**

### Redundancy solution



Redundancy module



### Service continuity in total confidence

- Advanced diagnostics by LED
- C/O contact enables signalling of fault in one of the 2 power supplies and alerts maintenance.



Type of power supply	Modular, regulated switch mode with automatic reset					
Rated input voltage	100...240 VAC					
Rated output voltage	24 V			5 V		12 V
Rated power / Rated current	7.5 W / 0.3 A	15 W / 0.6 A	30 W / 1.2 A	60 W / 2.5 A	20 W / 4 A	25 W / 2 A
Reset	Auto					
Conformity to IEC 61000-3-2	Without					
Certifications	cULus, cCSAus, TUV, CE, C-Tick					
Dimensions (mm)	36x59x90		54x59x90	72x59x90	54x59x90	
Fixing (mm)	DIN rail 35x7.5 or 35x15 or on panel mount by screw					
References	ABL8MEM24003	ABL8MEM24006	ABL8MEM24012	ABL7RM24025	ABL8MEM05040	ABL8MEM12020



Type of power supply	Universal, regulated switch mode with automatic or manual reset		
Rated input voltage	100...120 VAC and 200...500 VAC		
Rated output voltage	24 V		
Rated power / Rated current	72 W / 3 A	120 W / 5 A	240 W / 10 A
Permissible temporary inrush current (boost)	1.5 In during 4 s		
Conformity to IEC 61000-3-2	Yes		
Diagnostic relay (output voltage > 21.6V)	No	Yes	
Certifications	cCSAus, CB scheme, CE		
Dimensions (mm)	44x120x143	56x120x143	85x140x143
Fixing (mm)	DIN rail 35x7.5 or 35x15		
References	ABL8RPS24030	ABL8RPS24050	ABL8RPS24100



Type of module	Microcuts and cuts network solutions. Fixing Omega rail clip-in (1)		
Compatibility	Output connection of Universal power supplies ABL8RPS24... and ABL8WPS24...		
Technology	Buffer module	battery backup module + battery	
Rated voltage	40 A	20 A	40 A
Holding time 1A	2 s typique	adjustable from 10 s to 24 H (battery depending)	
Holding time for maximum current	100 ms typique	adjustable from 10 s to 30 mn (battery depending)	adjustable from 10 to 10 mn (battery depending)
Certifications	cCSAus, CB scheme, CE		
Dimensions (mm)	85x140x146	86x175x143	86x175x143
Fixing (mm)	DIN rail 35x7.5 or 35x15 (1)		
References Control module	ABL8BUF24400	ABL8BBU24200	ABL8BBU24400
References battery	3,2AH (2)	ABL8BPK24A03	ABL8BPK24A03
	7AH (2)	ABL8BPK24A07	ABL8BPK24A07
	12AH (2)	ABL8BPK24A12	ABL8BPK24A12

(1) Battery module except 7AH and 12AH. For battery module 3.2AH with ABL1A02 kit.

(2) Battery to be chosen according to the graph page 6/2



### Optimums, regulated switch mode

100...240 VAC			
24 V		12 V	48 V
72 W / 3 A	120 W / 5 A	60 W / 5 A	144 W / 2.5 A
Auto		Auto or manual	
No		Yes	
cULus, cCSAus, TUV, CE, C-Tick			
27x120x120	54x120x120		
DIN rail 75x7.5, 35x7.5 or 35x15			
<b>ABL8REM24030</b>	<b>ABL8REM24050</b>	<b>ABL7RP1205</b>	<b>ABL7RP4803</b>



### Universal, regulated switch mode with automatic or manual reset

100...120 VAC and 200...240 VAC	3 x 380...500 VAC	
24 V		
480 W / 20 A		960 W / 40 A
1.5 In during 4 s		
Yes		
Yes		
cCSAus, CB scheme, CE		
145x140x143	95x155x143	165x155x143
DIN rail 35x7.5 or 35x15		
<b>ABL8RPM24200</b>	<b>ABL8WPS24200</b>	<b>ABL8WPS24400</b>

