Thermal Cutout/ Regulator/Limiter

FEATURES
– Precision switching
– High sensitivity
– Broad application
– Wide range of housings, connections and fixings
– Designed for dirty situations

A3
A3A
A3K
A3K2
A3K3

DESCRIPTION

Types A3, A3D, A3L, A3DL, A3DS, A3A, A3DA, A3SD, A3AS, A3K, and A3K1 are designed for operations as thermal cutouts, temperature regulators or overheat protection.

Type A3K2 is a double pole thermal cutout or over-temperature protector.

Type A3K3 is a thermal cutout or temperature regulator with a fuse.

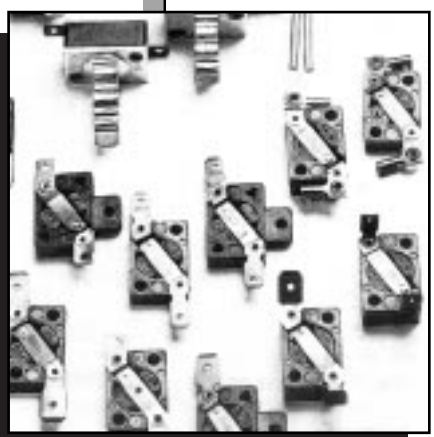
Types A3B, A3LB, A3AB, AKB and A3KB are thermal limiters (with manual reset).

The thermal response system operates by means of a bimetal snap-disc acting on a switch contact without any electrical connection.

The system is insensitive to current, and reacts to external thermal influences.

Plastic housing, base-plate and mounting lug are all voltage-free.

Heat transfer is effected directly through the plastic/metal housing or solid media, and indirectly by convection, radiation and conduction in the case of gaseous media.



APPLICATIONS

Temperature monitoring and control,
Temperature limiting and indication
in electrical appliances, industrial plant,
machinery and equipment, process engineering.

e.g.	cookers	coffee machines
hotplates	heaters	egg cookers
vacuum cleaners	radiators	domestic appliances
ironing machines	water heaters	electrical equipment
electric blankets	welders	oil heaters
foot warmers	thyristors	plate warmer

CANTHERM
8415 Mountain Sights Avenue • Montreal (Quebec), H4P 2B8, Canada
Tel: (514) 739-3274 • 1-800-561-7207 • Fax: (514) 739-290
E-mail : sales@cantherm.com • Website: www.cantherm.com

Thermal Cutouts A3
03-02-02
1000-Y-397e

TECHNICAL DATA
CONVECTION THERMAL SWITCH

Data \ Type		A3	A3D	A3L	A3DL	A3DS	A3B	A3LB
Thermal Cutout		●	●	●	●			
Temperature Regulator		●	●	●	●	●		
Temperature Limiter							●	●
Thermal Cutout / Overheat Protector		●		●				
Switch Rating 250 V cos φ = 1.0 **S (Code No.)** Voltage 250 V A.C.	N 1.0 A	●	●	●	●	●	●	●
	M 4.0 A	●	●	●	●		●	●
	V 6.3 A	●		●			●	●
	H 10.0 A standard	●		●			●	●
	O 13.0 A	●		●			●	●
	U 16.0 A	●		●			●	●
	Z 20.0 A	●		●			●	●
DC Operation 6 V = / 12 V = / 24 V = / 48 V =		●	●	●	●		●	●
Response Temperature °C 40 °C up to ⟶		160°C	160°C	160°C	160°C	130°C	150°C	150°C
Tolerance ±3% ±6% ±10% ±15% but minimum ±2.5 K±5 K ±10 K ±15 K		●	●	●	●	●	●	●
Reset Temperature **RT (Code No.)**	RT1 $10^{\pm 5}$°C	●	●	●	●			
	RT2 $25^{\pm 10}$°C	●	●	●	●			
	RT3 ≦ 50°C	●	●	●	●			
Standard	RT4 5–45°C max.	●	●	●	●			
Reset temp. can be specified 5–50°C (T 405–T 450)		●	●	●	●			
Min. rate of temperature change 0.1 K/min.		●	●	●	●	●	●	●
Max. continuous temperature		175°C	175°C	175°C	175°C	175°C	175°C	175°C
Contact type	Normally closed (open on temp. rise)	●	●	●	●	●	●	●
	Normally open (close on temp. rise)	●	●	●	●			
No. of poles	single-pole	●	●	●	●	●	●	●
Protection class		I	I	I	I	I	I	I
Standard Solder Terminals ●		●	●	●	●	●	●	●
Switch Life		dependent on electrical rating up to 100,000 switching cycles						
Contact Resistance		≤ 10 mΩ						
Dielectric strength to earth		2000 V~						
Dielectric strength across open contacts		500 V~ up to 1500 V~						

Approvals with different electrical ratings applied for or obtained, e.g. VDE, SEMKO, UL, ÖVE, SEV, BEAB, NEMKO, etc. Marking by coding system.
Detailed information on request. Further approvals are continuously applied for.
All thermal cutouts with a "D" in the type reference are designed for use as temperature regulator (100,000 switching cycles).

