

Блок дистанционного управления RAU Технические характеристики



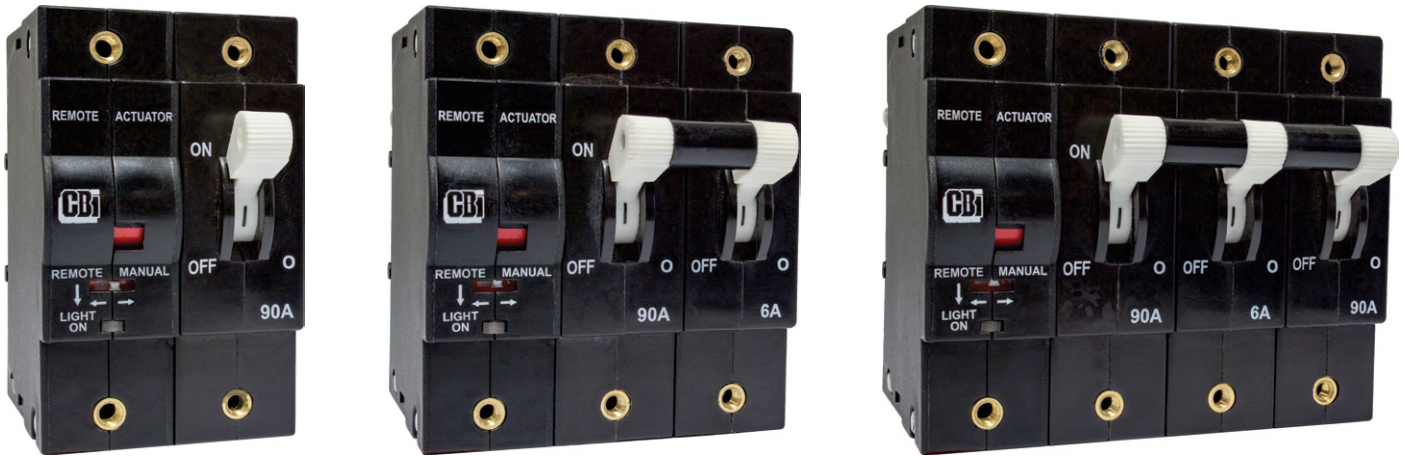
Архангельск (8182)63-90-72
Астана +7(7172)727-132
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Брянск (4832)59-03-52
Владивосток (423)249-28-31
Волгоград (844)278-03-48
Вологда (8172)26-41-59
Воронеж (473)204-51-73
Екатеринбург (343)384-55-89
Иваново (4932)77-34-06
Ижевск (3412)26-03-58
Казань (843)206-01-48

Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Краснодар (861)203-40-90
Красноярск (391)204-63-61
Курск (4712)77-13-04
Липецк (4742)52-20-81
Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41
Нижний Новгород (831)429-08-12
Новокузнецк (3843)20-46-81

Новосибирск (383)227-86-73
Омск (3812)21-46-40
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
Пермь (342)205-81-47
Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78
Севастополь (8692)22-31-93
Симферополь (3652)67-13-56
Смоленск (4812)29-41-54

Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Сургут (3462)77-98-35
Тверь (4822)63-31-35
Томск (3822)98-41-53
Тула (4872)74-02-29
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Уфа (347)22948 -12
Хабаровск (4212)92-98-04
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Ярославль (4852)69-52-93

Remote Actuation Unit for DD-frame



Features

- Wide supply voltage operating range: 15Vdc to 80Vdc
Can be supplied from the system line voltage or a standalone source
- LED for status indication
- Selectable between Remote or Manual operation
- Provides status of the load side of the circuit breaker
- Remote switching operation requires only a high or low signal level
- Colour indicator for ON (red) or OFF (green) state of circuit breaker
- Actuation of circuit breaker occurs internally
- Compact size (19 mm, matching DD-frame outline)
- Can be paired with up to a 3 pole DD-frame circuit breaker unit

Applications

- Battery storage management
- Telecommunications
- Railways
- Solar
- System Automation
- Switching operations in distant, unreachable or unsafe environments

The Remote Actuation Unit (RAU) is a factory fitted module that enables the automated switching of DD-frame circuit breakers. The unit can actuate the circuit breakers both ON and OFF. The actuation of the circuit breaker pole occurs completely internally. The RAU unit is mounted on the left hand side of the circuit breakers and can be connected to up to a three pole unit. The RAU connects to circuit breakers with a standard toggle handle only. The circuit breakers can be manually operated when in the REMOTE mode. Two indicators are present on the front face of the RAU unit. The first is an LED that provides an indication of the mode of operation as well as showing the unit's operational status. The second is a colour flag indication which indicates the position of the latching mechanism of the connected circuit breakers. The unit has a select switch, providing the ability to specify the operation mode - remote or manual. A signal output provides feedback to the user that there is power on the load side of the circuit breakers. The unit comes with a universally standard connection terminal.

