



Disconnect
switches

TS
series

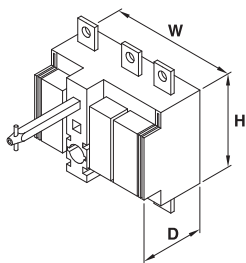
Overview

The switches **series TS** have the following main design features:

- Polyester self-extinguishing and anti-trace insulating housing
- Silver plated electrolytic copper fix and moving contacts
- Double breaking for pole.
- High closing and opening speed, independent from the operator
- Feeder connection is possible either in the upper in on the lower side

■ Size S1 (125A) and
Size S2 (160A; 200A; 250A)

■ Size S3 (400A; 630A) and
Size S4 (800A; 1000A)



Measures * in mm (in)	H	W	D
Size S1	3 pole	100	129 (5.08")
	4 pole	(3.94")	160 (3.30") (3.46")
Size S2	3 pole	125	174 (6.85")
	4 pole	(4.92")	204 (8.03") (4.13")

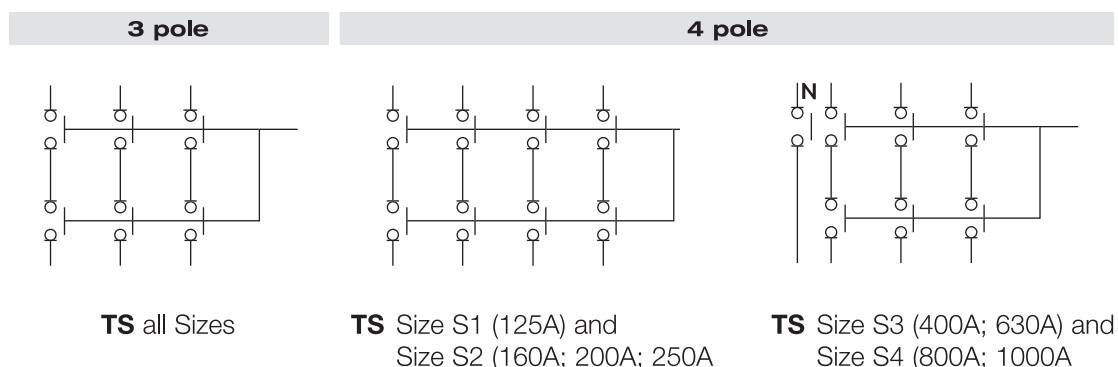
Measures * in mm (in)	H *	W	D
Size S3	3-4 pole	161 ÷ 187 (6.34" ÷ 7.36")	251 (9.88") (4.92")
	Size S4	3-4 pole	238 (9.37")

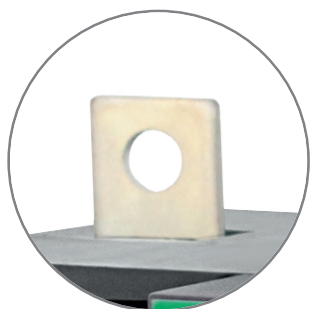
Note: * dimension H depends on the extension of the current bars, which may change with the rating.
Shaft or other installed accessories are not considered.

- The actuator always respects the real position of the contacts. This type of control is called "positive operation". The auxiliary contacts are directly acted from the operating mechanism.
- 4 pole switch-disconnectors are suitable for all-phase breaking (the Neutral contact closes before and opens after the phases)
- **TS** series switch-disconnectors are suitable for polluted ambient and tropical climates according to IEC 68-2 Standards



Two contact blocks in series result in 4 breaking for phase

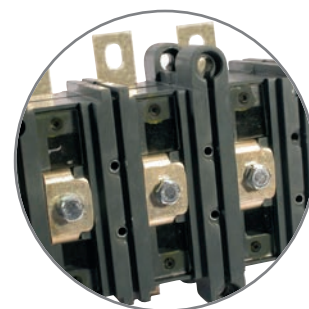




Bolt connection is standard on all the TS range



Screw connection available with 125A rating (TS_S execution)



Visible isolation available (TS_V execution)

A complete range of optional accessories allows the use of TS switch-disconnectors in several installations.

Standard bundle handle with door interlock in closed position and possibility to install a legend with 0-1 positions (IEC Standard) or ON-OFF positions (BS Standard).

Standard handle is IP54 (IP55 using an optional handle washer) and can be locked in open position with max 3 padlocks. Optional handles are available that are padlockable both in open and closed position (door interlock override optional as well).



Handle M801 for TS switches in Size S1 and Size S2.



Handle M1201 for TS switches in Size S3.



Handle M1301 for TS switches in Size S4.

Note: several additional current ratings are available on request up to 2500A. TS switch-disconnectors are also available on request in 6-8 pole versions, with the same dimensions of the 3-4 pole executions.

Technical data IEC 947-3 EN 60947-3

SIZE

Rated insulation voltage	Ui	V
Rated impulse withstand voltage	Uimp	kV
Rated thermal current for open switch	Ith	A
Rated thermal current for enclosed switches	Ithe	A
Number of poles		
Power dissipation each pole	W	

Rated operating current I_e

AC-22A Switching of mixed resistive loads, including moderate overloads	I_e	690V	A
		1000V	A

Rated operating power

AC-23A Switching of motor loads or other highly inductive loads 3 phase - 3 pole	I_e	415V	Kw (A)
		500V	Kw (A)
		690V	Kw (A)
DC-23A Switching of motor loads or other highly inductive loads	I_e	220V	Kw (A)
		440V	Kw (A)
		600V	Kw (A)
Reactive power ¹		380V	kVAr
Rated short time withstand current (1s)	I_{cw}		kA
Rated short-circuit make capacity	I_{cm}		kA
Mechanical life	operations		no.
Electrical life	operations		no.

Weight

3 pole with link bar covers	Kg
4 pole with link bar covers (4° leaning pole)	Kg
3 pole with visible isolation	Kg
4 pole with visible isolation (4° leaning pole)	Kg
3 pole	Kg
4 pole	Kg

Note:

¹ = due to the presence of harmonics and to the tolerances of capacitors, nominal values must be reduced by 33%

² = data about the 6 and 8 pole versions are available on request

Normal service, mounting and transportation conditions

- storage and transport ambient temperature -25° C + 55° C
- operative ambient temperature -5° C + 45° C
- relative humidity max 95%
- rated frequency 50-60 Hz
- altitude max 2000 m a.s.l.
- mounting in enclosure:

In case of utilisation at full load and without adequate ventilation, ensure a volume of about 5 time the volume of the switch.



