

ATSE-800 Series the Panel of Automatic Changeover Switch (Automatic Transfer Switching Equipment)

FixedType



High reliable, compact, environmental protection...

Technical Manual

■General

1.1 Scope of Application

1.1.1 ATSE-800 series the Panel of Automatic Changeover switch (Automatic transfer switching equipment) is applicable to three-phase four-wire duplicate supply grid of AC 50/60Hz, rated voltage 240/440V/690V and below, rated current 800A, and can switch one or several load circuits from one power source to the other to ensure the normal power supply of the load circuit.

1.1.2 This product is applicable to industrial and commercial power use places, high-rise buildings, and residential houses.

1.2 Applicable standards

1.2.1 Product standard

IEC 60947-1.

IEC 60947-6-1.

1.2.2 Standards for use in extreme environment

IEC 60068-2-1. (Low Temperature)

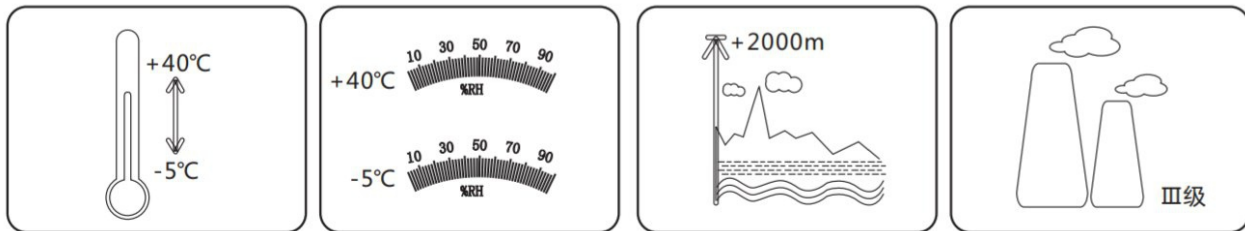
IEC 60068-2-2. (High Temperature)

IEC 60068-2-30. (Cyclic Damp Heat)

IEC 60068-2-11. (Salt mist)

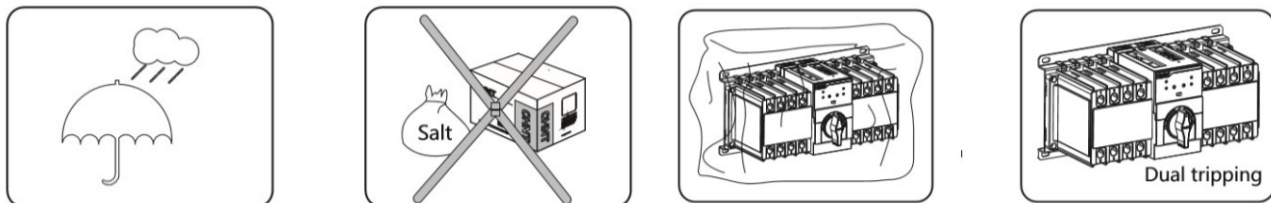


1.3 Normal working conditions



1.3.1 Ambient temperature $-5^{\circ}\text{C}\sim+40^{\circ}\text{C}$; Users can custom-tailor relevant product to be used in the environment of $-25^{\circ}\text{C}\sim+70^{\circ}\text{C}$, and use the product according to the temperature compensation table. 1.3.2 Sea level elevation Equal to 2000m or below; if it needs to work above 2000m altitude, it shall be used according to the table of capacity reduction of different altitudes.

1.3.3 Atmospheric conditions The relative humidity shall not exceed 50% when the surrounding air temperature is $+40^{\circ}\text{C}$; the relative humidity can be higher when the temperature is lower; the average monthly maximum relative humidity in the wettest month is 90%, and the average monthly minimum temperature shall be $+20^{\circ}\text{C}$. Special measures may be necessary in cases of occasional condensation due to variations in temperature.



1.3.4 Pollution degree: class 3

1.3.5 Installation category Installation category of the switching equipment of main circuit is category IV.

Installation category of auxiliary circuit is category III. Installation category of conversion controller is category II.

