

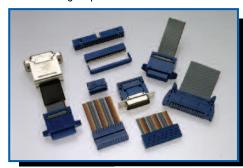
## Custom-Designed Switches, Connectors and Assemblies





#### **Mil Spec Connectors**

- ➤ Full line of high density rectangular connectors
- ➤ QPL Approved to MIL-DTL-83503, MIL-DTL-24308 and MIL-DTL-28804
- ➤ NAVSEA qualified
- ➤ Used on the F-16, Standard Missile, Phalanx and others.
- ➤ In-house test facilities qualified to DOD
- ➤ Custom design capabilities



#### **IDC Connectors**

- ➤ Sockets, Headers, D-Subminiature, Card Edge, DIP and PCB connectors
- ➤ Patented Torq-Tite™ contact for gas tight connections.
- ➤ Interchangeable with industry standard IDC connectors
- ➤ Mil Spec and Commercial Grades available



### **Custom Products**

- ➤ Electromechanical assembly
- ➤ ESD Compliant
- ➤ Custom Switches & Connectors
- ➤ Wire Harness Assembly



#### **Rocker Switches**

- ➤ Miniature to Full-Sized
- ➤ Ratings to 20A @ 125V-250V AC and ¾ HP.
- ➤ Variety of styles, colors, and markings
- ➤ Circuitries ranging from SPST through DP 3 Position
- ➤ Sealed / IP rated available
- ➤ Illuminated and Non-Illuminated



#### **Pushbutton Switches**

- ➤ Rated from .5 amps to 6 amps, 125V–250V AC
- ➤ Variable functions and mounting styles available
- ➤ Unique range of termination options
- ightharpoonup Illuminated and Non Illuminated
- ➤ Sealed / IP rated available



#### **Slide Switches**

- $\blacktriangleright$  Micro-Miniature to Full-Sized for Panel and PC Board Mounting
- ➤ One thru four poles and one thru five positions
- ➤ Ratings from .5A to 16A @ 125V AC
- ➤ Maintained, momentary, and side actuated versions

### **NEW PRODUCT BULLETIN**



















# INNOVATION EVERY STEP OF THE WAY

**CW Industries** supplies leading industrial, consumer and defense electronics manufacturers with complex electromechanical slide, rocker and pushbutton switches; insulation displacement and Mil Spec connectors; and a variety of custom assemblies that require a high level of precision, performance and accountability. Our core competency is to offer each customer the highest value product at the most competitive price, utilizing our superior mix of manufacturing and technical talent.



History on paper. This drafting room diary records the engineering department activities of the Wirt Company in the year 1912.

#### SERVING CUSTOMERS SINCE 1904

Our history dates from the earliest days of electronics. The Wirt Company was founded in 1904 by Charles Wirt, an associate of Thomas Alva Edison. Wirt pioneered the development of wire wound potentiometers, fixed wire wound resistors, automotive spark suppressors and slide switches. At the same time, engineers at Continental Carbon, Inc., were creating basic processes for manufacturing carbon composition resistors, metal film resistors and carbon film resistors. Following their merger, Continental Carbon, Inc. and The Wirt Company became Continental-Wirt Electronics Corporation and more recently, CW Industries.

As CW Industries, we have developed patented products and processes for several segments of the electronics industry. These products include slide, rocker and pushbutton switches; insulation displacement connectors; and a variety of custom products.

#### **DESIGN ENGINEERING**

CW Engineering works closely with our customers to design innovative, high quality and cost driven options for electromechanical switches, connectors, wire harnesses, insert molded lead frame assembly, and PCB assemblies. We provide comprehensive customer support with on-site design and technical assistance to enable our customers to go from product concept to production without delay. Our engineers utilize Catia, Pro E, AutoCAD & Solid Works software and Stereo Lithography Apparatus (SLA) to rapidly produce prototypes without incurring substantial tooling costs. Our innovative ideas have resulted in many patented and trademarked items.

Component Recognition Program of Underwriters Laboratories Inc., File E 9556.



#### AN ISO COMPANY THAT DELIVERS WORLD CLASS QUALITY

CW Industries has a long-standing reputation for providing high quality components to its customers. Our quality assurance program insures that we can consistently provide our customers with products that meet or exceed their application requirements. We are ISO 9001 certified and our staff monitors the quality process from design to finished product. Our Test Laboratories are fully equipped to monitor and test CW switches and connectors to published standards in addition to testing to customer specific requirements. Our in house test facilities are qualified to Department of Defense standards.