Thermal Cutouts A3
03-02-02
1000-Y-397e

TECHNICAL DATA
SURFACE THERMAL SWITCH

Data \ Type		A3A	A3DA	A3AB	A3AS	A3SD
Thermal Cutout		●	●		●	●
Temperature Regulator		●	●		●	●
Temperature Limiter				●		
Thermal Cutout / Overheat Protector		●			●	●
Switch Rating 250 V cos φ = 1.0 **S (Code No.)** Voltage 250 V A.C. A3AX 400 V A.C. 10A test class I	N 1.0 A	●	●	●	●	●
	M 4.0 A	●	●	●	●	●
	V 6.3 A	●		●	●	
	H 10.0 A standard	●		●	●	
	O 13.0 A	●		●	●	
	U 16.0 A	●		●	●	
	Z 20.0 A	●		●	●	
DC Operation 6 V = / 12 V = / 24 V = / 48 V =		●	●	●	●	●
Response Temperature °C 40 °C up to ⟶		160 °C	160 °C	150 °C	160 °C	160 °C
Tolerance ±3% ±6% ±10% ±15% but minimum ±2.5 K±5 K ±10 K ±15 K		●	●	●	●	●
Reset Temperature **RT (Code No.)**	RT1 $10^{\pm 5}$ °C	●	●		●	●
	RT2 $25^{\pm 10}$ °C	●	●		●	●
	RT3 ≦ 50 °C	●	●		●	●
Standard	RT4 5–45 °C max.	●	●		●	●
Reset temp. can be specified 5–50 °C (T 405–T 450)		●	●		●	●
Min. rate of temp. change 0.1 K/min.		●	●	●	●	●
Max. continuous temp.		175 °C	175 °C	175 °C	175 °C	175 °C
Contact type	Normally closed (open on temp. rise)	●	●	●	●	●
	Normally open (close on temp. rise)	●	●		●	●
No. of poles	single-pole	●	●	●	●	●
Protection class		I	I	I	I	I
Standard Solder Terminals ●		●	●	●	●	●
Switch Life		dependent on electrical rating up to 100,000 switching cycles				
Contact Resistance		≤ 10 mΩ				
Dielectric strength to earth		4000 V~				
Dielectric strength across open contacts		500 V~ up to 1500 V~				

Approvals with different electrical ratings applied for or obtained, e.g. VDE, SEMKO, UL, ÖVE, SEV, BEAB, NEMKO, etc. Marking by coding system.
Detailed information on request. Further approvals are continuously applied for.
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Thermal Cutouts A3
03-02-02
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TYPE REFERENCE/CODE NUMBER LIST

N (Code No.) Type Reference

T (Code No.) Housing material

1 T 150 Thermoplast Standard A3B, A3LB, A3AB
2 T 450 Ceramic Standard Series A3K
3 T 170 Duroplast (standard) A3, A3L, A3A, A3AS
4 T 130 Polyester
5 T 175 Thermoplast Stanyl

W (Code No.) Terminal material

0 Brass
1 Nickel plated brass
2 CuZn 37 / Nickel plated brass (standard)
3 Steel

Special versions:

A = silver-plated
B = gold-plated
C = stainless steel
D = brass, tinned
E = steel, nickel-plated
When ordering, to be stated in addition to Code-No.

S (Code No.) Electrical rating

N 1.0 A
M 4.0 A
V 6.3 A
H 10.0 A (standard)
O 13.0 A
U 16.0 A
Z 20.0 A

A (Code No.) Connection type

0 Special Connectors
1 Solder tags (standard)
2 Push-on 4.8 × 0.8 mm
3 Push-on 6.3 × 0.8 mm
4 Crimp
6 Weldable push-on 6.3 × 0.8 mm
7 Weldable push-on 4.8 × 0.8 mm
8 Screw terminals up to 1.5 mm² or plug sleeve
9 Leads 0.5 mm², 100 mm long – Silicon

Special connectors

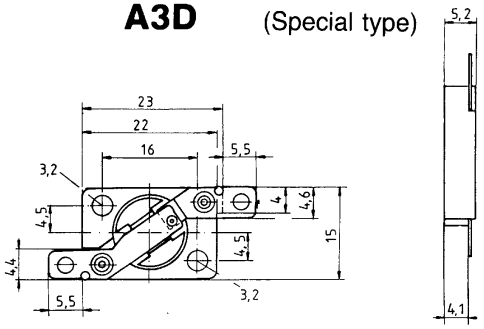
417 Push-on 4.8 × 0.8 mm bent at 22.5°
409 Push-on 4.8 × 0.8 mm bent at 45°
410 Push-on 4.8 × 0.8 mm bent at 90°
418 Push-on 6.3 × 0.8 mm bent at 22.5°
411 Push-on 6.3 × 0.8 mm bent at 45°
412 Push-on 6.3 × 0.8 mm bent at 90°
419 Weldable push-on 4.8 × 0.8 mm bent at 22.5°
413 Weldable push-on 4.8 × 0.8 mm bent at 45°
414 Weldable push-on 4.8 × 0.8 mm bent at 90°
421 Weldable push-on 6.3 × 0.8 mm bent at 22.5°
422 Weldable push-on 6.3 × 0.8 mm bent at 45°
423 Weldable push-on 6.3 × 0.8 mm bent at 90°
420 Weldable for solid wire