1.3.6 Utilization category: AC-33Ib, AC-33B .

1.3.7 Electromagnetic compatibility (EMC) Electrostatic discharge (IEC 61000-4-2) Level 2 Radio-frequency electromagnetic field-radiated electromagnetic field immunity (IEC 61000-4-3) Level 3, Fast transient bursts (IEC 61000-4-4) Level 3, Surges (IEC 61000-4-5) Level 3, Radio-frequency electromagnetic field-conducted immunity (IEC 61000-4-6) Level 3, Radiation grade (CISPR11) grade B.



■ Model definition and description

MATYS 250 S 3 A 3 160A

Rated current code:
10A~800A

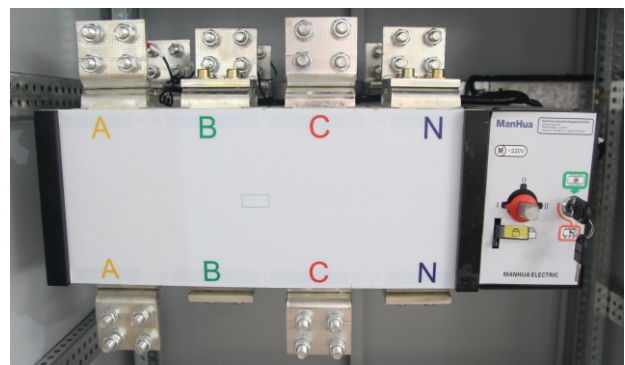
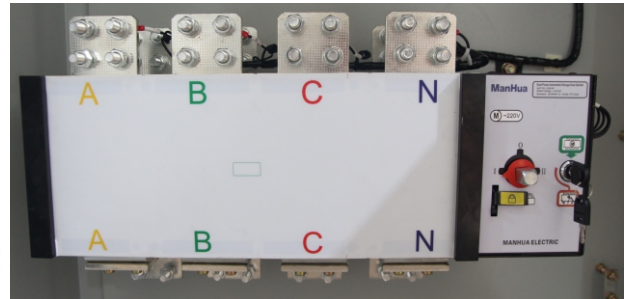
Function code:
Empty: power distribution protection
2: generator protection

Controller code:
A: standard type
B: intelligent type

Pole :
3: 3 poles
4: 4 poles

Breaking capacity code:
S: standard
H: higher

Frame current code:
63A, 125A,
160A, 250A,
320A, 400A,
630A, 800A



Product code:

MATYS2: automatic transfer switching equipment

■ Comparison Table of Frame Current and Rated Current

Rated current (A)	10	16	25	32	40	50	63	80	100	125	160	180	200	225	250	315	320	350	400	500	630	700	800	
63	■	■	■	■	■	■	■																	
125							■	■	■	■														
160										■	■													
250											■	■	■	■	■									
320															■		■							
400															■	■		■	■					
630																			■	■	■			
800																					■	■	■	■

■ Technical parameters of MATYS (class CB)

Model	MAYTS-63	MAYTS-125	MAYTS-160	MAYTS-250	MAYTS-320	MAYTS-400	MAYTS-630	MAYTS-800
Electrical characteristics								
Execution body	MAYTS-63	MAYTS-125	MAYTS-160	MAYTS-250	MAYTS-320	MAYTS-400	MAYTS-630	MAYTS-800
Frame current (A)	63	125	160	250	320	400	630	800
Rated current (A)	10, 16, 25, 32, 40, 50, 63	63, 80, 100, 125	125, 160	160, 180, 200, 225, 250	160, 180, 200, 225, 250, 320	250, 315, 350, 400	400, 500, 630	630, 700, 800
Rated operational voltage Ue (V)	240/400/440/690 50/60Hz							
Rated insulation voltage Ui (V)	AC800	AC800	AC800	AC1000	AC1000	AC1000	AC1000	AC1000
Rated impulse voltage Uimp (kV)	8					12		
Utilization category	AC-33F							
Number of poles	3P、4P	3P、4P	3P、4P	3P、4P	3P、4P	3P、4P	3P、4P	3P、4P
Rated conditional short-circuit current Iq (kA)	100	100	100	100	100	100	100	100
Mechanical endurance (times)	10000	10000	8000	6000	6000	4000	4000	4000
Electrical endurance (times)	2000	2000	2000	2000	2000	1500	1500	1000
Controller characteristics								
Controller model	A type (standard), B type (intelligent)							
Operating transfer (s)	2.8 × (1±10%)	2.8 × (1±10%)	3.3 × (1±10%)	3.3 × (1±10%)	3.3 × (1±10%)	3.5 × (1±10%)	3.5 × (1±10%)	4 × (1±10%)
Installation mode	Integrated, split							
Rated control power source voltage Us(V)	230/240 50/60Hz							
Control voltage range	85%~110%Ue							