### Type of module

### Converters DC/DC

<b>Compatibility</b>	Output connection of Universal power supplies ABL8RPS24... and ABL8WPS24...	
<b>Rated output voltage</b>	5 V	12 V
<b>Rated output current</b>	6 A	2 A
<b>Certifications</b>	cCSAus, CB scheme, CE	
<b>Dimensions (mm)</b>	44x140x146	
<b>Fixing (mm)</b>	DIN rail 35x7.5 or 35x15	
<b>References</b>	<b>ABL8DCC05060</b>	<b>ABL8DCC12020</b>



Type of module	Redundancy power supplies solutions
<b>Compatibility</b>	Connection of 2 power supplies inputs up to 20 A (1 power supply 40A)
<b>Rated output voltage</b>	24 V
<b>Rated output current</b>	40 A
<b>Certifications</b>	cCSAus, CB scheme, CE
<b>Dimensions (mm)</b>	44x140x146
<b>Fixing (mm)</b>	DIN rail 35x7.5 ou 35x15
<b>References</b>	<b>ABL8RED24400</b>



Type of module	Starter protection solution
<b>Compatibility</b>	Output connection of Universal power supplies ABL8RPS24100..., ABL8RPM24200..., ABL8WPS24...
<b>Rated output current</b>	10A par voie
<b>Calibres</b>	1 / 2.5 / 4 / 5 / 7 / 8 / 10 A
<b>Nombre de voies</b>	4
<b>Relais de défaut</b>	Yes
<b>Coupure manuelle (1 par voie)</b>	Two-pole
<b>Certifications</b>	cCSAus, CB scheme, CE
<b>Dimensions (mm)</b>	71x109x110
<b>Fixing (mm)</b>	DIN rail 35x7.5 or 35x15 or on panel mount by screw
<b>References</b>	<b>ABL8PRP24100</b>

# Phaseo Slim \_\_\_\_\_ Power supplies



	Single phase			
Rated Input Voltage AC	120...230V 50/60Hz		120/230V	
Permissible input voltage AC	90...264V 47...63 Hz		90...132V / 185...264V 47...63 Hz	
Rated Input Voltage DC	100...370V		300...350 V	
Input current (120/230 VAC)	1,6A / 0,9A	1,9A / 1,1A	3,5A / 1,8A	4,1A / 2A
Efficiency (120/230 VAC)	>85% / >89%	>86% / >90%	>88% / >90%	>90% / >92%
Dissipated power max	15W	19W	32W	55W
Output Voltage	24V rated adjustable 23...27,5 V		24V rated 24...28V	
Rated Output current	3,5A	5A	10A	20A
Permissible output current	6A for 30s	8A for 30s	15A for 30s	30A for 5s
Reset after overload	Auto			
Diagnostic relay	Yes			
Operating temperature	-20...+60°C with derating above 50°C			
Certifications	UL			
Dimensions (mm)	39x115x134		64x140x139	
References	ABL4RSM24035	ABL4RSM24050	ABL4RSM24100	ABL4RSM24200



	Three phase		
Rated Input Voltage AC	400 ... 500V 50/60 Hz		
Permissible input voltage AC	340 ... 550V 47...63 Hz		
Working on 2 phases	Possible with output current = 75% of the nominal output current.		
Input current (400/500 VAC)	1A / 0,6A	1,4A / 1,1A	2,2A / 1,1A
Efficiency (400/500 VAC)	>93% / >94%	>93% / >94%	>91% / >91%
Dissipated power max	36W	36W	95W
Output Voltage	24V rated 24...28V		
Rated Output current	20A	30A	40A
Permissible output current	30A for 5s	45A for 5s	60A for 5s
Reset after overload	Auto		
Diagnostic relay	Yes		
Operating temperature	-20...+60°C with derating above 50°C		
Certifications	UL		
Dimensions (mm)	80x127x146		
References	ABL4WSR24200	ABL4WSR24300	ABL4WSR24400