#### **MANUFACTURING & AUTOMATION**

Our fully integrated manufacturing facilities permit us to control the conversion of raw materials to finished product. In addition to engineering each of our basic designs and patented features, we have the capabilities to injection and insert mold, stamp and plate in-house virtually every component used in each of our products. We design and build our own molds and contact dies in three state of the art tool shops as well as most of our assembly equipment. We also have automated and semi automated equipment with vision systems integrated into the equipment to ensure high quality and repeatability.

#### **CUSTOM PRODUCTS AND ASSEMBLIES**

Leading commercial and military OEM's throughout the world rely on CW to supply custom electromechanical products and assemblies. In addition to our standard product offering, we supply custom wire harness, PCB assembly with ESD compliance, custom insert molded parts and stampings and other flexible, low cost assemblies using our strategic global partnerships. We offer total development and manufacturing support as our design teams transform your ideas into prototypes and test them in our UL, CSA and DOD-certified laboratory.





#### **MARKETS SERVED**

CW provides engineered solutions to many of the leading OEMs in a variety of industries including: Automotive, Marine and Recreation Vehicles, Healthcare, Electronics, Appliance, Industrial Controls, Lawn and Garden, Food Service, Aerospace and Defense, Floor Care, Gaming and others. CW products are also available through our network of stocking distributors and value added centers throughout the world to support your just in time delivery requirements.

CUSTOM DESIGNS FOR SUPERIOR PERFORMANCE

CW PART NO.	SEALED PUSHBUTTON SWITCHES	FUNCTION	IP LEVEL	MATERIAL/FEATURES	RATING	OPTIONS	сит-оит	FITTING	TERMINAL
GPB526		SPST ON-OFF SPST ON-OFF [Illuminated] SPDT ON-ON	IP56	Frame: Nylon [UL: 94V-2] Actuator: Nylon/PC [UL: 94V-2] Available In Red, Green & Amber Terminals: Copper Alloy/Silver Plated Lamp Terminal: Unplated Brass	 C SUS  16A 125VAC 1/3 HP  10A 250VAC 1/2 HP  10A (4) 250V~ ***  20A 12V DC  10A 24V DC	Reference Lamp Chart	Y   Y   (mm)	Snap-In	.250 Quick Connect (SQ) Solder (SO)
