

# HB Series Single Pole Standard Precision Snap-acting Switches

## Features/Benefits

- Low differential travel, high repeatability
- Long life—150,000 cycles typical
- Single and double pole circuitry
- Sealed actuator and case

## Typical Applications

- Thermostats
- Motors
- Industrial controls



## Specifications

CONTACT RATING: From low level\* to 20 AMPS @ 480 V AC;  
see ELECTRICAL RATING option section for complete listings.

ELECTRICAL LIFE: 150,000 cycles at 20 AMPS @ 250 V AC.  
consult Customer Service Center for typical life at other ratings.

INSULATION RESISTANCE: 1,000 M ohm min.

DIELECTRIC STRENGTH: 1,500 Vrms min. @ sea level.

OPERATING TEMPERATURE: -67°F to 302°F (-55°C to 150°C).

OPERATING FORCE: From 4 oz. to 26 oz. max. at actuator  
button available.

MOUNTING SCREWS: Torque 3 in/lbs max.  
(Note: Exceeding 3 in/lbs torque may change operating  
characteristics and increase the possibility of cracking  
switch case).

TERMINAL SCREWS: Torque 4 in/lbs max.

PANEL MOUNTING BUSHING: Torque 4-6 in/lbs max.

DEGREE OF PROTECTION: IP65; Dust-proof, water splash and  
dew condensation.

\* Low Level=conditions where no arcing occurs during switching, i.e., 0.4 VA max. @  
20 V AC or DC max.

## Materials

SWITCH HOUSING: Heat resistant/electrical grade phenolic.

INSERTS: Brass alloy.

ACTUATOR BUTTON: Moisture resistant phenolic.

SPRING: Copper alloy.

PIVOT: Brass alloy.

MOVABLE CONTACTS: Gold alloy for ratings 1 AMP or less.  
Fine silver for ratings greater than 1 AMP and motor load  
ratings less than 1/2 HP @ 125 V AC. Silver alloy for motor  
load ratings 1/2 HP @ 125 V AC or greater.

STATIONARY CONTACTS: Gold alloy for ratings 1 AMP or less.  
Fine silver welded to copper base for ratings greater than  
1 AMP and motor load ratings less than 1/2 HP @ 125 V AC.  
Silver alloy on copper base for motor load ratings 1/2 HP @  
125 V AC or greater.

TERMINALS: Brass alloy, bright tin plated.

**NOTE:** Specifications and materials listed above are for switches with standard options.  
For information on specific and custom switches, consult Customer Service Center.

## Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and  
described on pages J-72 through J-76. For additional options not shown in catalog, consult Customer Service Center.

|                                                                                                            |  |                                 |  |                                          |  |                                                                                                                                      |  |                       |  |                  |  |
|------------------------------------------------------------------------------------------------------------|--|---------------------------------|--|------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------|--|------------------|--|
| <b>Series</b>                                                                                              |  | <b>Function</b>                 |  | <b>Contact Separation</b>                |  | <b>Operating Force</b>                                                                                                               |  | <b>Mounting Style</b> |  | <b>Circuitry</b> |  |
| HB Precision Snap-acting Switches                                                                          |  | S SP                            |  | 2 .020"<br>1 .010"<br>4 .040"<br>7 .070" |  | KG 18 oz./510 grams<br>GF 4 oz./113 grams<br>KA 9 oz./255 grams<br>KC 13 oz./368 grams<br>KH 20 oz./567 grams<br>PB 26 oz./737 grams |  | S Standard            |  | C SPDT           |  |
| <b>Electrical Rating</b>                                                                                   |  | <b>Actuator</b>                 |  | <b>Terminations</b>                      |  |                                                                                                                                      |  |                       |  |                  |  |
| B4 20 A, 125, 250, 480 V AC;<br>0.25 A, 250 V DC; 0.5 A, 125 V DC                                          |  | P0 Pin plunger                  |  | 11 Flat base, solder, 4-40 screws        |  |                                                                                                                                      |  |                       |  |                  |  |
| A2 5 A, 125, 250 V AC                                                                                      |  | A0 Lever roller                 |  | 41 Flat base, .250" quick connect        |  |                                                                                                                                      |  |                       |  |                  |  |
| B6 20 A, 125, 250, 480 V AC; 0.25 A,<br>250 V DC; 0.5 A, 125 V DC; 3/4 HP,<br>125 V AC; 1 1/2 HP, 250 V AC |  | D0 Stub plunger                 |  | 55 Step base, cup washers, 6-32 screws   |  |                                                                                                                                      |  |                       |  |                  |  |
| F5 1 A, 125 V AC; 1 A, 30 V DC                                                                             |  | F0 Reverse acting lever roller  |  |                                          |  |                                                                                                                                      |  |                       |  |                  |  |
| F9 22 A, 125, 277 V AC; 15 A, 480 V AC;<br>1/4 HP, 125 V AC; 1/2 HP, 250 V AC                              |  | J0 High overtravel plunger      |  |                                          |  |                                                                                                                                      |  |                       |  |                  |  |
|                                                                                                            |  | R5 Perpendicular roller plunger |  |                                          |  |                                                                                                                                      |  |                       |  |                  |  |
|                                                                                                            |  | T0 Lever                        |  |                                          |  |                                                                                                                                      |  |                       |  |                  |  |
|                                                                                                            |  | TS Sealed Lever                 |  |                                          |  |                                                                                                                                      |  |                       |  |                  |  |
|                                                                                                            |  | Y0 Reverse acting lever         |  |                                          |  |                                                                                                                                      |  |                       |  |                  |  |