■ Functions and characteristics

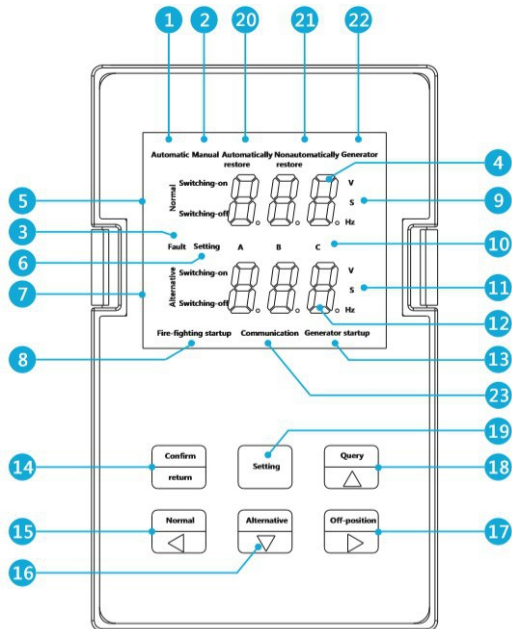
Table of main functional parameters of MATYS controller

Function	Model	A type (standard)	B type (intelligent)
Manual/automatic transfer		■	■
Main contact positions			
Normal position		■	■
Alternative position		■	■
Off-position		■	■
Automatic control			
Normal supply of monitoring		■ Phase failure/loss of voltage, undervoltage, overvoltage fault	■ Phase failure/loss of voltage, undervoltage, overvoltage fault
Alternative supply of monitoring		■ Phase failure/loss of voltage, undervoltage, overvoltage fault	■ Phase failure/loss of voltage, undervoltage, overvoltage fault
Automatically transfer and restore operation		■	■
Automatically transfer and nonautomatically restore operation		■	■
Grid-grid		■	■
Grid-generator		-	-
Phase failure/loss of voltage transfer		■	■
Undervoltage transfer		■	■
Overvoltage transfer		■	■
Delay adjustable		■	■
Transfer delay		0s~180s adjustable	0s~180s adjustable
Return delay		0s~180s adjustable	0s~180s adjustable
Generator control		-	■
Fire control linkage		■	■
Fire control feedback		■	■
Indication			
Switching-on/switching-off/off-position		■	■
Normal/alternative supply indication		■	■
Parameter setting indication		■	■
Fault tripping indication		■	■
Others			
Communication function		Optional	Optional
Display module		■ LED	■ LED