Approvals Pending

The Remote Actuation Unit is CE certified and carries various approvals such as VDE, cURus, CSA, EAC and CCC. It is also recognised to UL 1077 and UL 508, and listed to UL 489 and UL 489A.



Remote Actuation Unit for DD-frame

Technical Data

Product Type	RAU	
Supply Voltage	15Vdc to 80Vdc	
Actuation Signal Voltage	HIGH (ON)	Min. 3.3Vdc to Max. 12Vdc
	LOW (OFF)	Min. 0.0Vdc to Max. 0.5Vdc
Starting Current	< 250 mA	
Number of poles that can be actuated	1 to 3 pole DD-frame - factory fitted	
Operating temperature	-10 °C to +65 °C	
Typical actuation time	OFF state to ON state	2 seconds
	ON state to OFF state	1 second
Power consumption	Idle mode	< 250 mW
	During actuation	< 4 W
Number of operations	In excess of 2000	
Humidity	35 % to 85 % relative humidity	
Flammability	I3 No flames persistence at 850 °C	
Toxicity	F2 - Smoke index of ≤ 40	
Pollution Degree	PD2 - Normally only non-conductive pollution occurs. Temporary conductivity caused by condensation is to be expected.	
Signal Out Resistance	330 kΩ ±5% (2 W)	

Ordering Information

When ordering a DD-frame with Remote Actuation Unit, simply select 5 in Group 2 on the DD-frame circuit breaker ordering code. The rest of the circuit breaker construction remains the same.

Group 1: Frame	Code	Description	Comments
	D	DD-frame	
Group 2: Type	Code	Description	Comments
	5	Remote Actuation Unit	RAU module attached to DD-frame unit
Group 3: Mounting	Code	Description	Comments
	A	Front mount, rectangular aperture, standard (toggle) handle type	Warning: Maximum penetration depth into the product by the mounting screw is 6 mm
Group 4: Handle	Code	Description	Comments
	A	Standard (toggle) handle	
Group 5: Termination	Code	Description	Comments
	2X	Plug-in (bullet) terminal (Ø 6.25 mm X 21.5 mm)	50 A max
	3X	Plug-in (bullet) terminal (Ø 7.80 mm X 21.5 mm)	100 A max
	4X	Flush rear screw terminal, M5 or 10-32	100 A max
	5X	Double quick connect terminal (0.8 mm X 6.35 mm)	50 A max
	AX	Stud terminals, M5 or 10-32	60 A max
	DX	Quick connect terminals (0.8 mm x 6.35 mm), top & bottom	50 A max.
	LX	Clamp terminals, top & bottom	30 A max.
	MX	Stud terminals, M6 or 1/4-20	100 A max
	V1	Stud terminals (M6 or ¼ - 20), for single bridged unit	
	V2	Plug-in (bullet) terminals (Ø 7.80 mm X 21.5 mm) for single bridged unit	
	W1	Stud terminals (M6 or ¼ - 20), for multi pole bridged unit	
	W2	Plug-in (bullet) terminals (Ø 7.80 mm X 21.5 mm), for multi pole bridged unit	
	X1	Bridge terminal for 2 pole parallel construction with M8 nut for lug (on M6 or ¼-20 stud terminal)	
	ZZ	Special - specify	