Type of power supply	Dedicated, regulated switch mode						
Input voltage	85...264 VAC			85...132 VAC / 170...264 VAC			
Output voltage	12 VDC		24 VDC		24 VDC		
Power / rated current	60 W / 5 A	100 W / 8.3 A	60 W / 2.5 A	100 W / 4.2 A	150 W / 6.2 A	240 W / 10 A	
Certifications	UL, c CSA us, CE, Ctick						
Dimensions WxDxH (mm)	150x38x98	200x38x98	150x38x98	200x38x98	200x50x98	200x65x98	
Fixing (mm)	Panel mount by scrow, by bracket ABL1A01 (1) , on DIN rail 35mm by panel ABL1A02 (1).						
References	Without filter	ABL1REM12050	–	ABL1REM24025	ABL1REM24042	ABL1REM24062	ABL1REM24100
	With filter (2)	–	ABL1RPM12083	–	ABL1RPM24042	ABL1RPM24062	ABL1RPM24100

(1) has to order separately.

(2) Anti harmonic IEC/EN 61000-3-2

## Filtered rectified



Type of power supply	Filtered rectified single-phase or two-phase							
Input voltage	215/230/245 V or 385/400/415 VAC							
Rated output voltage	24 V							
Certifications	cULus, ENEC							
Rated power / Rated current	12 W / 0.5 A	24 W / 1 A	48 W / 2 A	96 W / 4 A	144 W / 6 A	240 W / 10 A	360 W / 15 A	480 W / 20 A
Dimensions (mm)	87x124x108	87x124x108	87x142x108	87x165x108	123x153x153	123x185x153	135x185x138	175x215x128
Fixing (mm)	DIN rail 35x7.5 or 35x15 or on panel mount by screw				On panel mount by screw			
References	ABL8FEQ24005	ABL8FEQ24010	ABL8FEQ24020	ABL8FEQ24040	ABL8FEQ24060	ABL8FEQ24100	ABL8FEQ24150	ABL8FEQ24200



Type of power supply	Filtered rectified three-phase				
Input voltage	3x 380 / 400 / 420 V				
Rated output voltage	24 V				
Certifications	cULus, ENEC				
Rated power / Rated current	240 W / 10 A	480 W / 20 A	720 W / 30 A	960 W / 40 A	1440 W / 60 A
Dimensions (mm)	185x190x78	220x215x104	240x252x108	310x310x140	310x310x154
Fixing (mm)	On panel mount by screw				
References	ABL8TEQ24100	ABL8TEQ24200	ABL8TEQ24300	ABL8TEQ24400	ABL8TEQ24600

# Phaseo Transformers



Type of transformer		Universal range, double winding operating temperature +60°C									
Rated input voltage	230/400 VAC (±15 V) 1-phase										
Certifications	cULus, ENEC										
Rated power / Rated current	25 VA   40 VA   63 VA   100 VA   160 VA   250 VA   320 VA   400 VA   630 VA   1000 VA										
Visualization	LED display of voltage presence at primary   Without										
Fixing (mm)	DIN rail 35x15 or on panel mount by screw   On panel mount by screw										
References	ABT7PDU**(1)										
Rated output voltage	24/48 V	002B	004B	006B	010B	016B	025B	032B	040B	063B	100B
	115/230 V	002G	004G	006G	010G	016G	025G	032G	040G	063G	100G

(1) Complete the reference according to the power and voltage using the table below (example: ABL6TS02J)



Type of transformer		Optimum range, single winding operating temperature +50°C									
Rated input voltage	230/400 VAC (±15 V) 1-phase										
Certifications	UL										
Nominal power	25 VA   40 VA   63 VA   100 VA   160 VA   250 VA   400 VA   630 VA   1000 VA										
Fixing (mm)	On panel mount by screw										
References	ABL6TS**(1)										
Rated output voltage	24 V	02B	04B	06B	10B	16B	25B	40B	63B	100B	
	115 V	02G	04G	06G	10G	16G	25G	40G	63G	100G	
	230 V	02U	04U	06U	10U	16U	25U	40U	63U	100U	

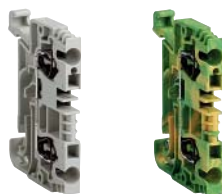
(1) Complete the reference according to the power and voltage using the table below (example: ABL6TS02J)