■ Functions and characteristics

Functional description of MAYTS

Operation interface of the display module of controller



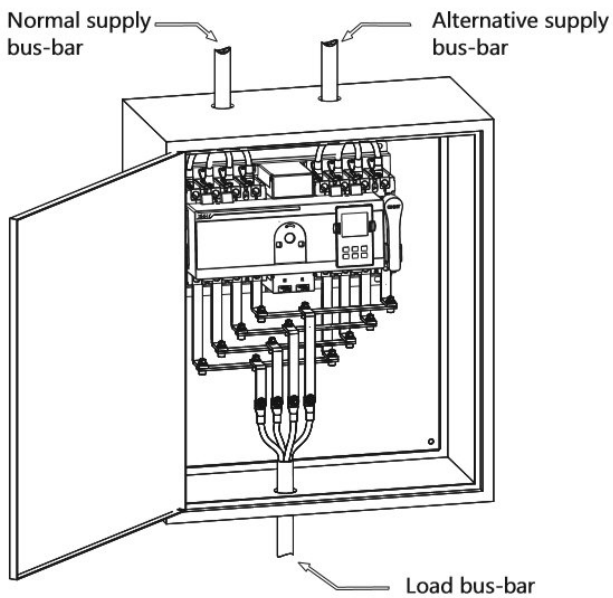
- 1 Indication of automatic operation mode;
- 2 Indication of manual operation mode;
- 3 Fault indication: This light will be on when switch fault or breaker tripping caused by load short circuit (class PC controller doesn't have such function);
- 4 The display area of voltage parameters of normal supply shows the voltage parameters of normal supply and the transfer delay time during working, and shows the symbol in setting mode;
- 5 Indication of switching-on, switching-off for the normal supply; when normal supply is failure, indicator light of "normal" flash;
- 6 Setting status indication;
- 7 Indication of switching-on, switching-off for the alternative supply; when alternative is failure, indicator light of "alternative" flash;
- 8 Indication of startup of fire control linkage;
- 9 Voltage, time, and frequency unit for the normal supply ;
- 10 A, B, C phase;
- 11 Voltage, time, and frequency unit for the alternative supply;
- 12 The display area of voltage parameters of alternative supply shows the voltage parameters of alternative supply and the transfer delay time during working, and shows the symbol in setting mode;
- 13 Indication of generator startup;
- 14 Confirm/return button: It means saving and exit in setting mode; It means returning to the normal working state in fire control linkage mode;
- 15 Normal supply switching button: On the manual control mode, if the normal supply is normal, press this button to compulsorily switch to normal supply; On setting mode, this button is used for paging up;
- 16 Alternative supply switching button: On the manual control mode, if the alternative supply is normal, press this button to compulsorily switch to alternative supply; On setting mode, this button is used for paging down;
- 17 Trip button: On the manual control mode, if any one of the two power sources is normal, press this button to switch to the switching-off position; On setting mode, this button is used to decrease value in parameter setting;
- 18 Fault query button: when there is fault indication on the display screen, press this button to query the fault code ; On setting state, this button is used to increase value in parameter setting;
- 19 Setting button: press this button to enter the parameter setting menu of the controller;
- 20 Indication of automatically transfer and restore operation mode;
- 21 Indication of automatically transfer and nonautomatically restore operation mode;
- 22 Indication of generator (automatically transfer and restore operation);
- 23 Indication of communication state.

Mode of connection of the main part and controller

Mode of connection of MAYTS-800

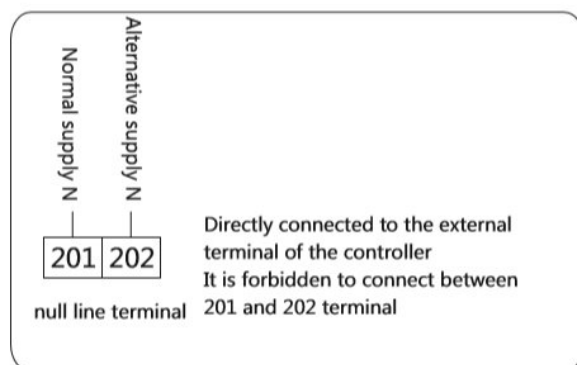
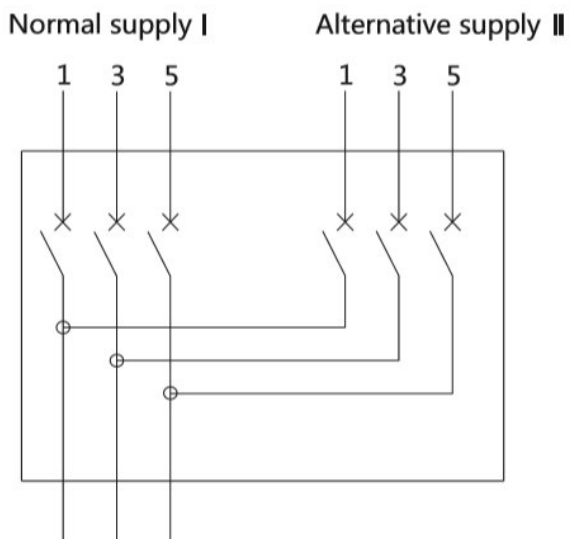
Product incoming line mode: incoming line at the top of product; outgoing line at the bottom of product