Remote Actuation Unit for DD-frame

Ordering Information

Group 6: Number of Poles	Code	Description		Comments				
	2	2 pole metric		RAU + 1 DD-frame pole				
	3	3 pole metric		RAU + 2 DD-frame pole				
	4	4 pole metric		RAU + 3 DD-frame pole				
	B	2 pole imperial		RAU + 1 DD-frame pole				
	C	3 pole imperial		RAU + 2 DD-frame pole				
	D	4 pole imperial		RAU + 3 DD-frame pole				
Group 7: Rated Voltages and Frequency - Main Circuit	Code	Description	Comments		Description	Comments		
	H	125Vdc	Q		240 / 415V 50 / 60 Hz	3 phase multi-wire system		
	J	240Vac 50 / 60 Hz	R		277 / 480V 50 / 60 Hz	3 phase multi-wire system		
	K	277V 50 / 60 Hz	S		120 / 240V 50 / 60 Hz	3 wire centre tap supply. 120V per phase.		
	L	80Vdc / 277V 50 / 60 Hz	V		60Vdc			
	M	80Vdc / 240V 50 / 60 Hz	Z		Special - specify			
	N	80Vdc						
Group 8: Time Delay Characteristics (Curve Details); Pulse Tolerance at 10 ms	Code	Description	System	Pulse Tolerance (X In)	Code	Description	System	Pulse Tolerance (X In)
	AD	Long delay 50 / 60 Hz AS & Dual rated	AC and DC	8 - 10	CH	Short delay 50 / 60 Hz CS & high inrush	AC	12 - 15
	BD	Medium delay 50 / 60 Hz BS & Dual rated	AC and DC	8 - 10	AS	Long delay 50 / 60 Hz	AC or DC	8 - 10
	CD	Short delay 50 / 60 Hz CS & Dual rated	AC and DC	6 - 8	BS	Medium delay 50 / 60 Hz	AC or DC	8 - 10
	AE	Long delay 50 / 60 Hz AH & inertia delay	AC	28 - 35	CS	Short delay 50 / 60 Hz	AC or DC	6 - 8
	BE	Medium delay 50 / 60 Hz BH & inertia delay	AC	28 - 35	AW	Long delay 50 / 60 Hz AD & inertia delay	AC and DC	16 - 20
	CE	Short delay 50 / 60 Hz CH & inertia delay	AC	21 - 35	BW	Medium delay 50 / 60 Hz BD & inertia delay	AC and DC	16 - 20
	AI	Long delay 50 / 60 Hz AS & inertia delay	AC or DC	16 - 20	CW	Short delay 50 / 60 Hz CD & inertia delay	AC and DC	12 - 15
	BI	Medium delay 50 / 60 Hz BS & inertia delay	AC or DC	16 - 20	H3	Short delay	DC	6 - 8
	CI	Short delay 50 / 60 Hz CS & inertia delay	AC or DC	12 - 15	OP	Instantaneous trip 50 / 60 Hz	AC or DC	None
	AH	Long delay 50 / 60 Hz AS & high inrush	AC	16 - 20	OX	Switch 50 / 60 Hz	AC and DC	
	BH	Medium delay 50 / 60 Hz BS & high inrush	AC	16 - 20	ZZ	Special - specify		
Group 9: Rated Current (Main Circuit) Examples only - Specific Amp Rating Possible	Code	Description		Comments				
	XXXX	No current, for voltage trip poles		Specific Ampere rating possible from 0.1 – 250 A (80Vdc) 300 A (60Vdc)				
	100M	0.1 A						
	0100	1 A						
	1000	10 A						
	K250	250 A						
Group 10: Circuit Configuration (circuit breaker's internal construction)	Code	Description		Comments				
	AX	Switch						
	BX	Series trip (circuit breaker, current coil in series)						
	CX	Relay trip current sensing, centre terminal construction, 4 terminal		Total load 100 A max				
	DX	Relay trip voltage sensing, centre terminal construction, 4 terminal		See Group 12 for voltage options				
	EX	Shunt trip current sensing, 3rd terminal close to load side		Total load 100 A max				
	FX	Shunt trip voltage sensing, 3rd terminal close to load side		See Group 12 for voltage options				
	GX	Dual control shunt trip construction, 3rd terminal close to load side		Curves AH, BH, CH, AE, BE, CE not possible. See Group 12 for voltage options (Voltage coil normally at line voltage).				
	HX	Dual control relay trip construction (4 terminal)		Curves AH, BH, CH, AE, BE, CE not possible. See Group 12 for voltage options.				
	JX	Switch with auxiliary switch						
	KX	Series trip, with auxiliary switch						
	LX	Series trip, mid-trip handle, with trip alarm		Trip alarm requires mid-trip handle				
	MX	Series trip, trip alarm (latch type - reversed function)						
	H1	Dual control relay trip construction, fly leads for relay trip coil, with auxiliary switch		Fly leads (wire terminals) for relay trip coil (Group 13). Curves AH, BH, CH, AE, BE, CE not possible.				
ZZ	Special - specify							
Group 11: Auxiliary and Alarm Switches	Code	Description		Comments				
	X	Not applicable						
	A	Gold tips, equally spaced terminals, 2.75 mm, (0.108") 0.1 A Max						
	B	Silver tips, equally spaced terminals, 2.75 mm, (0.108") 10 A Max						
	M	Parallel bridge housing - for all parallel bridged poles						
	Z	Special - specify						