Type of transformer		Economy range, single winding operating temperature +40°C						
Rated input voltage	230 VAC (±15 V) 1-phase							
Certifications	Without							
Rated power / Rated current	40 VA   63 VA   100 VA   160 VA   250 VA   320 VA   400 VA							
Fixing (mm)	On panel mount by screw							
References	ABT7ESM**(1)							
Rated output voltage	24 V	004B	006B	010B	016B	025B	032B	040B

(1) Complete the reference according to the power and voltage using the table below (example: ABL6TS02J)





Clip-on mounting on 35 mm $\mathcal{E}$ $\mathcal{L}$ rails		Terminal blocks (sold in lots of 100)	End covers (sold in lots of 100)	Commoning link (sold in lots of 100)
2.5 mm <sup>2</sup> c.s.a.	Conducting	AB1RRN235U2GR	AB1RRNAC242GR	AB1RRAL22 (1)
	Protective earth conductor	AB1RRNTP235U2	AB1RRNTPAC242	–
4 mm <sup>2</sup> c.s.a.	Conducting	AB1RRN435U2GR	AB1RRNAC442GR	AB1RRAL42 (1)
	Protective earth conductor	AB1RRNTP435U2	AB1RRNTPAC442	–
6 mm <sup>2</sup> c.s.a.	Conducting	AB1RRN635U2GR	AB1RRNAC642GR	AB1RRNAL62 (2)
	Protective earth conductor	AB1RRNTP635U2	AB1RRNTPAC642	–
10 mm <sup>2</sup> c.s.a.	Conducting	AB1RRN1035U2GR (3)	AB1RRNAC1042GR	AB1RRNAL102
	Protective earth conductor	AB1RRNTP1035U2 (3)	AB1RRNTPAC1042	–
16 mm <sup>2</sup> c.s.a.	Conducting	AB1RRN1635U2GR (3)	AB1RRNAC1642GR	AB1RRNAL162
	Protective earth conductor	AB1RRNTP1635U2 (3)	AB1RRNTPAC1642	–
35 mm <sup>2</sup> c.s.a.	Conducting	AB1RRN3535U2GR (4)	–	AB1RRAL352
	Protective earth conductor	AB1RRNTP3535U2 (4)	–	–

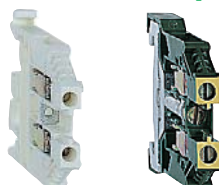
(1) For a 3, 4, 5 or 10-pole commoning link replace the last number of the reference (2) by 3, 4, 5 or 10 respectively. (Example: AB1RRAL22 becomes A1BRRAL23)

(2) For a 3, 4, 5 or 10-pole commoning link replace the last number of the reference (2) by 3, 4, 5 or 10 respectively. (Example: AB1RRNAL62 becomes A1BRRNAL64)

(3) Sold in lots of 50

(4) Sold in lots of 10

## Screw clamp technology



Clip-on mounting on 35 mm $\mathcal{E}$ $\mathcal{L}$ $\mathcal{L}$ rails		Terminal blocks (sold in lots of 100)	End covers (sold in lots of 100)	Commoning link (sold in lots of 100)
2.5 mm <sup>2</sup> c.s.a.	Conducting	AB1VV235U	AB1AC24	AB1ALN22 (1)
	Protective earth conductor	AB1TP235U	AB1AC25	–
4 mm <sup>2</sup> c.s.a.	Conducting	AB1VV435U	AB1AC24	AB1ALN42 (1)
	Protective earth conductor	AB1TP435U	–	–
6 mm <sup>2</sup> c.s.a.	Conducting	AB1VV635U	AB1AC6	AB1ALN62 (1)
	Protective earth conductor	AB1TP635U	–	–
10 mm <sup>2</sup> c.s.a.	Conducting	AB1VVN1035U (2)	AB1ACN10	AB1ALN102 (1)
	Protective earth conductor	AB1TP1035U (2)	–	–
16 mm <sup>2</sup> c.s.a.	Conducting	AB1VVN1635U (2)	AB1ACN16	AB1ALN162 (1)
	Protective earth conductor	AB1TP1635U (2)	–	–
35 mm <sup>2</sup> c.s.a.	Conducting	AB1VVN3535U (3)	–	AB1ALN352 (1)
	Protective earth conductor	AB1TP3535U (3)	–	–
70 mm <sup>2</sup> c.s.a.	Conducting	AB1VVN7035U (3)	–	AB1ALN702
150 mm <sup>2</sup> c.s.a.	Conducting	AB1VVN15035U (4)	–	AB1ALN1502 (1)