Installation mode: vertically or horizontally

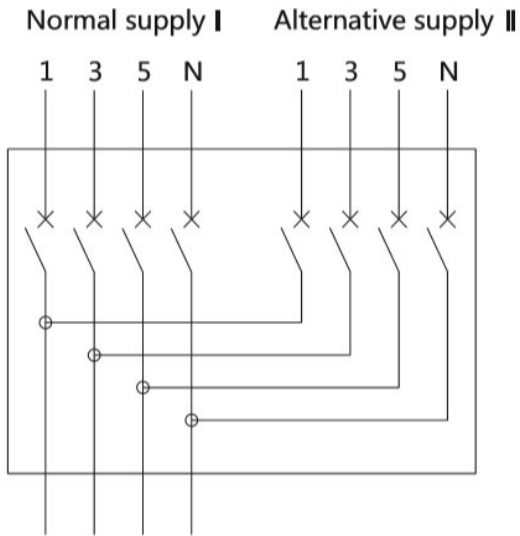


Product wiring

3P



4P



⚠ Wiring error of N pole may cause the controller to be burnt !

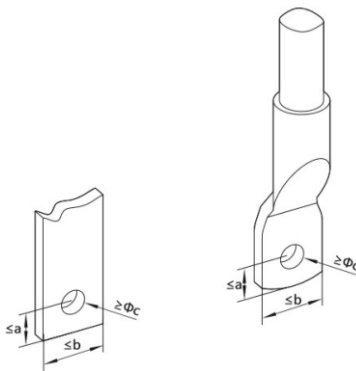
Voltage sample line

Power bus

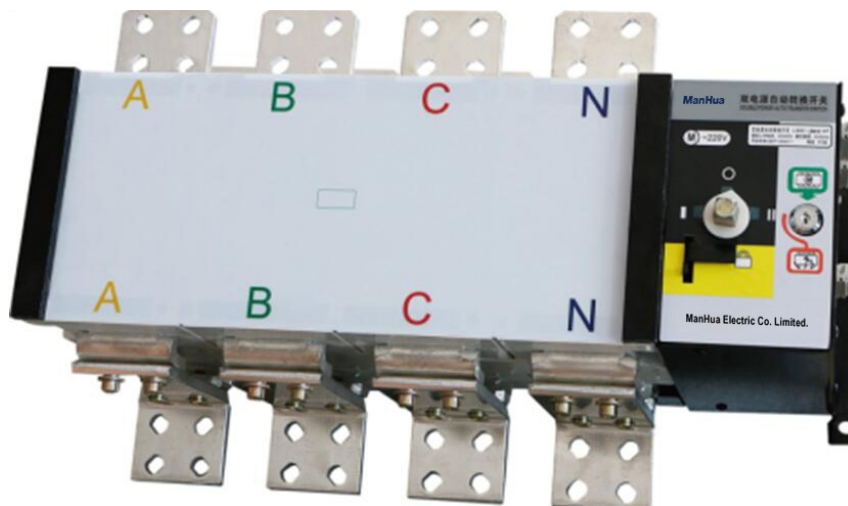
Phase sequence of the power source shall be correct.

Wire connection

Unit: mm



Product code	a	b	c
MXZ(H)M-63、125	6.5	14	5.5 (≤63A)
	7.5	17	6.5 (> 63A)
MXZ(H)M-160	7.5	14.5	8.5
MXZ(H)M-250、320	10	23	8.5
MXZ(H)M-400、630	10.5	30.5	10.5
MXZ(H)M-800	15	43	14