B (Code No.) Versions

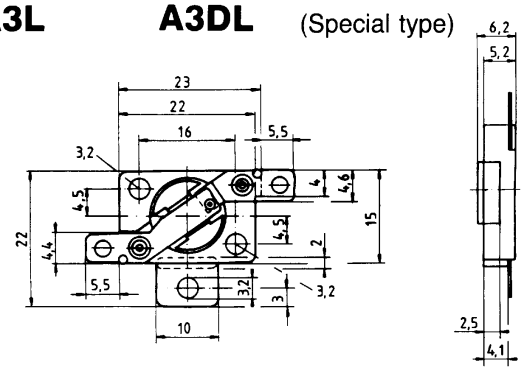
Cover Plates

001 Cover/base-plate, flat, plastic
002 Cover/pressure plate with hole, plastic
040 Snap-on cover
044 Micanite cover
045 Ceramic cover
049 Pressure plate, flat with hole and collar
050 Cover/pressure plate, plastic with lead-out
051 Pressure plate, flat with hole and collar plus lead-out

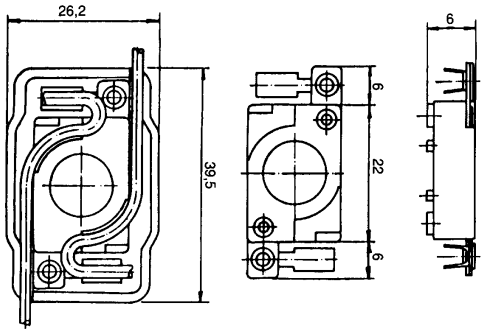
A3 A3D (Special type)



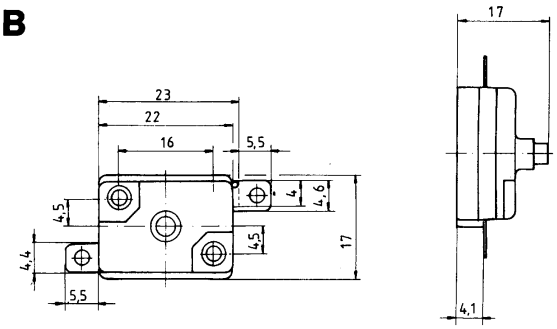
A3L A3DL (Special type)



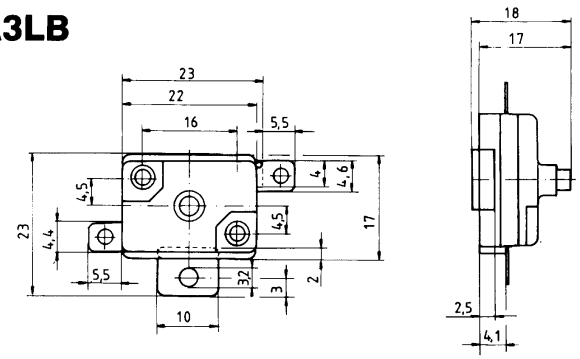
A3DS



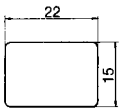
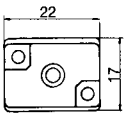
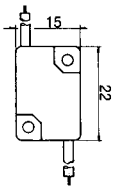
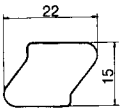
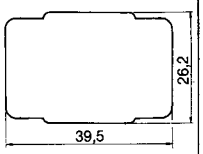
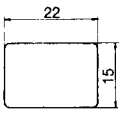
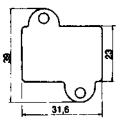
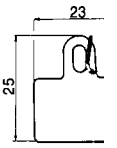
A3B



A3LB



PHYSICAL VARIANTS

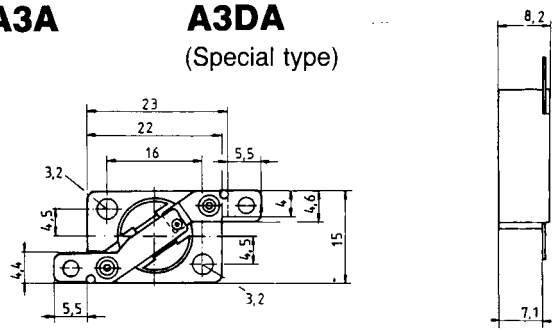
Type Reference	B Cover Plates					B Mounting/Fixing		
N	Top cover, flat 001 Plastic 044 Micanite 045 Ceramic	Cover/pressure plate – plastic – 002 049	Cover/pressure plate – plastic – with lead-out 050 051	Clip-on cover 040	Housing, plastic 2-part 141	Base 117 Brass 0.8 mm 140 base plate with 8 mm dia. bore (steel above 200 °C) x = Brass y = Aluminium (Standard) z = Steel	Base with fixing holes both sides 125 126 127 x = Brass y = Aluminium (Standard) z = Steel	Base, reduced with single fixing 119 x = Brass y = Aluminium (Standard) z = Steel
								