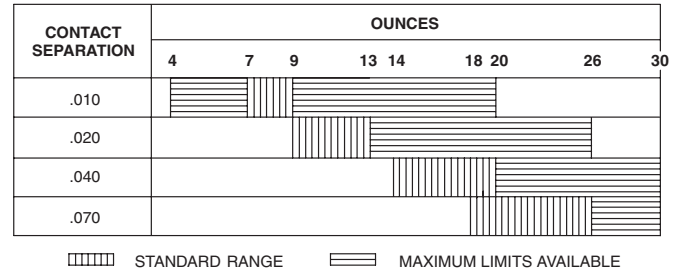


# HB Series Single Pole Standard Precision Snap-acting Switches

## OPERATING FORCE

| OPTION CODE | MAXIMUM OPERATING FORCE (OZ./GRAMS) | STANDARD CONTACT SEPARATION (inch) |
|-------------|-------------------------------------|------------------------------------|
| <b>KG</b>   | 18<br>510                           | .020                               |
| <b>GF</b>   | 4<br>115                            | .010                               |
| <b>KA</b>   | 9<br>255                            | .010                               |
| <b>KC</b>   | 13<br>370                           | .020                               |
| <b>KH</b>   | 20<br>570                           | .040                               |
| <b>PB</b>   | 26<br>740                           | .070                               |

OPERATING FORCE SPECIFICATION LIMITS  
FOR VARIOUS CONTACT SEPARATIONS



**NOTE:** All listed differential travel characteristics are based on standard operating force and contact separation. For any other force or contact separation, consult Customer Service Center.  
Operating force varies with actuator option, see ACTUATOR option section.

## ELECTRICAL RATING

| OPTION CODE | MOVABLE CONTACT       | STATIONARY CONTACT                 | ELECTRICAL RATING                                                                                                    |
|-------------|-----------------------|------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| <b>B4</b>   | Fine silver.          | Fine silver welded to copper base. | 20 AMPS @ 125, 250 & 480 V AC; 0.25 AMPS @ 250 V DC; 0.5 AMPS @ 125 V DC (UL).                                       |
| <b>A2</b>   |                       |                                    | 5 AMPS @ 125 & 250 V AC (UL).                                                                                        |
| <b>B6</b>   | Precious metal alloy. | Precious metal alloy.              | 20 AMPS @ 125, 250 & 480 V AC; 0.25 AMP @ 250 V DC; 0.5 AMP @ 125 V DC; 3/4 HP @ 125 V AC; 1 1/2 HP @ 250 V AC (UL). |
| <b>F5</b>   | Gold alloy.           | Gold alloy.                        | Low level* to 1 AMP @ 125 V AC; 1 AMP @ 30 V DC (UL).                                                                |
| <b>F9</b>   | Fine silver.          | Fine silver welded to copper base. | 22 AMPS @ 125 & 277 V AC; 15 AMPS @ 480 V AC; 1/4 HP @ 125 V AC; 1/2 HP @ 250 V AC; 277 V AC (UL).                   |

\* Note: See Technical Data section of this catalog for RoHS compliant and compatible definition and specifications.

