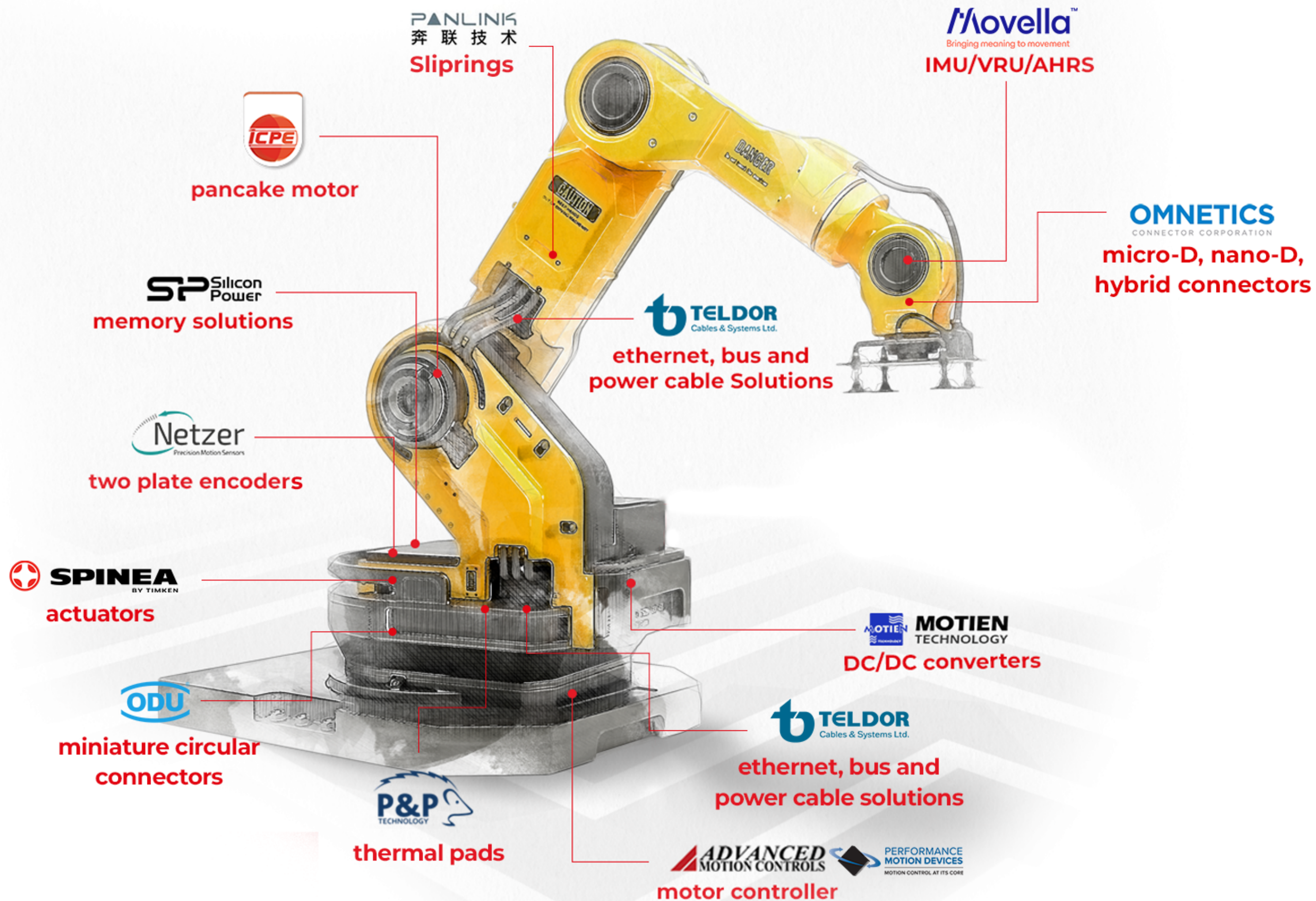




robotic arm

Robotic arms are widely used in assembly lines, welding, material handling, and even surgical procedures. Robotic arms have significantly increased productivity, improved product quality, and enhanced worker safety in a wide range of fields.

manufacturers



COMPANY OVERVIEW

SynQor® is a leading supplier of power conversion solutions to the military, industrial, transportation, telecom/ datacom and medical markets. SynQor's innovative products are designed to exceed the demanding performance, quality, and reliability requirements of today's power electronic engineers and system integrators who develop leading-edge infrastructure hardware.