Performances shall be derated up to 40% according to the environmental temperature.

For other operating conditions please contact Brema Ersce.


TS125 S1	TS160 S2	TS200 S2	TS250 S2	TS400 S3	TS630 S3	TS800 S4	TS1000 S4
1000	1000	1000	1000	1000	1000	1000	1000
6	6	6	6	8	8	8	8
125	160	200	250	400	630	800	1000
100	125	160	200	340	550	630	800
3-4 ²	3-4 ²	3-4 ²	3-4 ²	3-4 ²	3-4 ²	3-4 ²	3-4 ²
6	6	7,5	16	20	50	50	55
125	-	-	250	-	-	-	-
-	160	200	-	400	630	800	1000
55 (125)	75 (160)	96 (200)	132 (250)	200 (400)	355 (630)	400 (800)	500 (1000)
75 (125)	100 (125)	120 (200)	150 (220)	280 (400)	425 (630)	560 (800)	670 (1000)
90 (125)	140 (125)	175 (200)	175 (200)	375 (400)	375 (400)	710 (800)	710 (800)
28 (125)	35 (160)	44 (200)	55 (250)	88 (400)	139 (630)	176 (800)	220 (1000)
55 (125)	70 (160)	88 (200)	97 (220)	176 (400)	277 (630)	352 (800)	440 (1000)
75 (125)	96 (125)	96 (160)	150 (210)	240 (400)	378 (630)	480 (800)	600 (1000)
55	70	80	110	250	315	350	400
6	10	10	10	18	20	25	40
15	25	25	25	44	50	63	84
8000	8000	8000	8000	5000	5000	3000	3000
1000	1000	1000	1000	1000	1000	500	500
-	-	-	-	4,7	5,1	9,5	10,6
-	-	-	-	4,9	5,6	10	11,2
-	-	-	-	4,5	-	8,4	9,8
-	-	-	-	4,7	-	8,9	10,4
1,3	2,1	2,1	2,1	-	-	-	-
1,4	2,5	2,5	2,5	-	-	-	-



Switch-disconnectors

	Size	Ie AC21	poles	Code	Model	Pack	Code	Model	Pack.
	S1	125	3	VC522100	TS1253M801	1	-	-	1
			4	VC523900	TS1254M801	1	-	-	1
	S2	160	3	VC524700	TS1603M801	1	-	-	1
			4	VC525400	TS1604M801	1	-	-	1
		200	3	VC853800	TS2003M801	1	-	-	1
			4	VC854600	TS2004M801	1	-	-	1
250	3	VC855400	TS2503M801	1	-	-	1		
	4	VC856200	TS2504M801	1	-	-	1		
	S3	400	3	VC416600	TS4003M1201	1	VC437200	TS4003VM1201	1
			4	VC417400	TS4004M1201	1	VC438000	TS4004VM1201	1
	630	3	VC418200	TS6303M1201	1	VC439800	TS6303VM1301	1	
		4	VC419000	TS6304M1201	1	VC440600	TS6304VM1301	1	
	S4	800	3	VC420800	TS8003M1301	1	VC441400	TS8003VM1301	1
			4	VC421600	TS8004M1301	1	VC442200	TS8004VM1301	1
1000	3	VC422400	TS10003M1301	1	VC443000	TS10003VM1301	1		
	4	VC423200	TS10004M1301	1	VC444800	TS10004VM1301	1		

Switch-disconnectors with screw terminals


	Size	Ie AC21	poles	Code	Model	Pack
	S1	125	3	VC526200	TS1253SM801	1
			4	VC527000	TS1254SM801	1


Code	Model	Description	Pack
VC822500	S55	protection shield 3 pole o 4 pole add. for TS Size S3	1
VC824100	S555	protection shield 3 pole o 4 pole add. for TS Size S4	1
VC723500	S31C	upper terminal cover 3 pole for TF / TS Size S1	1
VD692100	I31	lower terminal cover 3 pole for TF / TS Size S1	1
VC724300	S41	upper terminal cover 4 pole for TF / TS Size S1	1
VD693900	I41	lower terminal cover 4 pole for TF / TS Size S1	1
VD696200	I32	lower terminal cover 3 pole for TS Size S2	1
VD697000	I42	lower terminal cover 4 pole for TS Size S2	1
VD694700	S32	upper terminal cover 3 pole for TS Size S2	1
VD695400	S42	upper terminal cover 4 pole for TS Size S2	1
VC804300	S123	upper terminal cover 3 pole and 4 pole add. for TF / TS Size S3	1
VC805000	I123	lower terminal cover 3 pole and 4 pole add. for TF / TS Size S3	1
VC806800	S203	upper terminal cover 3 pole and 4 pole add. for TF / TS Size S4	1
VC807600	I203	lower terminal cover 3 pole and 4 pole add. for TF / TS Size S4	1

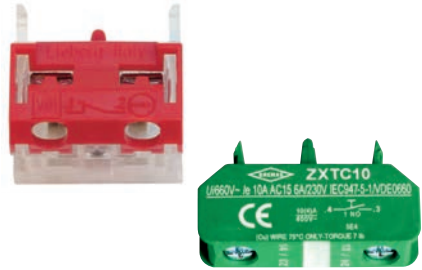


Code	Model	Description	Pack
VC728400	T8	standard extension shaft L=180mm Q8 for TF / TS Sizes S1-S2	1
VD700200	T8/1	extension shaft L=280mm Q8 for TF / TS Sizes S1-S2	1
VC797900	T12	standard extension shaft L=180mm Q12 for TF / TS Sizes S3-S4 and TSC / TSD Size S2	1
VC798700	T12/1	standard extension shaft L=280mm Q12 for TF / TS Sizes S3-S4 and TSC / TSD Size S2	1