### AVAILABLE COMBINATIONS

| ELECTRICAL RATING | OPERATING FORCE (oz.) |         |          |          |          |          |
|-------------------|-----------------------|---------|----------|----------|----------|----------|
|                   | 4<br>GF               | 9<br>KA | 13<br>KC | 18<br>KG | 20<br>KH | 26<br>PB |
| A2                | •                     | •       | •        | •        | •        | •        |
| B4                | x                     | •       | •        | •        | •        | •        |
| B6                | x                     | x       | x        | •        | •        | •        |
| F5                | x                     | x       | •        | •        | •        | •        |
| F9                | x                     | x       | x        | •        | •        | •        |

• AVAILABLE  
x NOT AVAILABLE

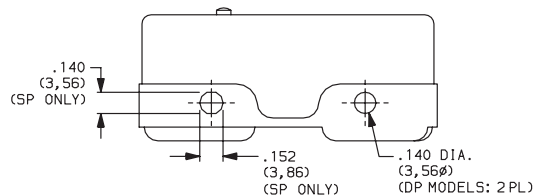
All models  with all options  
Consult Customer Service center for availability and delivery of nonstandard ratings.

\* Low Level=conditions where no arcing occurs during switching,  
i.e., 0.4 VA max. @ 20 V AC or DC max.

# HB Series Single Pole Standard Precision Snap-acting Switches

## MOUNTING STYLE

**S** Standard

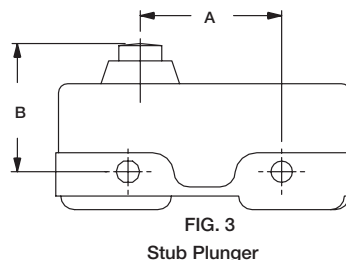
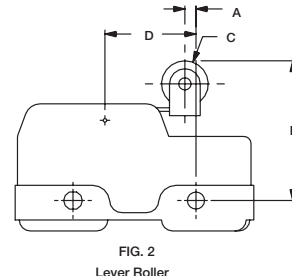
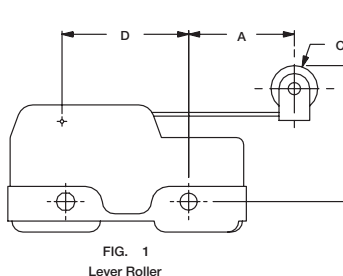


**NOTE:** Mounting holes will accept pins or screws of .139 dia. (3,53) max. on 1.000 ± .002 (25,4 ± 0,05) centers.

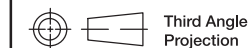
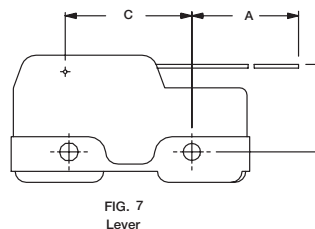
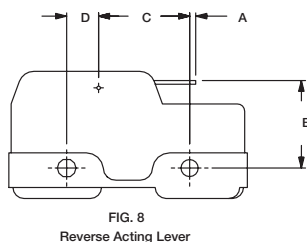
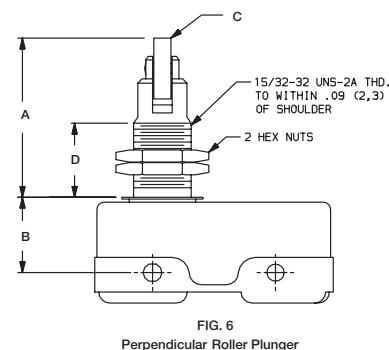
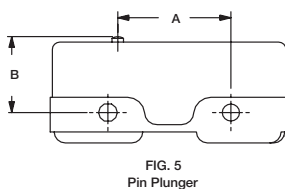
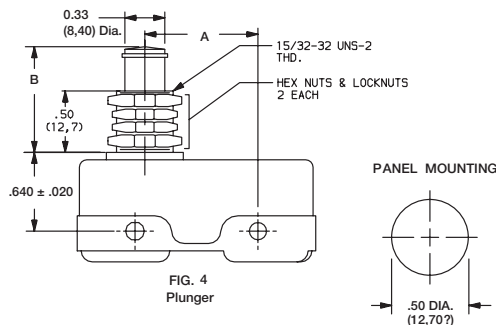
**NOTE:** Torque mounting screws 3 inlbs max.