GPB527X2		DPST (ON)-OFF DPST (ON)-OFF [Illuminated] DPST ON-OFF DPST ON-OFF [Illuminated] SPST OFF-(ON) SPST (ON)-OFF [Illuminated] SPST (ON)-OFF [LED] [1] SPST OFF-ON SPST ON-OFF [Illuminated] SPST ON-OFF [LED] [1]	IP65	Frame: Nylon [UL: 94V-2] Actuator: Nylon/PC [UL: 94V-2] Available In Red, Green & Amber Terminals: Copper Alloy/Silver Plated  11 LED Independent of Switch Function	C SUS 10A 125VAC 1/2 HP 6A 250VAC 1/2 HP 20A 14V DC 10A 28V DC	Reference Lamp Chart	2.2+0.1 (mm) 0.7~2.5 mm max.	Snap-In	.187 Quick Connect (SQ)
GPB553X2		SPST OFF-(ON) SPST OFF-(ON) [LED] SPDT OFF-ON (5) SPST OFF-ON [LED] (5)	IP65	Frame: Nylon [UL: 94V-2] Actuator: Nylon/PC [UL: 94V-2] Available In Red, Green, & Amber <sup>[5]</sup> Push Latch	10A 14V DC	Reference Lamp Chart	Ø 28.0 Ø 22.0+1 (mm) 7.0 mm max.	Threaded	.250 Quick Connect (SQ)
GPB556		SPST (ON)-OFF SPDT (ON)-OFF (LED) <sup>(1)</sup>	IP67	Frame: Nylon [UL: 94V-2] Actuator: Nylon/PC [UL: 94V-2] Available In Red, Green, & Amber Terminals: Gold Plated Copper  11 LED Independent of Switch Function LED Spec: @20mA If@ 2.0V DC	400mA 32 VAC 125mA 50V DC 100mA 50V DC		0 12.0+0.1 (mm) 1.5~4.0 mm max.	Threaded	Solder (SO)
CW PART NO.	SEALED TOGGLE SWITCHES	FUNCTION	IP LEVEL	MATERIAL/FEATURES	RATING	OPTIONS	сит-оит	FITTING	TERMINAL
GTS447		A) SPST ON-OFF C) SPDT ON-ON D) SPDT ON-OFF-ON G) SPDT (ON)-OFF(ON) H) SPDT ON-OFF-(ON) I) SPDT ON-(ON) N) SPST (ON)-OFF R) SPST ON-(OFF)	IP56	Metal Lever: Nickle plated metal Bushing: Nylon with glass fiber [UL: 94V-0] Frame: Nylon [UL: 94V-2] Plastic Lever: Nylon [UL: 94V-2]	C S US  16A 277VAC 1 HP  1/2HP 125VAC  [D, G, H, I, N & R]  20A 277VAC 1 HP  1/2HP 125VAC  [A & C]  10(4) 250V ~	5 different Metal or Plastic Lever styles available Indicator Plate options available Rubber Boot available	Ø 12.2 11 11 (mm) - 1.5 6 mm max.	Threaded	.250 Quick Connect (SQ) Solder (SO) SC 6-32 UNC
GTS448		B) DPDT ON-ON E) DPDT ON-OFF-ON F) DPST ON-OFF K) DPDT (ON)-OFF(ON) M) DPDT ON-OFF-(ON) P) DPDT ON-(ON) G) DPST ON-(OFF) S) DPST (ON)-OFF	IP56	Metal Lever: Nickle plated metal Bushing: Nylon with glass fiber [UL: 94V-0] Frame: Nylon [UL: 94V-2] Plastic Lever: Nylon [UL: 94V-2]	 C  US  16A 277VAC 1 HP  1/2HP 125VAC  [B, E, K, M, P, Q, & S]  20A 277VAC 1 HP  1/2HP 125VAC  [F]	5 different Metal or Plastic Lever styles available Indicator Plate options available Rubber Boot available	Ø 12.2  (mm)  11  (mm)  6 mm max.	Threaded	.250 Quick Connect (SQ) Solder (SO) SC 6-32 UNC