A3	●	●	●	●	●	●	● +	● +
A3D	●	●	●	●	●	●	● +	● +
A3L	●	●	●	●		●		
A3DL	●	●	●	●		●		
A3DS					●			
A3B	●	▲	●			●	● +	● +
A3LB	●	▲	●			●	● +	● +
A3A	●	●	●	●		●	●	●
A3DA	●	●	●	●		●	●	●
A3AS	▲ 001		●	●		●		
A3SD	▲ 001		●	●		●		
A3AB	●	▲	●	●		●	●	●
A3K	▲					●		
A3K1	▲ ● 044/045					●	● 135/136/137	●
AKB	▲ 045 ●					●	● 135/136/137	●
A3K2	● 044/045					●	● 135/136/137	●
A3KB	▲ 045 ●					●	● 135/136/137	●
A3K3	● 044/045					●	● 135/136/137	●

, reduced single side l Brass Aluminium (Standard) Steel	Base, flat aluminium 0.8 mm 146 A 33 mm, B 20 mm 147 A 28 mm, B 15 mm 148 A 37.5 mm, B 24.5 mm x = Brass y = Aluminium (Standard) z = Steel	Base, flat, aluminium 1.5 mm 105 central fixing M 3 × 8 106 central fixing M 4 × 6 107 central fixing M 5 × 6 108 central fixing M 6 × 6 116 central fixing to be specified	Pre-formed bracket 143 Fixing centres 55 mm Ø 4.8 mm	Clip-on fixing 110 113 111 114 112 115	**A Connection** Connector type 1 Solder tabs 2 Push-on 4.8 mm 3 Push-on 6.3 mm 4 crimp	Connector type 6 weldable push-on 6.3 7 weldable push-on 4.8 8 screw terminals 9 leads	**N** **Type Reference**
					1 Solder tabs 2 3 4	6 7 8 9 leads	
◗ +	● +	● +		● +	●	●	**A3**
◗ +	● +	● +		● +	●	●	**A3D**
					●	●	**A3L**
					●	●	**A3DL**
					● ▲ 4	●	**A3DS**
◗ +	● +	● +	● +	● +	●	●	**A3B**
◗ +	● +	● +			●	●	**A3LB**
●	●	●	●	●	●	●	**A3A**
●	●	●	●	●	●	●	**A3DA**
		▲ 106			● ▲ 3	●	**A3AS**
		▲ 106			● ▲ 3	●	**A3SD**
●	●	●	●	●	●	●	**A3AB**
	▲ 146				●	● ▲ 6	**A3K**
	▲ 146	●	●	●	●	●	**A3K1**
●	▲ 146	●	●	●	●	● ▲ 6	**AKB**
●	▲ 146	●	●	●	●	●	**A3K2**
●	▲ 146	●	●	●	●	●	**A3KB**
●	▲ 146	●	●	●	●	● ▲ 6	**A3K3**

▲ Standard + Special version (see page 8) ● Accessory Version to be stated.

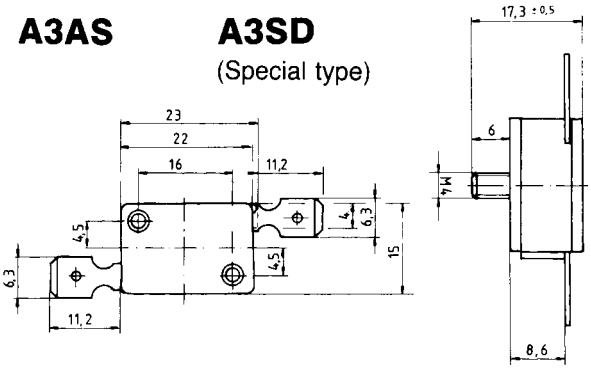
A3A

A3DA
(Special type)

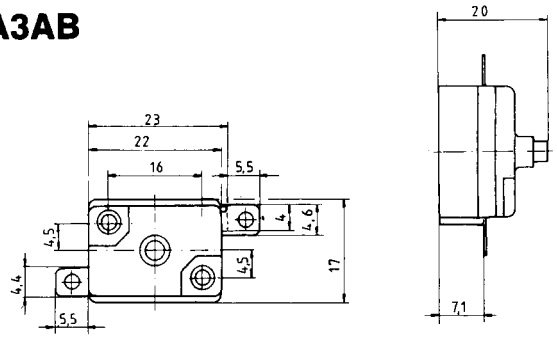


A3AS

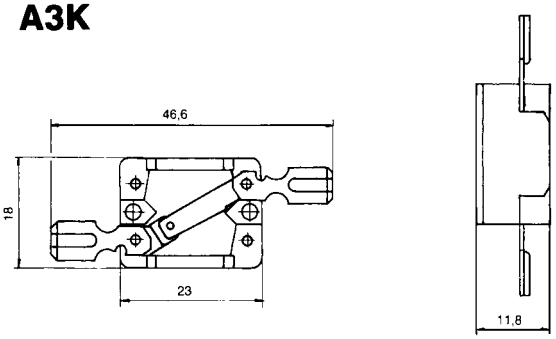
A3SD
(Special type)