## ACTUATOR

| OPTION CODE | NO. POLES | FIG. | DIM. A           | DIM. B                         | DIM. C               | DIM. D         |
|-------------|-----------|------|------------------|--------------------------------|----------------------|----------------|
| <b>A0</b>   | SP        | 1    | .86<br>(21,8)    | 1.120 ± .060<br>(28,45 ± 1,52) | .38 dia.<br>(9,70)   | 1.03<br>(26,2) |
| <b>D0</b>   | SP        | 3    | .92<br>(23,4)    | .844 ± .020<br>(21,44 ± 0,51)  | —                    | —              |
| <b>F0</b>   | SP        | 2    | .09<br>(2,3)     | 1.120 ± .050<br>(28,45 ± 1,27) | .38 dia.<br>(9,70)   | .74<br>(18,8)  |
| <b>J0</b>   | SP        | 4    | .86<br>(21,8)    | .860 ± .030<br>(21,84 ± 0,76)  | —                    | —              |
| <b>P0</b>   | SP        | 5    | .92<br>(23,4)    | .625 ± .010<br>(15,88 ± 0,25)  | —                    | —              |
| <b>R5</b>   | SP        | 6    | .92<br>(23,4)    | .62<br>(15,7)                  | .50 dia.<br>(12,70)  | 0.61<br>(15,5) |
| <b>T0</b>   | SP        | 7    | 1.310<br>(33,27) | .720 ± .060<br>(18,28 ± 1,52)  | 1.03 dia.<br>(26,20) | —              |
| <b>TS*</b>  | SP        | 7    | 1.47<br>(37,3)   | .720 ± .060<br>(18,28 ± 1,52)  | 1.03 dia.<br>(26,20) | —              |
| <b>Y0</b>   | SP        | 8    | .05<br>(1,3)     | .720 ± .030<br>(18,29 ± 0,76)  | .74 dia.<br>(18,80)  | 2.65<br>(6,73) |



\* Actuators sealed against the entrance of airborne contaminants and/or splashing liquids.



Dimensions are shown: Inches (mm)

Specifications and dimensions subject to change

# HB Series Single Pole Standard Precision Snap-acting Switches

ACTUATOR 

|                                     | OPTION CODE | ACTUATOR   |            |           |           |           |           |            |           | * SEALED ACTUATOR |
|-------------------------------------|-------------|------------|------------|-----------|-----------|-----------|-----------|------------|-----------|-------------------|
|                                     |             | A0         | D0         | F0        | J0        | P0        | R5        | T0         | Y0        | TS                |
| MAXIMUM OPERATING FORCE (OZ./GRAMS) | GF          | —          | —          | —         | —         | 4<br>115  | —         | —          | —         | —                 |
|                                     | KA          | 3<br>85    | 9.5<br>269 | 10<br>284 | 10<br>284 | 9<br>255  | 10<br>284 | 2<br>60    | 10<br>284 | 2<br>56           |
|                                     | KC          | —          | 13<br>370  | 10<br>284 | 13<br>370 | 13<br>370 | 13<br>370 | —          | 10<br>284 | —                 |
|                                     | KG          | 3.5<br>100 | —          | —         | —         | 18<br>510 | —         | 2.5<br>71  | —         | 2.5<br>71         |
|                                     | KH          | 4<br>115   | 20<br>570  | 20<br>570 | 20<br>570 | 20<br>570 | 20<br>570 | 3<br>85    | 20<br>570 | 3<br>85           |
|                                     | PB          | 4.5<br>130 | 26<br>740  | 20<br>570 | 26<br>740 | 26<br>740 | 26<br>740 | 3.5<br>100 | 20<br>570 | 3.5<br>100        |
| MINIMUM RELEASE FORCE (OZ./GRAMS)   | GF          | —          | —          | —         | —         | 1<br>28   | —         | —          | —         | —                 |
|                                     | KA          | .75<br>21  | 4<br>110   | 3<br>85   | 4<br>110  | 4<br>110  | 4<br>110  | .5<br>14   | 3<br>85   | .5<br>14          |
|                                     | KC          | 1.7<br>48  | 4<br>110   | 3<br>85   | 4<br>110  | 4<br>110  | 4<br>110  | —          | 3<br>85   | —                 |
|                                     | KG          | .75<br>21  | —          | —         | —         | 4<br>110  | —         | .5<br>14   | —         | .5<br>14          |
|                                     | KH          | .75<br>21  | 4<br>110   | 3<br>85   | 4<br>110  | 4<br>110  | 4<br>110  | .5<br>14   | 3<br>85   | .5<br>14          |
|                                     | PB          | .75<br>21  | 4<br>110   | 3<br>85   | 4<br>110  | 4<br>110  | 4<br>110  | .5<br>14   | 3<br>85   | .5<br>14          |

NOTE: For basic switch operating forces, see page J-71. \* Actuators sealed against the entrance of airborne contaminants and/or splashing liquids.