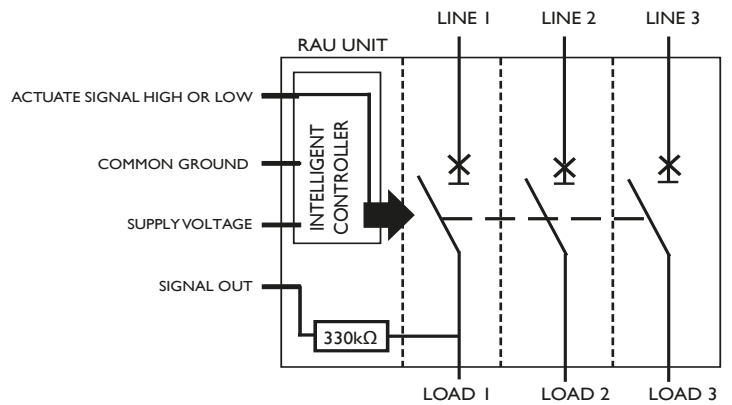
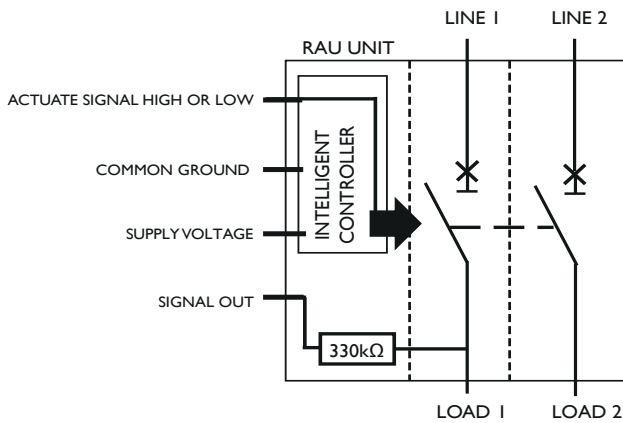
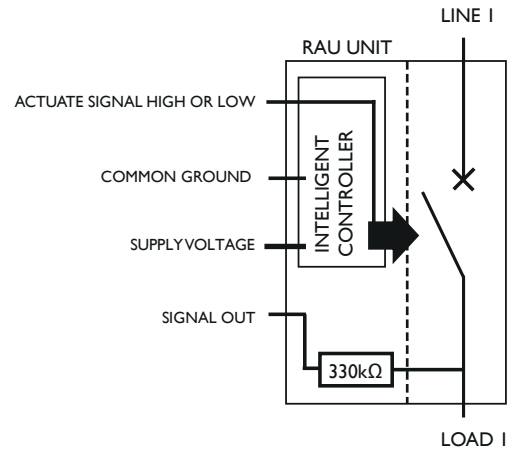
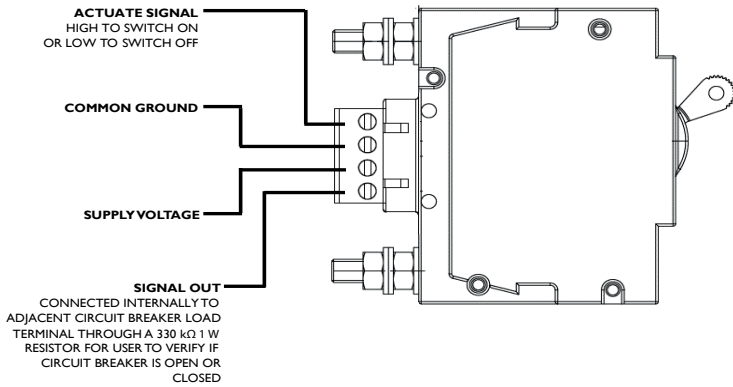
Remote Actuation Unit for DD-frame