	Code	Model	Description	Pack
	VC733400	M801	long black handle 0-1 standard for TF/ TS Size S1- S2	1
	VC735900	M801DS	long black handle 0-1 with door-interlock override for TF / TS Size S1 - S2	1
	VC742500	M801R	long red handle 0-1 standard for TF / TS Size S1 - S2	1
	VC744100	M801RDS	long red handle 0-1 with door-interlock override for TF / TS Size S1 - S2	1
	VC756500	M1201	short black handle 0-1 standard for TF / TS Size S3	1
	VC757300	M12C01	short black handle 0-1 with key lock for TF / TS Size S3	1
	VC758100	M12DS01	short black handle 0-1 with door-interlock override for TF / TS Size S3	1
	VC768000	M12R01	short red handle 0-1 standard for TF / TS Size S3	1
	VC770600	M12RDS01	short red handle 0-1 with door-interlock override for TF / TS Size S3	1
	VC771400	M1301	long black handle 0-I standard for TF / TS Size S4	1
	VC772200	M13C01	short black handle 0-I with key lock for TF / TS Size S4	1
	VC773000	M13DS01	short black handle 0-I with door-interlock override for TF / TS Size S4	1
	VC783900	M13R01	short red handle 0-I standard for TF / TS Size S4	1
	VC785400	M13RDS01	long red handle 0-I with door-interlock override for TF / TS Size S4	1

	Code	Model	Description	Pack
	VC792000	G12	handle washer IP55 for TF / TS (S3-S4); TSC / TSD (S1-S2)	1
	VC748200	G8	handle washer IP55 for TF (S0-S1-S2); TS (S1-S2)	1

	Code	Model	Description	Pack
	C10B	C10B	auxiliary contact 1NO for TS size S1-S2	5
	C01B	C01B	auxiliary contact 1NC for TS size S1-S2	5
	VC846400	AU1	auxiliary contacts 1NO for TF / TS / TSC / TSD size S3-S4	1
	VC847200	AU2	auxiliary contacts 1NC for TF / TS / TSC / TSD size S3-S4	1
	VC848000	AU3	auxiliary contacts 1NO+1NC for TF / TS / TSC / TSD size S3-S4	1
	VC849800	AU4	auxiliary contacts 1NO+1NO for TF / TS / TSC / TSD size S3-S4	1
	VC851400	AU6	auxiliary contacts 2NO+2NC for TF / TS / TSC / TSD size S3-S4	1
	VC852200	AU7	auxiliary contacts 2NO+2NO for TF / TS / TSC / TSD size S3-S4	1
VC853000	AU8	auxiliary contacts 2NC+2NC for TF / TS / TSC / TSD size S3-S4	1	



Change-over and Deviator Switches

TSC
series

TSD
series

Main features

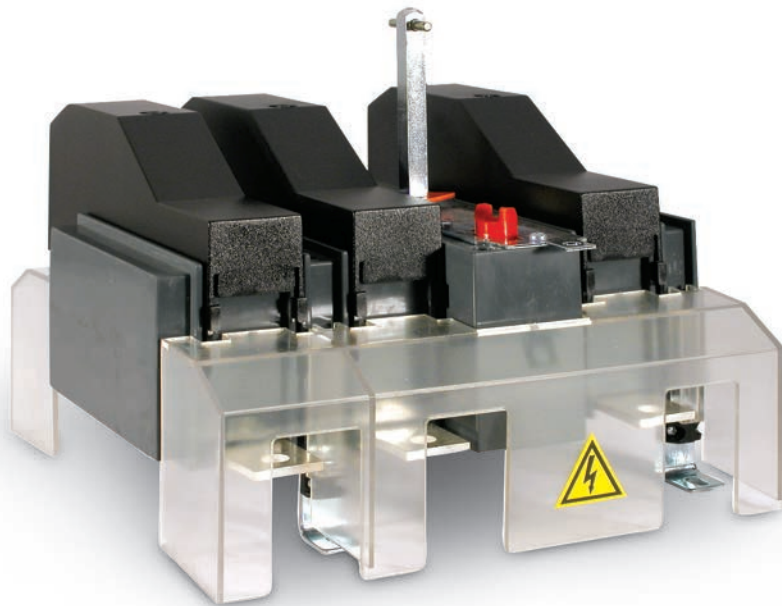
TSC / TSD are respectively change-over switches (II-0-I POSITIONS) and deviator switches (II-I POSITIONS) with manual operation.

Typical applications are:

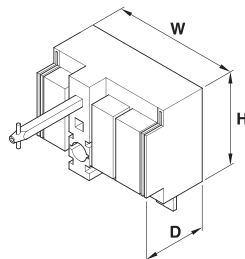
- change-over
- network inversion
- on-load change over of two circuits
- safety isolation

Main features and characteristics are:

- Reduced dimensions
- Polyester self-extinguishing and anti-trace insulating housing
- Fix and moving contacts in silver-plated electrolytic copper
- Manual operating device fitted in the insulating case in central position
- High thermal and dynamic performances
- Padlocking facility up to 3 padlocks
- 3 and 4 pole versions
- 4 pole switch-disconnectors suitable for all-phase breaking (the Neutral contact closes before and opens after the phases)



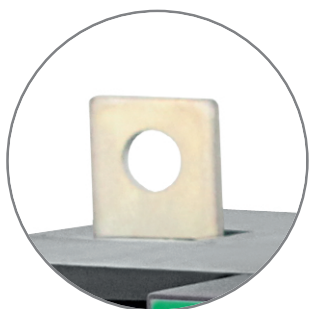
Two contact ■
block in series
result in
4 breaking
per phase



Measures* in mm (in)		H	W	D
Size S1 250A÷630A	3 pole	218	260 (10.24")	121 ÷ 123
	4 pole	(8.58")	307 (12.09")	(4.76" ÷ 4.84")
Size S2 800A÷1600A	3 pole	292	320 (12.60")	137 ÷ 139
	4 pole	(11.5")	392 (15.43")	(5.39" ÷ 5.47")

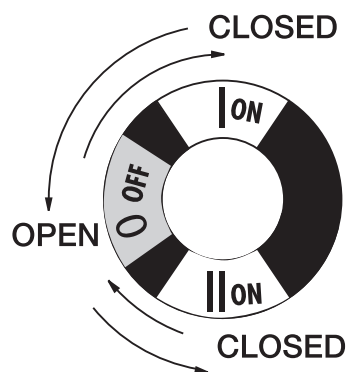
Note: * dimensions H and D depend on the extension and position of the current bars. They may change with the rating.
Shaft or other installed accessories are not considered.