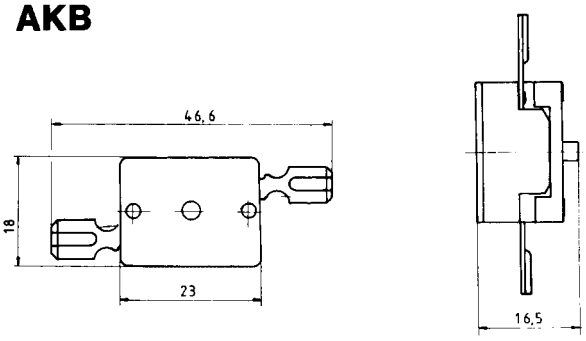
A3AB



A3K



AKB



Mounting/Fixing

105 Aluminium base plate, flat with central fixing M 3 × 8 mm
106 Aluminium base plate, flat with central fixing M 4 × 6 mm
107 Aluminium base plate, flat with central fixing M 5 × 6 mm
108 Aluminium base plate, flat with central fixing M 6 × 6 mm
110 Clip-on fixing dia. 6.5 mm
111 Clip-on fixing dia. 9.5 mm
112 Clip-on fixing dia. 13.0 mm
113 Clip-on fixing dia. 16.0 mm
114 Clip-on fixing dia. 19.0 mm
115 Clip-on fixing dia. 25.0 mm
116 Central fixing- thread to be specified
117 Brass base-plate 0.8 mm, nickel plated
119 Aluminium plate, offset with single-sided fixing, 0.8 mm
125 Form-plate, brass, nickel-plated 0.8 mm
126 Form-plate, brass for cross-fixing
127 Form-plate, brass for lengthways fixing
140 Base plate with 8 mm dia. bore
141 Housing, plastic – 2 part
143 Pre-formed bracket steel 0.8 mm
146 Aluminium base-plate with fixing hole both sides, dimensions 32 × 20 × 3.5 mm
147 Aluminium base-plate with fixing hole both sides, dimensions 28 × 15 × 3.5 mm
148 Aluminium base-plate with fixing hole both sides, dimensions 37.5 × 24.5 × 3.5 mm
152 Clip or weld fixing

Special versions:

Material of fixing

V = stainless steel
W = bare steel
X = brass, nickel-plated
Y = Aluminium standard
Z = steel, nickel-plated
When ordering, to be stated in addition to Code-No.

PERMISSIBLE COMBINATIONS

Cover Plates and Fixing Methods

B = B + B	B = B + B	B = B + B	B = B + B
200 = 001 + 001			
201 = 001 + 105	231 = 002 + 105	261 = 040 + 105	291 = 044 + 105
202 = 001 + 106	232 = 002 + 106	262 = 040 + 106	292 = 044 + 106
203 = 001 + 107	233 = 002 + 107	263 = 040 + 107	293 = 044 + 107
204 = 001 + 108	234 = 002 + 108	264 = 040 + 108	294 = 044 + 108
205 = 001 + 110	235 = 002 + 110	265 = 040 + 110	295 = 044 + 110
206 = 001 + 111	236 = 002 + 111	266 = 040 + 111	296 = 044 + 111
207 = 001 + 112	237 = 002 + 112	267 = 040 + 112	297 = 044 + 112
208 = 001 + 113	238 = 002 + 113	268 = 040 + 113	298 = 044 + 113
209 = 001 + 114	239 = 002 + 114	269 = 040 + 114	299 = 044 + 114
210 = 001 + 115	240 = 002 + 115	270 = 040 + 115	300 = 044 + 115
211 = 001 + 116	241 = 002 + 116	271 = 040 + 116	301 = 044 + 116
212 = 001 + 117	242 = 002 + 117	272 = 040 + 117	302 = 044 + 117
213 = 001 + 119	243 = 002 + 119	273 = 040 + 119	303 = 044 + 119
217 = 001 + 125	247 = 002 + 125	277 = 040 + 125	307 = 044 + 125
218 = 001 + 126	248 = 002 + 126	278 = 040 + 126	308 = 044 + 126
219 = 001 + 127	249 = 002 + 127	279 = 040 + 127	309 = 044 + 127
226 = 001 + 143	256 = 002 + 143	286 = 040 + 143	316 = 044 + 143
227 = 001 + 146	257 = 002 + 146	287 = 040 + 146	317 = 044 + 146
228 = 001 + 147	258 = 002 + 147	288 = 040 + 147	318 = 044 + 147
229 = 001 + 148	259 = 002 + 148	289 = 040 + 148	319 = 044 + 148
321 = 045 + 105	901 = 049 + 105	931 = 050 + 105	961 = 051 + 105
322 = 045 + 106	902 = 049 + 106	932 = 050 + 106	962 = 051 + 106
323 = 045 + 107	903 = 049 + 107	933 = 050 + 107	963 = 051 + 107
324 = 045 + 108	904 = 049 + 108	934 = 050 + 108	964 = 051 + 108
325 = 045 + 110	905 = 049 + 110	935 = 050 + 110	965 = 051 + 110
326 = 045 + 111	906 = 049 + 111	936 = 050 + 111	966 = 051 + 111
327 = 045 + 112	907 = 049 + 112	937 = 050 + 112	967 = 051 + 112
328 = 045 + 113	908 = 049 + 113	938 = 050 + 113	968 = 051 + 113
329 = 045 + 114	909 = 049 + 114	939 = 050 + 114	969 = 051 + 114
330 = 045 + 115	910 = 049 + 115	940 = 050 + 115	970 = 051 + 115
331 = 045 + 116	911 = 049 + 116	941 = 050 + 116	971 = 051 + 116
332 = 045 + 117	912 = 049 + 117	942 = 050 + 117	972 = 051 + 117
333 = 045 + 119	913 = 049 + 119	943 = 050 + 119	973 = 051 + 119
337 = 045 + 125	917 = 049 + 125	947 = 050 + 125	977 = 051 + 125
338 = 045 + 126	918 = 049 + 126	948 = 050 + 126	978 = 051 + 126
339 = 045 + 127	919 = 049 + 127	949 = 050 + 127	979 = 051 + 127
346 = 045 + 143	926 = 049 + 143	956 = 050 + 143	986 = 051 + 143
347 = 045 + 146	927 = 049 + 146	957 = 050 + 146	987 = 051 + 146
348 = 045 + 147	928 = 049 + 147	958 = 050 + 147	988 = 051 + 147
349 = 045 + 148	929 = 049 + 148	959 = 050 + 148	989 = 051 + 148