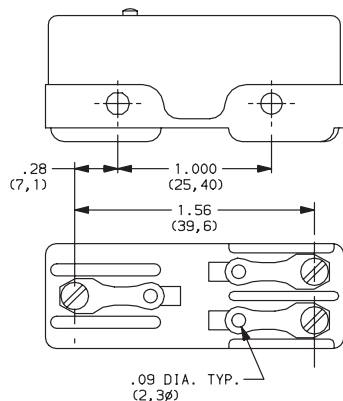
|                                     | OPTION CODE | ACTUATOR       |                  |                |                |                  |                |                |                | * SEALED ACTUATOR |
|-------------------------------------|-------------|----------------|------------------|----------------|----------------|------------------|----------------|----------------|----------------|-------------------|
|                                     |             | A0             | D0               | F0             | J0             | P0               | R5             | T0             | Y0             | TS                |
| MAXIMUM DIFFERENTIAL TRAVEL (IN/MM) | GF          | —              | —                | —              | —              | .0005<br>(0,013) | —              | —              | —              | —                 |
|                                     | KA          | .020<br>(0,51) | .0005<br>(0,013) | .005<br>(0,13) | —              | .0005<br>(0,013) | —              | .047<br>(1,19) | .005<br>(0,13) | .047<br>(1,19)    |
|                                     | KC          | —              | .002<br>(0,05)   | .008<br>(0,20) | —              | .002<br>(0,05)   | —              | —              | .009<br>(0,23) | —                 |
|                                     | KG          | .062<br>(1,57) | —                | —              | —              | .003<br>(0,08)   | —              | .078<br>(1,98) | —              | .078<br>(1,98)    |
|                                     | KH          | .080<br>(2,03) | .003<br>(0,76)   | .020<br>(0,51) | —              | .003<br>(0,08)   | —              | .093<br>(2,36) | .020<br>(0,51) | .093<br>(2,36)    |
|                                     | PB          | .125<br>(3,18) | .007<br>(0,18)   | .030<br>(0,76) | —              | .005<br>(0,13)   | —              | .156<br>(3,96) | .031<br>(0,79) | .156<br>(3,96)    |
| MAXIMUM PRETRAVEL (IN/MM)           | GF          | —              | —                | —              | —              | .020<br>(0,51)   | —              | —              | —              | —                 |
|                                     | KA          | .312<br>(7,92) | .020<br>(0,51)   | 0.8<br>(2,0)   | .015<br>(0,38) | .015<br>(0,38)   | .015<br>(0,38) | .38<br>(9,7)   | .09<br>(2,3)   | .38<br>(9,7)      |
|                                     | KC          | —              | .020<br>(0,51)   | 0.8<br>(2,0)   | .020<br>(0,51) | .020<br>(0,51)   | .020<br>(0,51) | —              | .09<br>(2,3)   | —                 |
|                                     | KG          | .312<br>(7,92) | —                | —              | —              | .025<br>(0,64)   | —              | .38<br>(9,7)   | —              | .38<br>(9,7)      |
|                                     | KH          | .38<br>(9,7)   | .025<br>(0,64)   | 0.9<br>(2,3)   | .025<br>(0,64) | .025<br>(0,64)   | .025<br>(0,64) | .38<br>(9,7)   | 0.9<br>(2,3)   | .38<br>(9,7)      |
|                                     | PB          | .38<br>(9,7)   | .030<br>(0,76)   | 0.9<br>(2,3)   | .030<br>(0,76) | .030<br>(0,76)   | .030<br>(0,76) | .38<br>(9,7)   | 0.9<br>(2,3)   | .38<br>(9,7)      |
| MINIMUM OVERTRAVEL (IN/MM)          | GF          | —              | —                | —              | —              | .005<br>(0,13)   | —              | —              | —              | —                 |
|                                     | KA          | .156<br>(3,96) | .055<br>(1,40)   | .06<br>(1,5)   | .22<br>(5,6)   | .005<br>(0,13)   | .141<br>(3,58) | .19<br>(4,8)   | .06<br>(1,5)   | .19<br>(4,8)      |
|                                     | KC          | —              | .055<br>(1,40)   | 0.9<br>(2,3)   | .22<br>(5,6)   | .005<br>(0,13)   | .141<br>(3,58) | —              | 0.9<br>(2,3)   | —                 |
|                                     | KG          | .156<br>(3,96) | —                | —              | —              | .005<br>(0,13)   | —              | .19<br>(4,8)   | —              | .19<br>(4,8)      |
|                                     | KH          | .156<br>(3,96) | .055<br>(1,40)   | 0.9<br>(2,3)   | .22<br>(5,6)   | .005<br>(0,13)   | .141<br>(3,58) | .19<br>(4,8)   | 0.9<br>(2,3)   | .19<br>(4,8)      |
|                                     | PB          | .156<br>(3,96) | .055<br>(1,40)   | 0.9<br>(2,3)   | .22<br>(5,6)   | .005<br>(0,13)   | .141<br>(3,58) | .19<br>(4,8)   | 0.9<br>(2,3)   | .19<br>(4,8)      |