- The actuator always respects the real position of the contacts. This type of control is called "positive operation". The auxiliary contacts are directly acted from the operating mechanism.
- Suitable for polluted ambient and tropical climates according to IEC 68-2 Standards



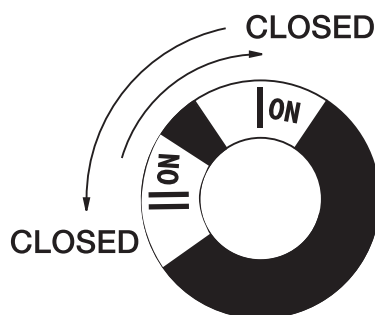
■ **TSC / TSD**
Bolt connection

**TSC
change-over**



■ II-0-I

**TSD
deviator**



■ II-I

A complete range of optional accessories allows the use of TSC / TSD in several installations. Standard bundle handle with door interlock in closed position. Standard handle is IP54 (IP55 using an optional handle washer) and can be locked in open position with max 3 padlocks.



Handle M1203
for TSC in Size S1



Handle size M1205
for TSD in Size S1



Handle size M1303
for TSC in Size S2



Handle size M1305
for TSD in Size S2

Note: 6-8 pole versions are available on request.

Technical data IEC 947-3 EN 60947-3

SIZE

Rated insulation voltage	Ui	V
Rated impulse withstand voltage	Uimp	kV
Rated thermal current for open switch	Ie	A
Number of poles		
Power dissipation each pole	W	
Rated operating current Ie		
AC-21A Switching of resistive loads, including moderate overloads	690V	A
AC-22A Switching of mixed resistive loads, including moderate overloads	690V	A
AC-23A Switching of motor loads or other highly inductive loads 3 phase - 3 pole	415V	A
	690V	A
DC-21A Switching of resistive loads, including moderate overloads	500V	A
DC-22A Switching of mixed resistive loads, including moderate overloads	500V	A
DC-23A Switching of motor loads or other highly inductive loads	400V	A
Reactive power ¹	380V	kVAr
Rated short time withstand current (1s)	Icw	kA
Rated short-circuit make capacity	Icm	kA
Mechanical life (no. of operations)		nr.
Electrical life (no. of operations)		nr.
Switching time I-0-II or II-0-I (for TSC series)		s
Weigth		
3 pole with link bar covers		Kg
4 pole with link bar covers (4° leaning pole)		Kg

Note:

¹ = due to the presence of harmonics and to the tolerances of capacitors, nominal values must be reduced by 33%

² = data about the 6 and 8 pole versions are available on request

Normal service, mounting and transportation conditions

- storage and transport ambient temperature -25° C + 55° C
- operative ambient temperature -5° C + 45° C
- relative humidity max 95%
- rated frequency 50-60 Hz
- altitude max 2000 m a.s.l.
- mounting in enclosure:

In case of utilisation at full load and without adequate ventilation, ensure a volume of about 5 time the volume of the switch.
Performances shall be derated up to 40% according to the environmental temperature.

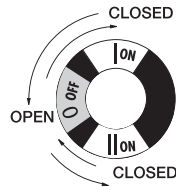
For other operating conditions please contact Bremas.

Reference Standards

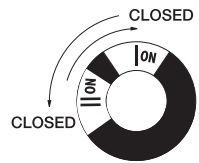
Change-over switches and deviators are designed,
manufactured and tested in compliance with **EN 60947-6-1**.

TSC0250 TSD0250	TSC0400 TSD0400	TSC0630 TSD0630	TSC0800 TSD0800	TSC1000 TSD1000	TSC1250 TSD1250	TSC1600 TSD1600
S1	S1	S1	S2	S2	S2	S2
1000	1000	1000	1000	1000	1000	1000
8	8	8	12	12	12	12
250	400	630	800	1000	1250	1600
3-4 ²	3-4 ²	3-4 ²	3-4 ²	3-4 ²	3-4 ²	3-4 ²
4,7	11	25	22,5	34	53	65
250	400	630	800	1000	1250	1600
250	400	630	800	1000	1250	1600
250	400	630	800	1000	1250	1600
125	160	200	250	315	400	500
250	400	630	800	1000	1250	1600
250	400	630	800	1000	1250	1600
200	250	400	630	800	1000	1000
100	150	250	300	375	450	550
12,5	15	16	30	32	35	35
25	30	32	60	70	73,5	73,5
8000	5000	5000	3000	3000	3000	3000
1000	1000	1000	500	500	500	500
2,5	2,5	2,5	2,5	2,5	2,5	2,5
<hr/>						
7	7	7,5	11	15	19	19
7,8	7,8	8,3	17	18,5	20,5	20,5

Change-over switches



Deviator switches




Disconnect switches







	Size	Ie AC21	poles	Code	Model	Pack	Code	Model	Pack
	S1	250	3	VC540300	TSC02503M1203	1	VD555000	TSD02503M1205	1
			4	VC541100	TSC02504M1203	1	VD556800	TSD02504M1205	1
		400	3	VC542900	TSC04003M1203	1	VD559200	TSD04003M1205	1
			4	VC543700	TSC04004M1203	1	VD560000	TSD04004M1205	1
		630	3	VC544500	TSC06303M1203	1	VD563400	TSD06303M1205	1
			4	VC545200	TSC06304M1203	1	VD564200	TSD06304M1205	1
	S2	800	3	VC546000	TSC08003M1303	1	VD567500	TSD08003M1305	1
			4	VC547800	TSC08004M1303	1	VD568300	TSD08004M1305	1
		1000	3	VC548600	TSC10003M1303	1	VD571700	TSD10003M1305	1
			4	VC549400	TSC10004M1303	1	VD572500	TSD10004M1305	1
		1250	3	VC550200	TSC12503M1303	1	VD575800	TSD12503M1305	1
			4	VC551000	TSC12504M1303	1	VD576600	TSD12504M1305	1
1600	3	VC857000	TSC16003M1303	1	VC858600	TSD16003M1305	1		
	4	VC857800	TSC16004M1303	1	VC859400	TSD16004M1305	1		