CW PART NO.	SEALED ROCKER SWITCHES	FUNCTION	IP LEVEL	MATERIAL/FEATURES	RATING	OPTIONS	сит-оит	FITTING	TERMINAL
GRB066X8		SPST ON-OFF [2] SPST ON-OFF [Illuminated] SPST (ON)-OFF [Illuminated] SPDT ON-ON [2] SPST (ON)-OFF [2]	IP65	Frame: Nylon [UL: 94V-2] Actuator: Nylon/PC [UL: 94V-2] Available In Red, Green, & Amber Terminals: Copper Alloy/Silver Plated	C TUS  16A 125VAC 1/3 HP  10A 250VAC 1/2 HP  16A 12V DC  10A 28V DC  6A 14V T	Reference Lamp Chart	18.5 Y R 2.0 X Y 0.75-1.5 19.4-0.1 13.0+0.1 1.5-2.5 19.8-0.1 13.0+0.1	Snap-In	.187 Quick Connect (SQ) <sup>[2]</sup> Solder (SO), PC, PC Angle also available
GRB070X8		SPST ON-OFF SPST ON-OFF [Illuminated] SPST (ON)-OFF [Illuminated] SPDT ON-ON SPDT ON-OFF-ON SPST (ON)-OFF	IP65	Frame: Nylon [UL: 94V-2] Actuator: Nylon/PC [UL: 94V-2] Available In Red, Green, & Amber Terminals: Copper Alloy	16A 125VAC 1/8 HP 10A 250VAC 1/3 HP 16 (6)A 250VAC 25A 14V DC 15A 28V DC		7.5 (mm)  R 2.0 X Y  0.75-1.25 30.2-0.1 11.2-0.1 11.2-0.1 2-3 30.8-0.1 11.2-0.1	Snap-In	.250 Quick Connect (SQ) Solder (SO)
GRB112X8		SPST ON-OFF [4] SPST ON-OFF [Illuminated] SPST (ON)-OFF [Illuminated] * SPDT ON-ON *[4] SPDT ON-OFF-ON *[4] SPST (ON)-OFF *[4]	IP65	Frame: Nylon [UL: 94V-2] Actuator: Nylon/PC [UL: 94V-2] Available In Red, Green, & Amber Terminals: Copper Alloy * Not UL LIsted	16A 125VAC 10A 250VAC 10 (4)A 250V~ (4)A 20A 14V DC 10A 28V DC	—— Reference Lamp Chart	9 26.0 9 20.2+0 -0.1 2.2+0.1 (mm) 1.5~2.5 mm max.	Snap-In	.187 Quick Connect (SQ) <sup>(4)</sup> Solder (SO), PC also available
GRB203X8		SPST ON-OFF SPST ON-OFF (LED) SPDT ON-ON	IP65	Frame: Nylon [UL: 94V-2] Actuator: Nylon/PC [UL: 94V-2] Available In Red, Green, Amber, & Clear Terminals: Copper Alloy/Silver Plated	16A 125VAC 10A 250VAC 25A 12V DC 10A 24V DC	LED color options available Reference Lamp Chart	8 24±0.1 (mm)  10-3.0 mm max.	Snap-In	.250 Quick Connect (SQ)
GRB238X8		SPST ON-OFF SPST ON-OFF [Illuminated] SPDT (ON)-OFF [Illuminated] SPDT ON-ON SPDT ON-OFF-ON SPST (ON)-OFF SPDT (ON)-OFF-(ON)	IP65	Frame: Nylon [UL: 94V-2] Actuator: Nylon/PC [UL: 94V-2] Available In Red, Green, & Amber Terminals: Copper Alloy	C SUS  16A 125VAC 1/3 HP  10A 250VAC 1/2 HP  16 (6)A 250VAC 4 6  25A 14V DC  15A 28V DC	Reference Lamp Chart	21.0 Y  R 2.0 X Y  0.75~2.5 27.8-0.1 13.8+0.1 2.5-3.5 27.8-0.1 13.8+0.1 13.8+0.1 13.8+0.1	Snap-In	.250 Quick Connect (SQ)
GRB244X8		DPST ON-OFF DPST ON-OFF [Illuminated] DPDT ON-ON DPDT ON-ON [Illuminated] DPDT ON-OFF-ON DPDT ON-OFF-ON [Illuminated]	IP65	Frame: Nylon [UL: 94V-2] Actuator: Nylon/PC [UL: 94V-2] Available In Red, Green, & Amber Terminals: Copper Alloy	CFN US 16A 125VAC 10A 250VAC 20A 14V DC 10A 28V DC	Reference Lamp Chart	9 26.0 1 2.2+0.1 (mm) 1.5-2.5 mm max.	Snap-In	.187 Quick Connect (SQ)
GRB258X		A) SPST ON-OFF B) SPST ON-OFF [Illuminated] C) SPDT ON-ON D) SPDT ON-OFF-ON E) SPST ON-(OFF) F) SPST (ON)-OFF G) SPDT ON-(ON) H) SPDT ON-OFF-(ON) I) SPDT (ON)-OFF-(ON)	IP56	Frame: Nylon [UL: 94V-2] Actuator: Nylon/PC [UL: 94V-2] Available In Red, Green, Amber, Clear, Blue, & White Terminals: Copper Alloy/Silver Plated	C S US  20A 125VAC 1/3 HP  10A 250VAC 3/4 HP  20A 14VAC  10A 24VAC  [A, B, C & D]  20A 125VAC 3/4 HP  10A 250VAC 3/4 HP  20A 14VAC  10A 24VAC  [E, F, G, H & I]	Reference Lamp Chart	Y	Snap-In	.250 Quick Connect (SQ)