(1) For a 3, 4, 5 or 10-pole commoning link replace the last number of the reference (2) by 3, 4, 5 or 10 respectively. (Example: AB1ALN22 becomes AB1ALN23)

(2) Sold in lots of 50

(3) Sold in lots of 20

(4) Sold in lots of 10

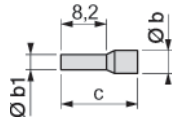
## Insulation displacement technology



Clip-on mounting on 35 mm $\mathcal{E}$ $\mathcal{L}$ rails		2-way terminal blocks (sold in lots of 100)	End covers (sold in lots of 10)	2-pole commoning link (1) (sold in lots of 10)
1 mm <sup>2</sup> c.s.a.	Conducting	AB1AA135U2GR	AB1AAAC122GR	AB1RRAL22
	Protective earth conductor	AB1AATP135U2	AB1AAAC122VE	–
2.5 mm <sup>2</sup> c.s.a.	Conducting	AB1AA235U2GR	AB1AAAC122GR	AB1RRAL22
	Protective earth conductor	AB1AATP235U2	AB1AAAC122VE	–

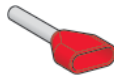
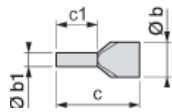
(1) For a 3, 4, 5 or 10-pole commoning link replace the last number of the reference (2) by 3, 4, 5 or 10 respectively. (Example: AB1RAL22 becomes AB1RAL23).

mm <sup>2</sup>	Øb	Øb1	c
0.5	3	1.4	13
0.75	3.1	1.6	13
1	3.4	1.8	13.5
1.5	4	2.1	13.5
2.5	4.6	2.7	14.5



Type			Single cable ends Sold in lots of 10 x 100		
Packaging			Individual or "strings" of bags	Dispenser pack	Strips of 50 in bag
Conductor c.s.a. in mm <sup>2</sup>	0.5	White	DZ5CE005D	AZ5CE005D	DZ5CEB005D
	0.75	Grey	DZ5CE007D	AZ5CE007D	DZ5CEB007D
	1	Red	DZ5CE010D	AZ5CE010D	DZ5CEB010D
	1.5	Black	DZ5CE015D	AZ5CE015D	DZ5CEB015D
	2.5	Blue	DZ5CE025D	AZ5CE025D	DZ5CEB025D

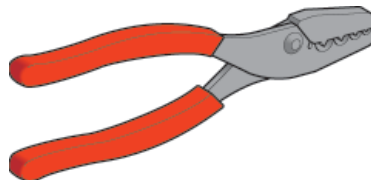
mm <sup>2</sup>	Øb	Øb1	c	c1
0.75	2.8 x 5	1.8	15	8
1	3.4 x 5.4	2.05	15	8
1.5	3.6 x 6.6	2.3	15	8
2.5	4.2 x 7.8	2.9	18.5	10



Type			Double cable ends Sold in lots of 5 x 100		
Packaging			Dispenser pack		
Conductor c.s.a. in mm <sup>2</sup>	2 x 0.75	Grey	AZ5DE007D		
	2 x 1	Red	AZ5DE010D		
	2 x 1.5	Black	AZ5DE015D		
	2 x 2.5	Blue	AZ5DE025D		

(1) For insulated cable ends conforming to standard NF C 63-023, please refer to your Schneider Electric agency.

## Accessoires de câblage



Type	Pliers/cutters				
Functions	Stripping	Cutting/stripping	Crimping	Crimping (ratchet)	Cutting/stripping/crimping (2)
For cable c.s.a.	0.08 to 4 mm <sup>2</sup>	0.4 to 4 mm <sup>2</sup>	0.5 to 16 mm <sup>2</sup>	0.25 to 6 mm <sup>2</sup>	0.5 to 2.5 mm <sup>2</sup>
References	AT1PA7	AT2PE1	AT1PA2	AT2PA5	AT2TRIF01

(2) For use with cable ends packed in strips of 50.

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