Code	Model	Description	Pack
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VC844900	K4	link bar cover for TSC / TSD Size S1	1
VC845600	K5	link bar cover for TSC / TSD Size S2	1
VD718400	S09	upper terminal cover 3 pole for TSC / TSD Size S1	1
VD719200	I09	lower terminal cover 3 pole for TSC / TSD Size S1	1
VD720000	S09NL	upper terminal cover 4 pole for TSC / TSD Size S1	1
VD721800	I09NL	lower terminal cover 4 pole for TSC / TSD Size S1	1
VD722600	S99	upper terminal cover 3 pole for TSC / TSD Size S2	1
VD723400	I99	lower terminal cover 3 pole for TSC / TSD Size S2	1
VD724200	S99NL	upper terminal cover 4 pole for TSC / TSD Size S2	1
VD725900	I99NL	lower terminal cover 4 pole for TSC / TSD Size S2	1

Code	Model	Description	Pack
 VC728400	T8	standard extension shaft L=180mm Q8 for TF / TS Sizes S1-S2	1
VD700200	T8/1	extension shaft L=280mm Q8 for TF / TS Sizes S1-S2	1
VC794600	T10	standard extension shaft L=180mm Q10 for TSC / TSD Size S1	1
VC795300	T10/1	standard extension shaft L=280mm Q10 for TSC / TSD Size S1	1
VC797900	T12	standard extension shaft L=180mm Q12 for TF / TS Sizes S3-S4 and TSC / TSD Size S2	1
VC798700	T12/1	standard extension shaft L=280mm Q12 for TF / TS Sizes S3-S4 and TSC / TSD Size S2	1

Code	Model	Description	Pack
 VC762300	M1203	short black handle II-0-I standard for TSC / TSD Size S1-S2	1
 VC763100	M12C03	short black handle II-0-I with key lock for TSC / TSD Size S1-S2	1
 VC764900	M12DS03	short black handle II-0-I with door-interlock override for TSC / TSD Size S1-S2	1
 VC777100	M1303	long black handle II-0-I standard for TSC / TSD Size S2	1
 VC778900	M13C03	short black handle II-0-I with key lock for TSC / TSD Size S2	1
 VC779700	M13DS03	long black handle II-0-I with door-interlock override for TSC / TSD Size S2	1

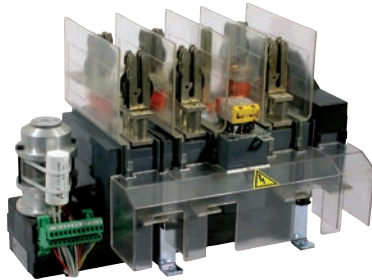
Code	Model	Description	Pack
 VC792000	G12	handle washer IP55 for TF / TS (S3-S4); TSC / TSD (S1-S2)	1
VC748200	G8	handle washer IP55 for TF (S0-S1-S2); TS (S1-S2)	1

Code	Model	Description	Pack
 VC846400	AU1	auxiliary contacts 1NO for TF / TS / TSC / TSD	1
VC847200	AU2	auxiliary contacts 1NC for TF / TS / TSC / TSD	1
 VC848000	AU3	auxiliary contacts 1NO+1NC for TF / TS / TSC / TSD	1
VC849800	AU4	auxiliary contacts 1NO+1NO for TF / TS / TSC / TSD	1
VC851400	AU6	auxiliary contacts 2NO+2NC for TF / TS / TSC / TSD	1
VC852200	AU7	auxiliary contacts 2NO+2NO for TF / TS / TSC / TSD	1
VC853000	AU8	auxiliary contacts 2NC+2NC for TF / TS / TSC / TSD	1

 standard article

On request

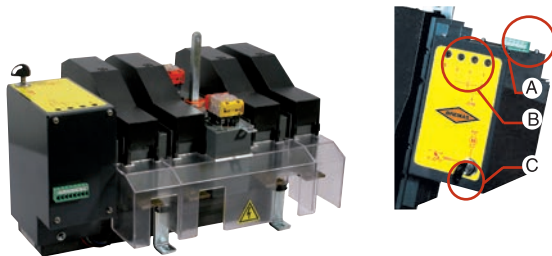
Motor driven change-overs and deviators



Range: 125A ÷ 1600A
 3-4 pole
 Operation directions: II-0-I or II-I
 500V AC 23A 690V AC 22A CEI EN 60947-6-1
 600V DC 22A CEI EN 60947-6-1
 Isolation voltage U_i 1000 V

Electronic control unit

Remotely controls the switch and warnings about possible faults through a local visible signalisation and a remote output.

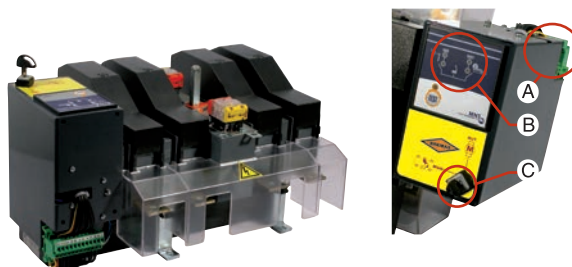


- Abnormal condition signalling LED
- LED to indicate the Main / generator position
- Manual-automatic selector key
- 220V a.c. or 24V d.c. supply voltage

A – Terminal block
 B – Signalling LED
 C – Manual-automatic selector key

Microprocessor unit MNS

This unit continuously monitors the Main line and automatically switches to the auxiliary generator when the line voltage drops low. It also switches back to the line when its voltage rises back to a normal value.