OCW PART NO.	SEALED PUSHBUTTON SWITCHES	FUNCTION	IP LEVEL	MATERIAL/FEATURES	RATING	OPTIONS	сит-оит	FITTING	TERMINAL
GRB260X		SPST ON-OFF DPDT ON-ON SPDT ON-ON SPDT ON-OFF-ON DPDT ON-OFF-ON DPST ON-OFF SPDT (ON)-OFF-{ON} SPDT ON-OFF-{ON} DPDT ON-OFF-{ON} DPDT (ON)-OFF-{ON} DPDT ON-OFF-{ON} DPDT ON-OFF-{ON} SPST (ON)-OFF DPDT ON-{ON} DPST ON-{OFF} DPDT ON-{OFF} DPST ON-{OFF} DPST (ON)-OFF	IP56	Frame: Nylon [UL: 94V-HB] Actuator: Nylon/PC [UL: 94V-2] Available In Red, Green, Amber, Blue, & White Terminals: Copper Alloy/Silver Plated	CAN US  20A 125VAC  10A 250VAC  16A 125VAC 3/4 HP  10A 277VAC 3/4 HP  21A 14V DC	All Available in Illuminated & Non-Illuminated 6 Different Rocker Styles available Reference Lamp Chart Jumper & Light Circuit options available	X (mm)  X Y  0.75~1.25  1.25~2.0  2.0~3.0  21.2±0.1  36.6+0.2  -0  36.8+0.2  -0  37.0+0.2  -0	Snap-In	.250 Quick Connect (SQ) SAE (SQ) Solder (SO) SC 6-32 UNC
GRB263X0		A) SPST ON-OFF C) SPDT ON-ON D) SPDT ON-OFF-ON G) SPDT (ON)-OFF-(ON) H) SPDT ON-OFF-(ON) I) SPDT ON-(ON) N) SPST (ON)-OFF R) SPST ON-(OFF)	IP56	Frame: Nylon [UL: 94HB] Actuator: Nylon [UL Flame: 94HB] Terminals: Copper Alloy/Silver Plated	C  Us  16A 125VAC 3/4 HP  10A 277VAC 3/4 HP  [A, C]  18A 125VAC  10A 277VAC  [D, G, H, I, N & R]  21A 14V DC	Jumper options available	X Y (mm)  0.75~1.25 1.25~2.0 21.2+0.1 36.8+0.1 37.0+0.1	Snap-In	.250 Quick Connect (SQ) SAE (SQ) Solder (SO) SC 6-32 UNC
GRB271		SPST ON-OFF DPDT ON-ON SPDT ON-ON SPDT ON-OFF-ON DPDT ON-OFF-ON DPST ON-OFF-(ON) SPDT ON-OFF-(ON) SPDT ON-OFF-(ON) DPDT (ON)-OFF-(ON) DPDT ON-OFF-(ON) DPDT ON-OFF-(ON) SPST (ON)-OFF DPDT ON-(ON) DPST ON-(OFF) DPST ON-(OFF) DPST (ON)-OFF	IP66	Frame: Nylon [UL: 94HB] Actuator: Nylon/PC [UL: 94V-2] Available In Red, Green, & Amber, Blue & White Terminals: Copper Alloy/Silver Plated Lamp Terminal: Unplated Brass	20A 125VAC 3/4 HP 10A 250VAC 3/4 HP 21A 14V DC	All Available in Illuminated & Non-Illuminated  3 Different Rocker Styles available  Reference Lamp Chart  Light Circuit: Dependent, Independent, or None	X (mm)  X Y  0.75~1.25 1.25~2.0 21.2+0.1 36.8+0.1 37.0+0.1	Snap-In	.250 Quick Connect (SQ)
GRB278X8		SPST ON-OFF <sup>[3]</sup> SPST ON-OFF [Illuminated] SPST (ON)-OFF [Illuminated] SPDT ON-ON <sup>[3]</sup> SPST (ON)-OFF [ <sup>3]</sup>	IP65	Frame: Nylon [UL: 94V-2] Actuator: Nylon/PC [UL: 94V-2] Available In Red, Green, & Amber Terminals: Copper Alloy/Silver Plated Lamp Terminal: Unplated Brass	20A 14V DC 10A 28V DC	Reference Lamp Chart	28.5 Y  18.5 Y  R 3.0 X Y  0.75-1.5 23.3-0.1 11.6+0.1 11.5+2.5 23.6-0.1 11.6+0.1	Snap-In	.187 Quick Connect (SQ) <sup>(3)</sup> Solder (SO), PC, PC Angle also available
GRB285X8		DPST ON-OFF DPST ON-OFF (LED) DPDT ON-ON DPDT ON-ON (LED)	IP65	Frame: Nylon [UL: 94V-2] Actuator: Nylon/PC [UL: 94V-2] Available In Red, Green, Amber, & Clear Terminals: Copper Alloy/Silver Plated	20A 125VAC 1/3 HP 10A 250VAC 1/2 HP 20A 12V DC 10A 24V DC	Arc or Flat Top Rocker Styles Available LED color options available	29.0 Y	Snap-In	.250 Quick Connect (SQ)