Ordering Information

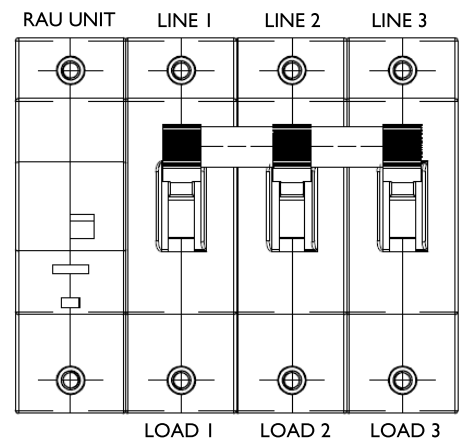
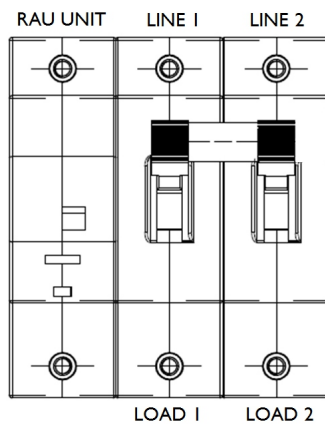
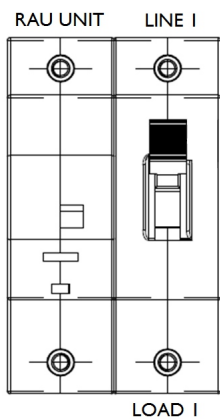
Group 12: Voltage and Current Ratings for Dual Control, Shunt and Relay Trip Construction	Code	Description	Code	Description	Code	Description	Code	Description
	XX	Not applicable	A3	65Vac 50 / 60 Hz	B0	12Vdc	B3	80Vdc
	A1	12Vac 50 / 60 Hz	A4	110 - 125Vac 50 / 60 Hz	B1	24Vdc	ZZ	Special - specify
	A2	24Vac 50 / 60 Hz	A5	220 - 240Vac 50 / 60 Hz	B2	48Vdc		
Group 13: Terminal Options for Dual Control, Shunt and Relay Coils	Code	Description			Comments			
	X	Not applicable						
	B	Screw terminal, M5 or 10 - 32			50 A max			
	C	Quick connect terminals (0.8 mm X 6.35 mm)						
	D	Flying leads (wire terminals)			15 A max			
	E	Stud terminal, M5 or 10 - 32			60 A max			
Group 14: Voltage for Rocker Handle	Code	Description			Comments			
	X	Not applicable						
Group 15: Terminal for Illuminated Rocker	Code	Description			Comments			
	X	Not applicable						
Group 16: Handle Colour	Code	Description			Comments			
	B	Black handle, white marking						
	G	Green handle, white marking						
	W	White handle, black marking						
	R	Red handle, white marking						
	Y	Yellow handle, black marking						
Group 17: Marking	Code	Description			Comments			
	D	I – O and ON - OFF			For products requiring VDE & UL approvals			
Group 18: Mounting Orientation for Marking	Code	Description			Comments			
	V	Vertical (standard mounting, line at the top)						
Group 19: Front Plate Marking and Test Button	Code	Description			Comments			
	A	Standard marking, standard handle			I – O and ON - OFF and ampere rating			
Group 20: Inter-phase Barrier and Terminal Cover	Code	Description	Comments		Code	Description	Comments	
	X	Not applicable			4	Z inter-phase barrier & terminal cover	Inter-phase barriers and terminal covers may be required for multi-pole products with UL listed and UL recognised approvals. See DD-frame Technical Guide.	
	1	Terminal cover (s)			A	Small inter-phase barrier		
	2	Small inter-phase barrier & terminal cover			B	Large inter-phase barrier		
	3	Large inter-phase barrier & terminal cover			C	Z inter-phase barrier		
Group 21: Approvals (Product Normally Approved to)	Code	Description			Comments			
	1	CUR, UL recognised UL 1077, IEC / EN 60934, CSA, VDE, CE			UL 1077, normally IEC / EN 60934			
	2	CUL, UL listed UL 489, CSA, IEC / EN 60947-2, VDE, CE			UL 489, normally IEC / EN 60947-2			
	3	UL listed (UL 489A), IEC / EN 60947-2, VDE, CE			DC (telecommunication)			
	Z	No third party approvals						
Group 22: Safety Marks	Code	Description			Comments			
	X	Not applicable						
	C	CCC / CRCC			For products exported to Peoples Republic of China			

Remote Actuation Unit for DD-frame

Wiring Diagrams



Note: Signal out only provides status indication of adjacent pole.