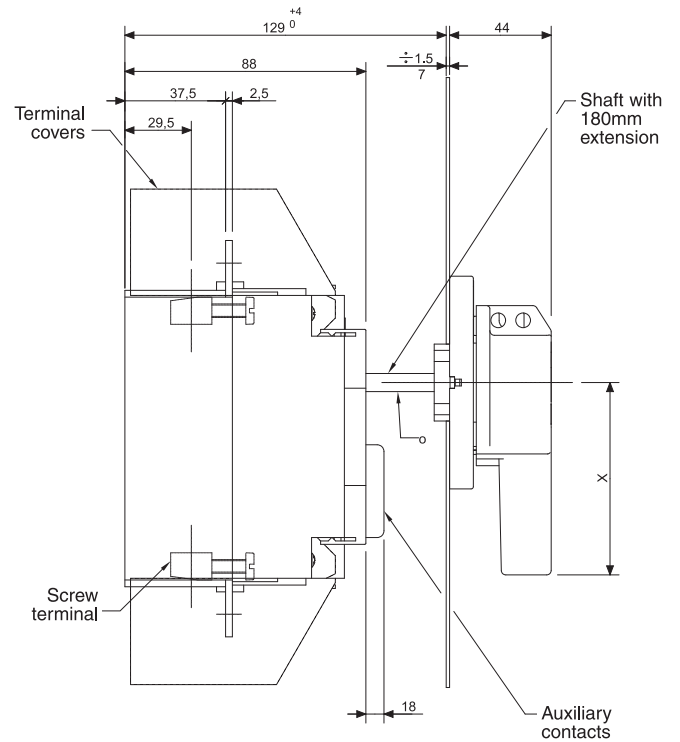
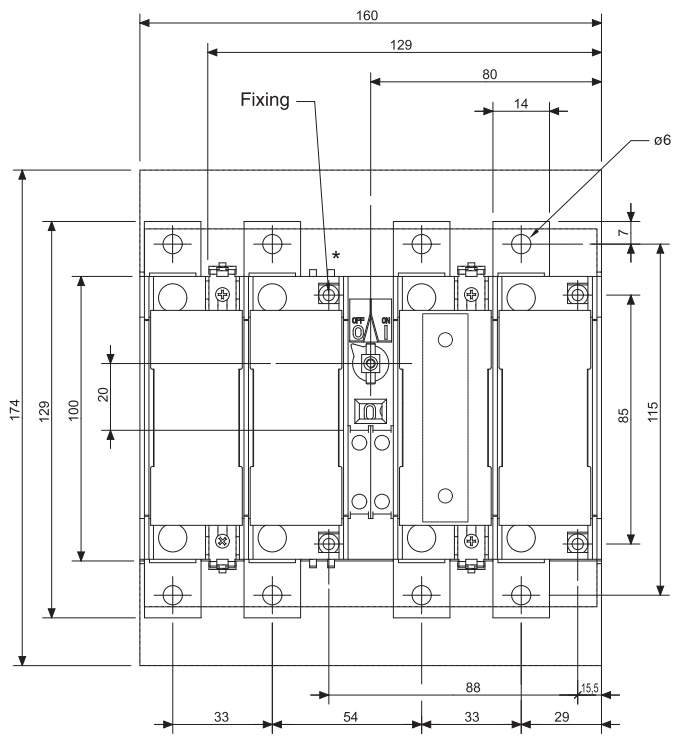
- Abnormal condition signalling LED
- LED to indicate the Main / generator position
- Manual-automatic selector key
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A – Terminal block
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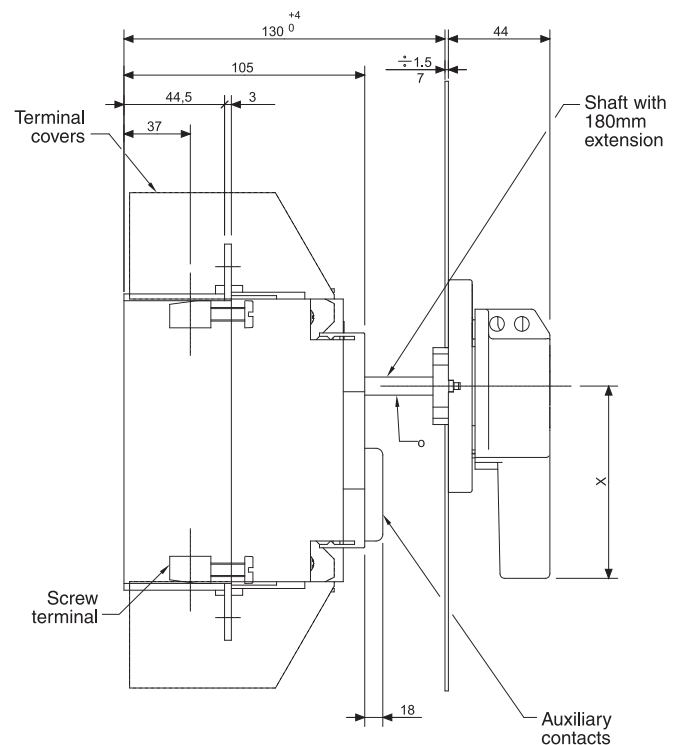
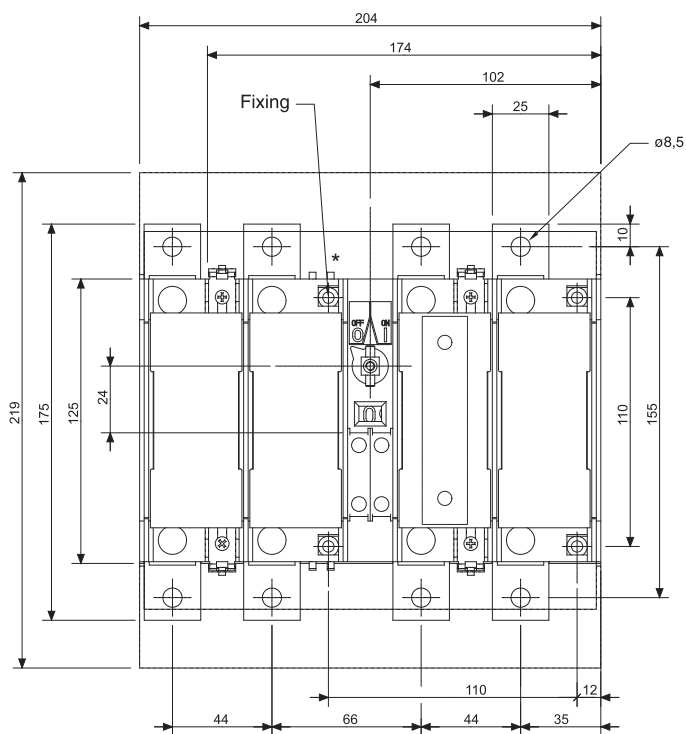
TS, TSC/TSD Series - Dimensions