C Nominal Response Temperatures (see page 7)

TECHNICAL DATA
HIGH-TEMPERATURE THERMAL SWITCHES

Data \ Type		A3K	A3K1	AKB	A3K2	A3KB	A3K3
Thermal Cutout		●	●		●		●
Temperature Regulator		●	●				
Temperature Limiter				●		●	
Thermal Cutout / Overheat Protector		●	●		●		●
Thermal Cutout / Thermal Cutoff							●
Switch Rating 250 V cos φ = 1.0 **S (Code No.)** Voltage 250 V A.C. A3KX 400 V A.C. 10A test class I	N 1.0 A	●	●	●	●	●	●
	M 4.0 A	●	●	●	●	●	●
	V 6.3 A	●	●	●	●	●	●
	H 10.0 A standard	●	●	●	●	●	●
	O 13.0 A	●	●	●	●	●	●
	U 16.0 A	●	●	●	●	●	●
	Z 20.0 A	●	●	●	●	●	●
DC Operation 6 V = / 12 V = / 24 V = / 48 V =		●	●	●	●	●	●
Response Temperature °C 40 °C up to ⟶		425 °C	425 °C	425 °C	350 °C	350 °C	240 °C
Tolerance ±3% ±6% ±10% ±15% but minimum ±2.5 K ±5 K ±10 K ±15 K							
Reset Temperature **RT (Code No.)** up to 150 °C over 150 °C see page 7	RT1 $10^{\pm 5}$ °C	●	●	●	●	●	●
	RT2 $25^{\pm 10}$ °C	●	●		●		●
	RT3 ≦ 50 °C	●	●		●		●
	Standard RT4 5–150 °C max.	●	●		●		●
Reset temp. can be specified 5–50 °C (T 405–T 450)		●	●		●		●
Min. rate of temperature change 0.1 K/min.		●	●	●	●	●	●
Max. continuous temperature –20 °C		450 °C	450 °C	450 °C	450 °C	450 °C	450 °C
Contact type	Normally closed (open on temp. rise)	●	●	●	●	●	●
	Normally open (close on temp. rise)	●	●		●		
No. of poles	single-pole	●	●	●			●
	bipolar				●	●	
Standard	weldable push-on ■	■	■	■	■	■	■
Switch life		dependent on the electrical rating up to 100,000 switching cycles					
Contact Resistance		≤ 10 mΩ					
Dielectric strength to earth		4000 V~					
Dielectric strength across open contacts		500 V~ up to 1500 V~					
Protection class		I					

Approvals with different electrical ratings applied for or obtained, e.g. VDE, SEMKO, UL, ÖVE, SEV, BEAB, NEMKO, etc. Marking by coding system.
Detailed information on request. Further approvals are continuously applied for. A3K, VDE tested 10A/Test class I + 30 000 operations.
All thermal cutouts with a "D" in the type reference are designed for use as temperature regulator (100 000 switching cycles)

C (Code No.) NOMINAL TEMPERATURES, TOLERANCES, NC/NO (Standard)