Remote Actuation Unit for DD-frame

Plug compatible with DEGSON 2EDGKF-5.08-04P -14 and a PHOENIX CONTACT plug 1780002.



Installation Instructions

1. Before connecting the RAU to power, the circuit breaker must be in the OFF position and the RAU front switch must be in the REMOTE position.
2. Isolate the power to the circuit breakers.
3. Connect the circuit breakers as required and connect the necessary wiring for the RAU as shown in the wiring diagram (page 5)
4. With the circuit breaker in the OFF position, activate the supply to the circuit breakers and the RAU. The LED on the RAU will flash 3 times during its initialisation process. The LED will then illuminate, indicating that the RAU is now ready for operation.

Using the RAU Front Switch

The RAU Front Switch has two positions, namely “Remote” and “Manual”. This switch allows the user to, manually operate the breaker if necessary. The RAU will always trip the circuit for safety reasons when the RAU Front Switch is toggled. The various states are as follows:

1. **Actuate Signal is HIGH and the Remote Actuation Switch is changed to MANUAL position:**
 - The circuit breaker will trip and the LED will switch OFF. The user will be able to use the device as a conventional circuit breaker. Once the RAU Front Switch is returned to the REMOTE position, the LED will illuminate and if the Actuate Signal is still HIGH, the circuit breaker will be switch ON. If the Actuate Signal is LOW, then the LED will illuminate to indicate that the Remote Actuation is active, but the circuit breaker will remain in the OFF position.
2. **Actuate Signal is low and the Remote Actuation Switch is changed to MANUAL position:**
 - The LED will blink and the user will NOT be able to use the device as a normal circuit breaker. The RAU will ensure that the circuit breaker remains in the OFF position. Attempts to switch the circuit breaker ON in this state will trip the circuit breaker internally.
3. **RAU Front Switch in the MANUAL position but changing states of the Actuate Signal:**
 - While the RAU Front Switch is in the MANUAL position, any changes of the Actuate Signal does not affect the state of the circuit breaker.
4. **If the circuit breaker trips, then to remotely switch the breaker on again, the Actuate Signal must be set to LOW and then a HIGH signal reapplied.**

Remote Actuation Unit for DD-frame

Manual Operation

The RAU has the ability of being set to manual operation, in which case the unit can only be switched ON and OFF manually. This condition overrides the remote signal allowing for the product to be operated manually during maintenance or installation.

Remote Operation

1. Switching the circuit breaker ON using the RAU:

- The RAU Front Switch must be set to the REMOTE position and the LED will be illuminated.
- Apply the Actuate Signal (as indicated in the connection terminals). This will then switch the circuit breaker ON remotely. While the Actuate Signal remains in the HIGH state, the circuit breaker can be operated manually like a conventional circuit breaker.

2. Switching the circuit breaker OFF using the RAU:

- The RAU Front Switch must be set to the REMOTE position and the LED will be illuminated.
- The Actuate Signal must be set to LOW. This will then switch the circuit breaker OFF. While the Actuate Signal is LOW, the circuit breaker will be internally held in the tripped position and cannot be switched ON manually.

RAU Operation

Actuate Signal	Switch State	Initial Breaker State	Final Breaker State	LED Indicator	Breaker Operation
LOW	Remote to Manual	OFF	OFF	BLINK	Not operable
LOW	Manual to Remote	OFF	OFF	ON	Not operable
HIGH	Remote to Manual	OFF	OFF	OFF	Manually operate breaker ONLY
HIGH	Remote to Manual	ON	OFF	OFF	Breaker will immediately trip once switch state is toggled Manually operate breaker ONLY
HIGH	Manual to Remote	OFF	ON	ON	Manually operate breaker or Remotely operate
HIGH	Manual to Remote	ON	ON	ON	Breaker will immediately trip once switch state is toggled Manually operate breaker or Remotely operate