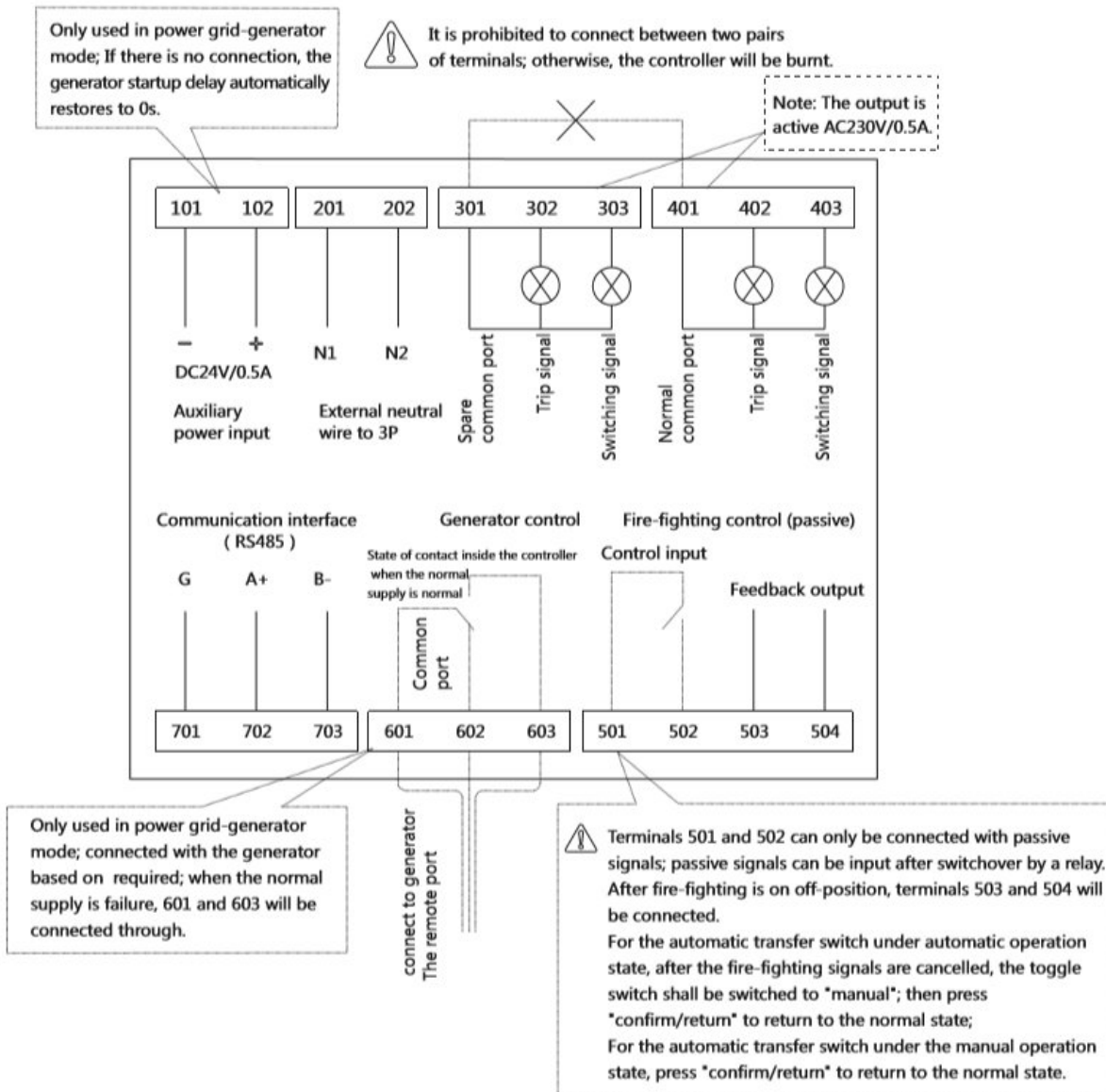
Mode of connection of the main part and controller

Installation of interphase barrier



Note: The interphase barrier for MATYS-160 is preassembled before delivery.