Tolerance ±15 %		Tolerance ±10 %		Tolerance ±6 %		Tolerance ±3 %		Tolerance ±15 %		Tolerance ±10 %		Tolerance ±6 %		Tolerance ±3 %	
°C	Code No.	°C	Code No.	°C	Code No	°C	Code No.	°C	Code No.	°C	Code No.	°C	Code No.	°C	Code No.
NORMALLY CLOSED (N-C)								NORMALLY OPEN (N-O)							
		40	024	40	155	40	156			40	274	40	355	40	356
						42	157							42	357
		45	025	45	158	45	159			45	275	45	358	45	359
						47	160							47	360
50	450	50	161	50	162	50	163	50	470	50	361	50	362	50	363
53			026	53	027	53	164			53	276	53	277	53	364
56	451	56	028	56	165	56	166	56	471	56	278	56	365	56	366
		60	030	60	029	60	167			60	280	60	279	60	367
63	452	63	168	63	169	63	170	63	472	63	368	63	369	63	370
		67	031	67	032	67	171			67	281	67	282	67	371
71	453	71	033	71	172	71	173	71	473	71	283	71	372	71	373
		75	034	75	035	75	174			75	284	75	285	75	374
80	454	80	175	80	176	80	177	80	474	80	375	80	376	80	377
		85	036	85	037	85	178			85	286	85	287	85	378
90	455	90	038	90	179	90	180	90	475	90	288	90	379	90	380
		95	039	95	040	95	181			95	289	95	290	95	381
100	456	100	182	100	183	100	184	100	476	100	382	100	383	100	384
		106	041	106	042	106	185			106	291	106	292	106	385
112	457	112	043	112	186	112	187	112	477	112	293	112	386	112	387
		118	044	118	045	118	188			118	294	118	295	118	388
125	458	125	189	125	190	125	191	125	478	125	389	125	390	125	391
		132	046	132	047	132	192			132	296	132	297	132	392
140	459	140	048	140	193	140	194	140	479	140	298	140	393	140	394
		150	049	150	050	150	195			150	299	150	300	150	395
160	460	160	196	160	197	160	198	160	480	160	396	160	397	160	398
						170	199							170	399
180	227	180	228	180	200	180	201	180	427	180	426	180	400	180	401
						190	202							190	402
200	228	200	203	200	204	200	205	200	428	200	403	200	404	200	405
						212	206							212	406
224	230	224	229	224	207	224	208	224	430	224	429	224	407	224	408
				236	231							236	431		
250	232	250	210	250	211			250	432	250	410	250	411		
				265	233							265	433		
280	235	280	234	280	214			280	435	280	434	280	414		
300	238	300	237	300	236			300	438	300	437	300	436		
315	239	315	217	315	218			315	439	315	417	315	418		
				335	240							335	440		
355	242	355	241	355	221			355	442	355	441	355	421		
				370	244							370	444		
400	245	400	223	400	224			400	445	400	423	400	424		
425	249	425	248	425	247			425	449	425	448	425	447		

RESPONSE TEMPERATURES/TOLERANCES

Standard

Tolerance	± 3%	±6 %	±10 %	±15 %
but at least	±2.5K	±5K	±10K	±15K

Other response temperatures are available – see Special Temperature settings.
Reset temperature (as standard) is between 5– 45 °C below response temperature.
Other reset temperatures are available, please ask.

INSTALLATION ADVICE

Installation of thermal switches can be effected direct onto the heat source without additional insulation.

The smallest change in temperature will be conducted directly onto the bimetal snap disc so that any time delay in the thermal control loop can be kept to a minimum.

The switches are not sensitive to position/orientation.
Their dust and moisture proof construction means they can be installed in a wide variety of situations.

Using the housing's base plate they can be screwed, welded or cemented straight onto the source of heat.

The self-heating effect of the connections and contacts should be taken into account for any particular electrical loading (Amps).

Types A3K, A3K1, A3K2, A3K3
Reset temperatures from 150 °C – 230 °C, max. 60 °C
230 °C – 300 °C, max. 80 °C
300 °C – 360 °C, max. 100 °C
360 °C – 425 °C, max. 150 °C