disconnect switches

TS 125A - Measures in mm
TS Size S1



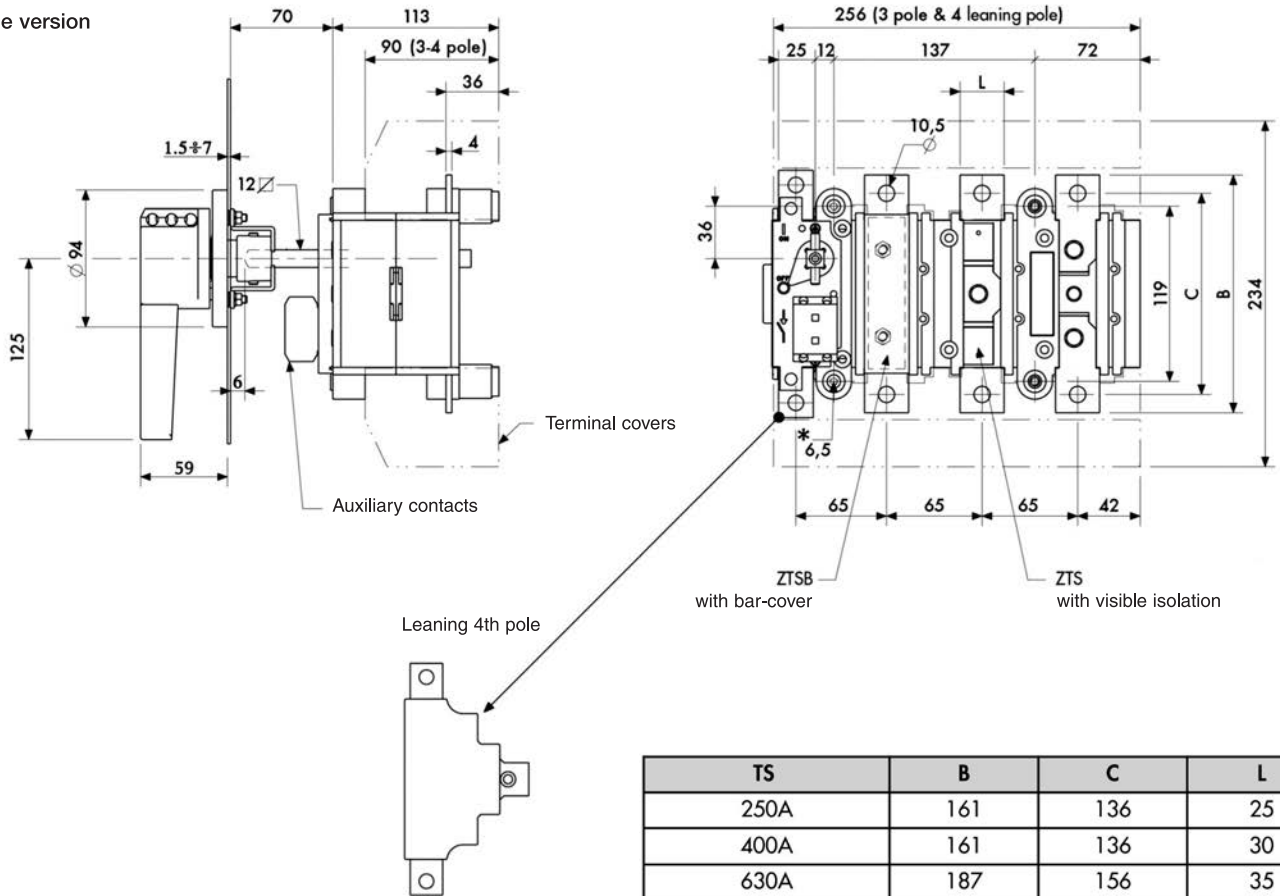
TS 160A÷250A - Measures in mm
TS Size S2