CW PART NO.	SEALED ROCKER SWITCHES	FUNCTION	IP LEVEL	MATERIAL/FEATURES
GRB292		SPST ON-OFF DPDT ON-ON SPDT ON-ON SPDT ON-OFF-ON DPDT ON-OFF-ON DPST ON-OFF SPDT (ON)-OFF-(ON) SPDT ON-OFF-(ON) SPDT ON-OFF-(ON) DPDT (ON)-OFF-(ON) DPDT ON-OFF-(ON) DPDT ON-OFF-(ON) SPST (ON)-OFF DPDT ON-(ON) DPST ON-(OFF) SPST ON-(OFF) DPST (ON)-OFF	IP66	Frame: Nylon [UL: 94V-2] Actuator: Nylon (UL:94V-2) Lens: PC [UL: 94V-2] Available In Red, Green & Amber Terminals: Copper Alloy/Silver Plated Lamp Terminal: Unplated Brass Removable Rocker easy to stock & customize

All CW switches are RoHS compliant

#### IP RATED SEALED SWITCHES

CW Industries sealed switches are IP certified for protection against solid objects, materials, liquids or dust. Available in a wide array of designs and options, CW sealed switches are ideal in applications that require high quality, reliability and functionality in the most demanding environments.

#### IP RATINGS

EN 60529 outlines an international classification system for the sealing effectiveness of enclosures of electrical equipment against the intrusion into the equipment of foreign bodies (i.e. tools, dust, fingers) and moisture. This classification system utilizes the letters "IP" ("Ingress Protection") followed by two digits.

No special protection

#### **Degrees of Protection - First Digit**

The first digit of the IP code indicates the degree that persons are protected against contact with moving parts (other than smooth rotating shafts, etc.) and the degree that equipment is protected against solid foreign bodies intruding into an enclosure.

U	No apecial procession
1	Protection from a large part of the body such as a hand (but no protection from deliberate access); from solid objects greater than 50mm in diameter.
2	Protection against fingers or other object not greater than 80mm in length and 12mm in diameter.
3	Protection from entry by tools, wires, etc., with a diameter of thickness greater than 1.0mm.
4	Protection from entry by solid objects with a diameter or thickness greater than 1.0mm
5	Protection from the amount of dust that would interfere with the operation of the equipment.
6	Dust tight.

#### **Degrees of Protection - Second Digit**

The second digit indicates the degree of protection of the equipment inside the enclosure against the harmful entry of various forms of moisture (e.g. dripping, spraying, submersion, etc.)

0	No special protection
1	Protection from dripping water.
2	Protection from vertically dripping water.
3	Protection from sprayed water.
4	Protection from splashed water.
5	Protection from water projected from a nozzle
6	Protection against heavy seas, or powerful jets of water.
7	Protection against immersion.
8	Protection against complete, continuous submersion in water.

RATING	OPTIONS	сит-оит	FITTING	TERMINAL
21A 14V DC	For light circuitry, reference Lamp Diagram  Reference Lamp Chart 3 Rocker Styles available	X (mm) X Y 0.75~1.25 1.25~2.0 21.2+0.1 36.8+0.1 2.0~3.0 21.2+0.1 37.0+0.1	Snap-in	.250 Quick Connect (SQ)

Not responsible for typographical errors. Specifications subject to change without notice.

#### TECHNICAL INFORMATION

Part Number – Series	Operating Temperatures		
GRB066, GRB070, GRB112, GRB203, GRB238, GRB244, GRB278, GRB285,GPB526, GPB527, GPB553, GPB556	-25° C to 85° C		
GRB258, GRB260, GRB263, GRB271	-20° C to 85° C		
GTS447, GTS448	0° C to 85° C		
Contact Resistance	50m ohm max		
Insulation Resistance	DC 500VM 100M 0HM Min		
Dielectric Strength	AC 1500V 1 MINUTE		
Mechanical Life	> 100,000 CYCLES		
Solderability of Terminals	Max 350° C / 3 sec		