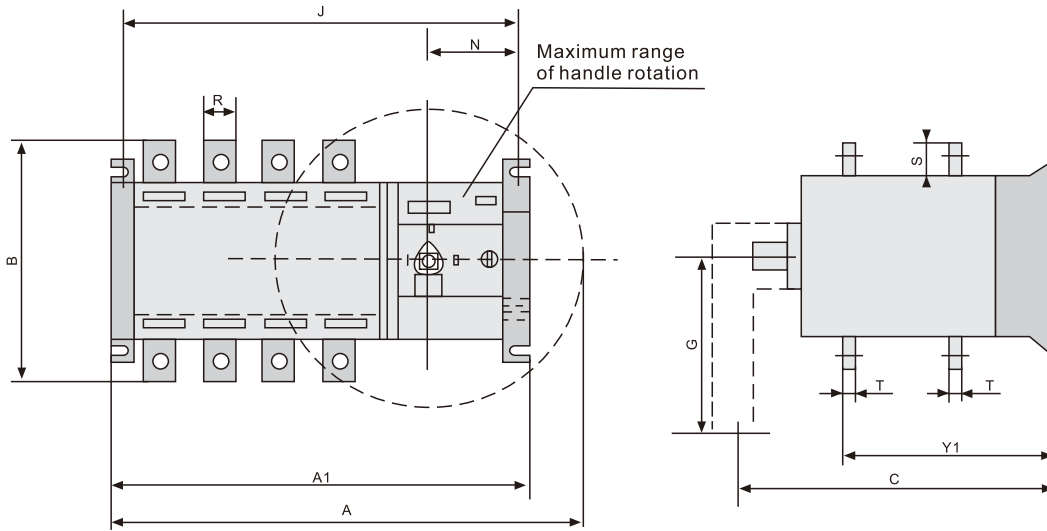
Signal and control terminal wiring



Note: Type A controller has no fire-fighting feedback and generator control function.

Overall and installation dimension of MATYS

Overall and installation dimension



Specification	Outline and Installation Dimension																				
	In	A	A1	B	B1	C	E	G	J	K	L	N	P	R	S	T	U	W	φX	Y	Y1
100A/3	235	232	106	105	134	133	115	221.5	84	7	74.5	30	14	18	2.5	105	126	6	36	86	
100A/4	247	244	106	105	134	133	115	233.5	84	7	74.5	30	14	18	2.5	105	126	6	36	86	
125A/3	292	270	135	128	230	189	145	254	102	7	91	36	20	25	3.5	127	158	9	55	125	
125A/4	322	300	135	128	230	189	145	284	102	7	91	36	20	25	3.5	127	158	9	55	125	
160A/3	292	270	135	128	230	189	145	254	102	7	91	36	20	25	3.5	127	158	9	55	125	
160A/4	322	300	135	128	230	189	145	284	102	7	91	36	20	25	3.5	127	158	9	55	125	
250A/3	356	312	170	142	261	208	145	293	102	7	91	50	25	30	3.5	142	168	11	60	145	
250A/4	406	362	170	142	261	208	145	343	102	7	91	50	25	30	3.5	142	168	11	60	145	
400A/3	487	368	260	222	284	273	189	351	180	9	93	65	32	40	5	222	203	11	83	193	
400A/4	552	433	260	222	284	273	189	416	180	9	93	65	32	40	5	222	203	11	83	193	
630A/3	487	368	260	222	284	273	189	351	180	9	93	65	40	50	6	222	203	12	83	193	
630A/4	552	433	260	222	284	273	189	416	180	9	93	65	40	50	6	222	203	12	83	193	
800A/3	646	519	357	250	363	350	443	499	220	11	87	120	60	69	8	250	207	12.5	109	254	
800A/4	760	633	357	250	363	350	443	613	220	11	87	120	60	69	8	250	270	12.5	109	254	
1000A/3	646	519	357	250	363	350	443	499	220	11	87	120	60	69	8	250	207	12.5	109	254	
1000A/4	760	633	357	250	363	350	443	613	220	11	87	120	60	69	8	250	207	12.5	109	254	
1250A/3	646	519	357	250	363	350	443	499	220	11	87	120	80	69	8	250	207	13	110	255	
1250A/4	760	633	357	250	363	350	443	613	220	11	87	120	80	69	8	250	207	13	110	255	
1600A/3	646	519	357	250	363	350	443	499	220	11	87	120	80	69	10	250	207	13	110	255	
1600A/4	760	633	357	250	363	350	443	613	220	11	87	120	80	69	10	250	207	13	110	255	
2000A	800	633	460		542		447	610			84.5		80	120	10					169	
2500A	800	633	460		542		447	610			84.5		80	125	15						174
3200A	800	633	460		542		447	610			84.5		80	130	20						179