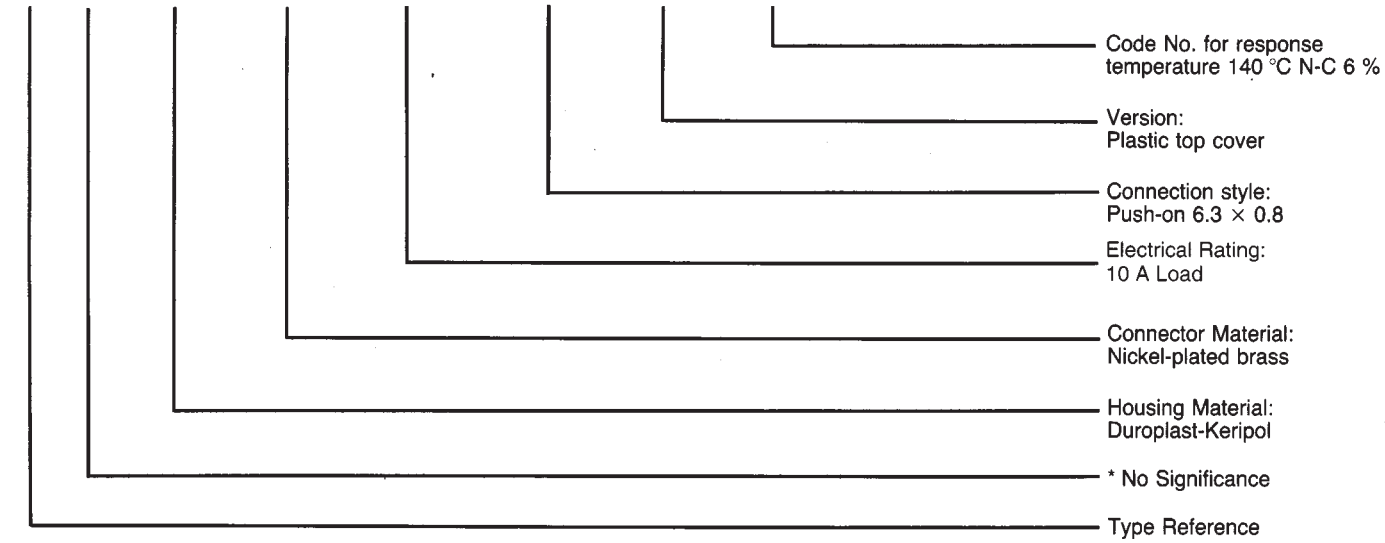
Approved switch ratings and versions – see separate data sheet.

SPECIAL TEMPERATURE SETTINGS

- Response and reset-temperature with specific values and alternative tolerances can be supplied. Please give details when ordering.
- Special combinations of housings, connections and mounting arrangements are available – versions are marked as desired.
- Thermostats can be supplied complete with leads, which can be attached with connectors, soldered or welded. Leads can be insulated with or without shrink or silicon-sleeving, between 2–10 mm diameters. Please ask for a complete list.
- Ceramic switches can be produced in special versions for specific temperatures between 250 and 450 °C. Please ask for details.
- Response temperatures not listed in the full table of nominal values can be freely selected at intermediate values between 40 and 170 °C.

CODING SYSTEM

Character No.:	1.2.3.4. Type Reference	5. Material (Housing)	6. Material (Connections)	7. Style	8. Connection	9.10.11. Version	12.13.14. Temperature Tolerance N-C/ N-O	A3XX 400 V A.C. 10 A test class I Code by spot between Code-No. and company sign
	N (Code No.)	T (Code No.)	W (Code No.)	S (Code No.)	A (Code No.)	B (Code No.)	C (Code No.)	
	A3L	X	3	1	H	3	001	193



For ordering, follow the above system to specify the data NTWSABC.

SPECIAL VERSIONS

Alternative materials, response temperatures, reset temperatures and electrical ratings can be supplied on request – these will be checked and allocated another type reference.
State reset temperatures according to the technical data.
Dielectric strength of up to 2500 V is possible.

The switches, by virtue of their construction are suitable for dirty situations. They have a creepage distance of 4.5 mm between current-carrying parts.

Air-gap (standard) 4 mm
Special version "+" 2 mm
(see table of physical variants)

In each application the safety dimensions and distances must be observed (according to approvals). A data sheet ist available.

For use with low voltage applications, gold plated contacts or connectors are available at extra cost.

For automatic soldering, the solder connections can be supplied silver-plated for extra cost.

Type A3 switches can also be produced with a flat metal base – this gives good heat transfer onto the bimetal disc without any time lag (see fixing type 140 – base plate with 8 mm dia. hole).

Additional variants are available for specific customer requirements of connectors, cover type and mounting method. Please ask.

When mounting the thermal switches A3XX, A3LX, A3BX, A3LB, A3DX, A3DL with a fixing lug, the required air and creepage distances must be observed.

For the thermal switches A3X1, A3L1, A3B1, A31B, A3AX, A3AS, A3AB, A3D1, A3DS, A3DA, A3SD, please refer to pages 4 and 5 for the fixing means.

STANDARD QUALITY INFORMATION (P 90/P 10)

Production Testing
Voltage test, switch function
Nominal switch-off temperature

Statistical sampling of specific characteristics:
Lifetime as per VDE 0631
Function test to AQL 0.65
Nominal switching temperature AQL 1.0
Measurement precision ±2 °C AQL 4.0
Other values to AQL 4.0

ORDERING EXAMPLE

Please check before each order that all necessary information is specified.

Information that is always required is:

Quantity	Type N	Variant B	Code No. C
1000	A3LX	001	182

If desired special additional items e.g. codes for S, T, RT, W, A response temperature, reset temperature, material, connection type.

CANTHERM
8415 Mountain Sights Avenue • Montreal (Quebec), H4P 2B8, Canada
Tel: (514) 739-3274 • 1-800-561-7207 • Fax: (514) 739-290
E-mail : sales@cantherm.com • Website: www.cantherm.com