Remote Actuation Unit for DD-frame

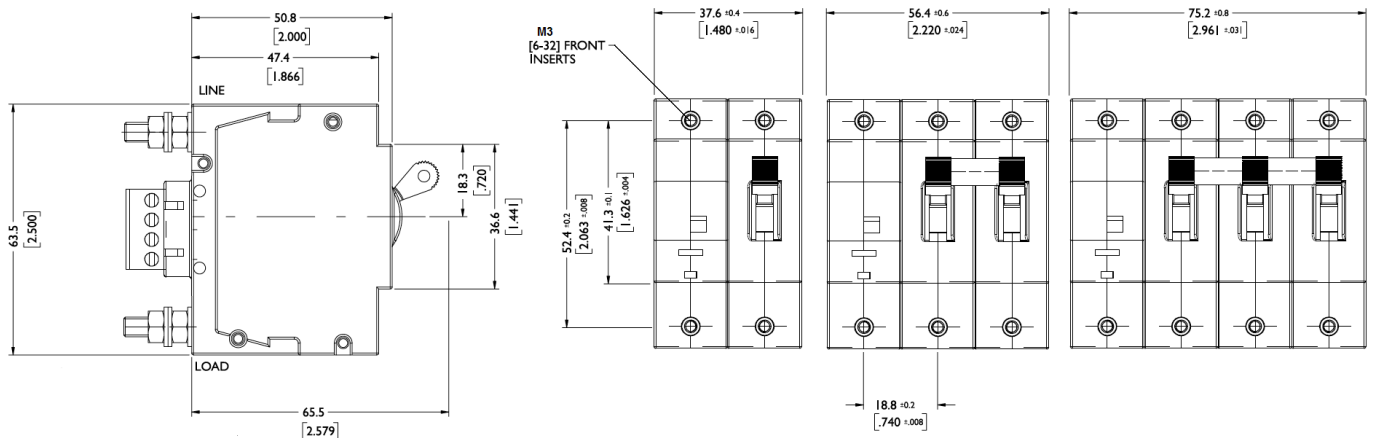
Different States Of The LED

LED State	Indication
Flash 3 times	Initialisation
Flash 3 times every 4 seconds	Fault state
ON	Remote actuation mode
OFF	Manual operation mode
Blinking	User will not be able to switch breaker on manually

NOTE:

- **DO NOT** move or block the circuit breaker handles while the RAU is actuating remotely.
- **DO NOT** change the state of the Actuate Signal or RAU front switch rapidly, or while the circuit breaker is in motion, allow at least a 3 second waiting period before changing the state.

Dimensional Drawings



Архангельск (8182)63-90-72
 Астана +7(7172)727-132
 Астрахань (8512)99-46-04
 Барнаул (3852)73-04-60
 Белгород (4722)40-23-64
 Брянск (4832)59-03-52
 Владивосток (423)249-28-31
 Волгоград (844)278-03-48
 Вологда (8172)26-41-59
 Воронеж (473)204-51-73
 Екатеринбург (343)384-55-89
 Иваново (4932)77-34-06
 Ижевск (3412)26-03-58
 Казань (843)206-01-48

Калининград (4012)72-03-81
 Калуга (4842)92-23-67
 Кемерово (3842)65-04-62
 Киров (8332)68-02-04
 Краснодар (861)203-40-90
 Красноярск (391)204-63-61
 Курск (4712)77-13-04
 Липецк (4742)52-20-81
 Магнитогорск (3519)55-03-13
 Москва (495)268-04-70
 Мурманск (8152)59-64-93
 Набережные Челны (8552)20-53-41
 Нижний Новгород (831)429-08-12
 Новокузнецк (3843)20-46-81

Новосибирск (383)227-86-73
 Омск (3812)21-46-40
 Орел (4862)44-53-42
 Оренбург (3532)37-68-04
 Пенза (8412)22-31-16
 Пермь (342)205-81-47
 Ростов-на-Дону (863)308-18-15
 Рязань (4912)46-61-64
 Самара (846)206-03-16
 Санкт-Петербург (812)309-46-40
 Саратов (845)249-38-78
 Севастополь (8692)22-31-93
 Симферополь (3652)67-13-56
 Смоленск (4812)29-41-54

Сочи (862)225-72-31
 Ставрополь (8652)20-65-13
 Сургут (3462)77-98-35
 Тверь (4822)63-31-35
 Томск (3822)98-41-53
 Тула (4872)74-02-29
 Тюмень (3452)66-21-18
 Ульяновск (8422)24-23-59
 Уфа (347)22948 -12
 Хабаровск (4212)92-98-04
 Челябинск (351)202-03-61
 Череповец (8202)49-02-64
 Ярославль (4852)69-52-93