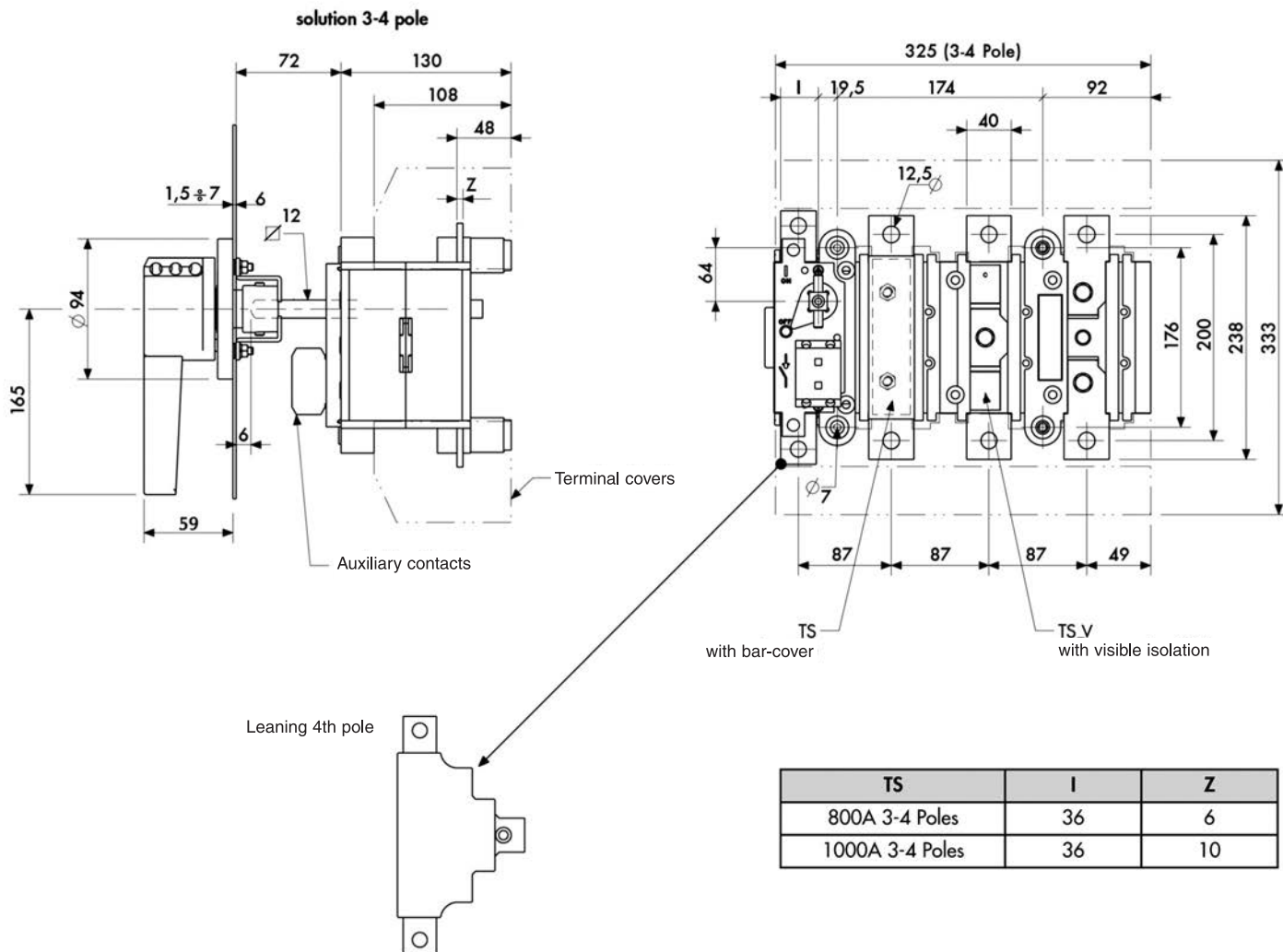
TS 400A÷630A 3-4 pole - Measures in mm

TS Size S3

3-4 pole version

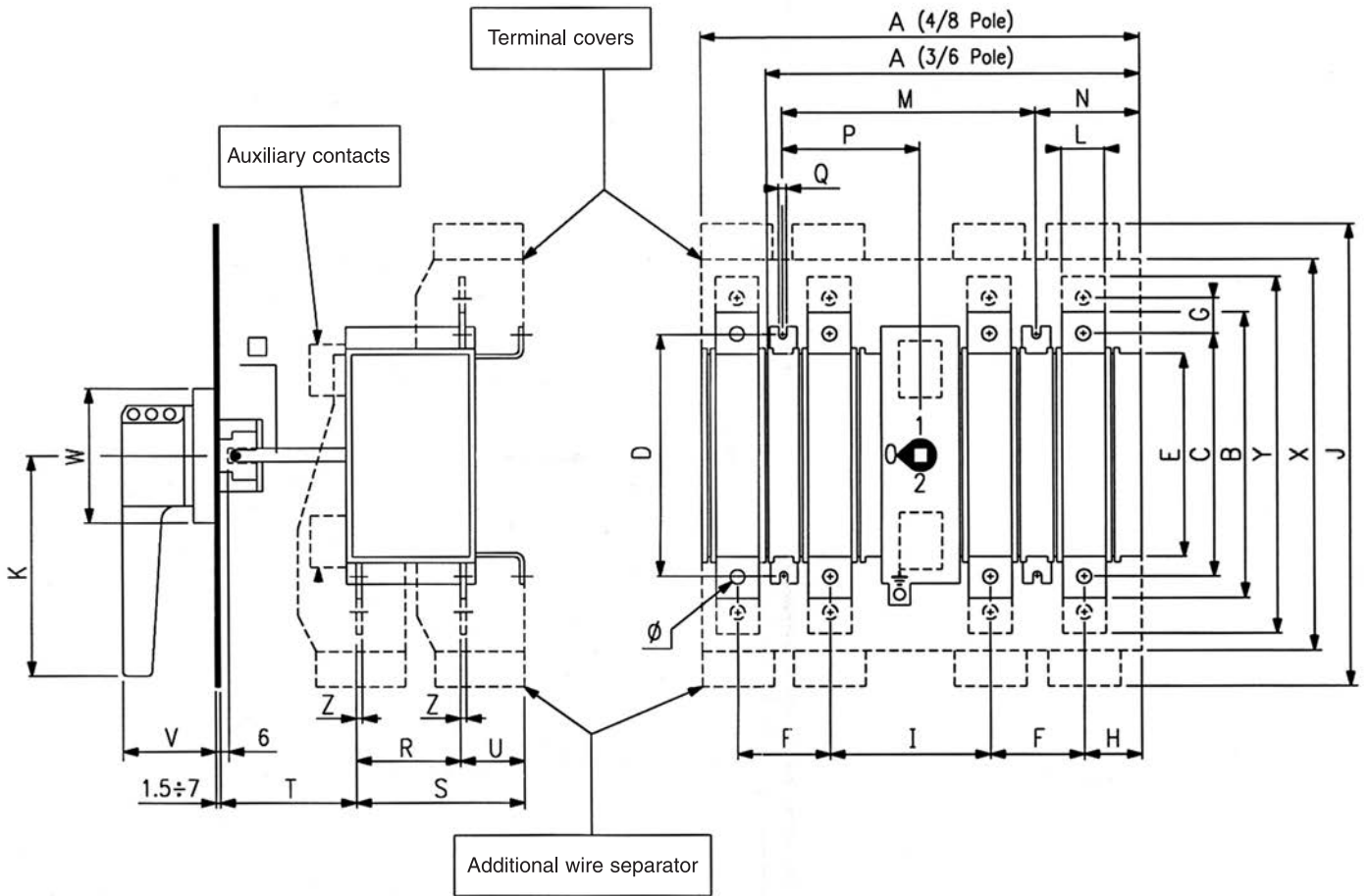


TS 800A÷1000A 3-4 pole - Measures in mm
TS Size S4



Change-over and deviator switches

TSC / TSD - Measures in mm



	TYPE	A 3 pole	A 4 pole	B	C	D	E	F	G	H	I	J	K	L	M	N	P	Q	R	S	T	U	V	W	X	Y	Z	∅	∅
Size S1	250A													25				77	121							4			
	400A	260	307	218	193	168	142	65	-	39,5	112,3	320	125	30	177	72	96	6,5	78	122	115	43	59	94	274	-	5	10	10,5
	630A													35					79	123						6			
Size S2	800A																	86	137							8			
	1000A	320	392	292	252	230	208	87	-	49	134	435	165	40	221	89	112	6,5	88	139	107	48	59	94	384	-	10	12	13
	1250A																		88	139						352			
	1600A																									12			