# HB Series

## Single Pole Standard Precision Snap-acting Switches

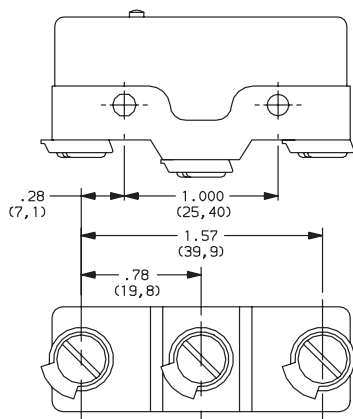
### TERMINATIONS

#### 11 FLAT BASE, SOLDER TERMINALS AND 4-40 SCREWS



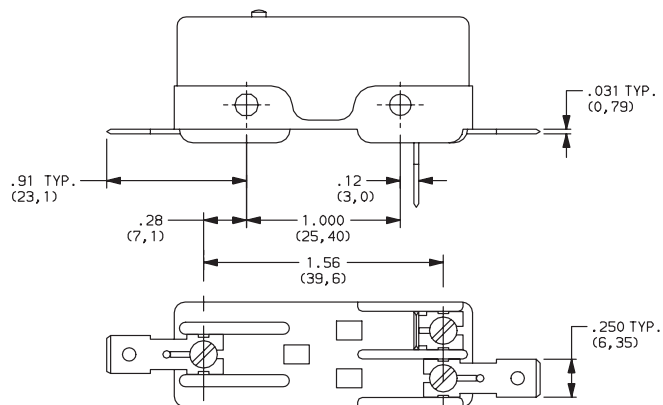
**NOTE:** Switches with flat base option have molded ribs that provide increased creep distance.

#### 55 STEP BASE, 6-32 SCREWS AND CUP WASHERS



**NOTE:** Switches with step base option provide wide electrical clearance for screw terminal options.

#### 41 FLAT BASE, .250" QUICK CONNECT TERMINALS



### CIRCUITRY

#### C DT (Double Throw, Normally Closed & Normally Open)



Third Angle  
Projection

Dimensions are shown: Inches (mm)

Specifications and dimensions subject to change

Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибьюторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибьюторских договоров

Мы предлагаем:

- Конкурентоспособные цены и скидки постоянным клиентам.
- Специальные условия для постоянных клиентов.
- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
- Доставку товара в любую точку России и стран СНГ.
- Комплексную поставку.
- Работу по проектам и поставку образцов.
- Формирование склада под заказчика.
- Сертификаты соответствия на поставляемую продукцию (по желанию клиента).
- Тестирование поставляемой продукции.
- Поставку компонентов, требующих военную и космическую приемку.
- Входной контроль качества.
- Наличие сертификата ISO.

В составе нашей компании организован Конструкторский отдел, призванный помогать разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- Регистрацию проекта у производителя компонентов.
- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



Тел: +7 (812) 336 43 04 (многоканальный)

Email: [org@lifeelectronics.ru](mailto:org@lifeelectronics.ru)

[www.lifeelectronics.ru](http://www.lifeelectronics.ru)