NIQOR NON-ISOLATED DC-DC CONVERTER



BATTER CHARGING

- ▶ Provides the power conversion platform for battery charging
- ▶ Output current limit is externally controlled for constant-current charging
- ▶ Current can be set with an external resistor or an active circuit
- ▶ Current analog signal provided for instrumentation and control functions
- ▶ Ideal diode output stage with zero back-drive currents prevents discharge of battery when not charging
- ▶ discharge of battery when not charging
- ▶ Output voltage set-point is independently controlled through trim pin
- ▶ Unit will smoothly transition between current and voltage modes as charging cycle needs charge

KEY FEATURES

- ▶ Ultra-high efficiency up to 95%
- ▶ Wide input voltage ranges:
 - ▶ 9-20 V (NQ20); 9-40 V (NQ40); 9-60 V (NQ60/MCOTS-N-28V);
 - ▶ 9-90 V (NQ90/MCOTS-N-28VE)
- ▶ Non-isolated
- ▶ Buck or Buck/Boost topologies available
- ▶ Maximum input/output currents up to 55 A
- ▶ On-board input and output filtering
- ▶ No minimum load requirement
- ▶ Remote sense and wide output voltage trim
- ▶ Input under-voltage lockout (UVLO)
- ▶ Output current limit (OCP) and short circuit protection
- ▶ Output over-voltage protection (OVP)
- ▶ Thermal shutdown (OTP)
- ▶ Output voltage trim
- ▶ No maximum external output capacitance
- ▶ Active current sharing for higher power applications (half-brick only)

SYNQOR ADVANTAGES

- ▶ No maximum external output capacitance
- ▶ Higher power in smaller package sizes
- ▶ Current limit control and current monitoring
- ▶ Wide input and output voltage options
- ▶ Adjustable current limit
- ▶ Adjustable power limit

Input Voltage	9 - 20 V, 9 - 40 V, 9 - 60 V, 9 - 90 V
Output Voltage	0 - 20 V, 0 - 40 V, 0 - 60 V, 0 - 90 V
Output Power	120 W - 2000 W
Output Current	5 A - 55 A
Full Load Efficiency	Up to 96%
Industrial Operating Temperature	-40°C to +100°C
Military Operating Temperature	-55°C to +100°C



ISOLATED DC-DC CONVERTERS													
12 VDC INPUT (9-22 VDC INPUT RANGE, TRANSIENT 25 V)													
	VOUT	1.8 V	3.3 V	5 V	7 V	12 V	15 V	24 V	28 V	30 V	40 V	48 V	
Half Brick	HPC	60 A 108 W	V 50 A 165 W	36 A 180 W		15 A 180 W	12 A 180 W	7.5 A 180 W	6.5 A 182 W		4.5 A 180 W	3.7 A 178 W	
	HTC	50 A 90 W	40 A 132 W	28 A 140 W		12 A 144 W	9.5 A 143 W	6 A 144 W	5 A 140 W		3.5 A 140 W	3 A 144 W	
Quarter Brick	QTC	40 A 72 W	30 A 99 W	20 A 100 W	14 A 98 W	8 A 96 W	7 A 105 W	4 A 96 W		3 A 90 W		2 A 96 W	
	QGC	30 A 54 W	20 A 66 W	15 A 75 W	10 A 70 W	6 A 72 W	5 A 75 W	3 A 72 W		2.4 A 72 W		1.5 A 72 W	
24 VDC INPUT (18-36 VDC INPUT RANGE, TRANSIENT 50 V)													
	VOUT	1.8 V	3.3 V	5 V	7 V	12 V	15 V	24 V	28 V	30 V	40 V	48 V	50 V
Half Brick	HZC			60 A 300 W		42 A 504 W	34 A 510 W	21 A 504 W	18 A 504 W		12.5 A 500 W		10 A 500 W
	HEC								14 A 392 W				8 A 400 W
	HPC	60 A 108 W	50 A 165 W	40 A 200 W		8 A 216 W	8 A 216 W	9 A 216 W	7.5 A 210 W		10 A 500 W	4.5 A 216 W	
	HTC	50 A 90 W	40 A 132 W	30 A 150 W		13 A 156 W	10 A 150 W	6.5 A 156 W	5.5 A 154 W		4 A 160 W	3.3 A 158 W	
Quarter Brick	QTC	40 A 72 W	30 A 99 W	20 A 100 W	14 A 98 W	8 A 96 W	8 A 120 W	5 A 120 W		4 A 120 W		2.5 A 120 W	
	QGC	32 A 58 W	25 A 83 W	18 A 90 W	13 A 91 W	7.5 A 90 W	6 A 90 W	3.7 A 89 W		3 A 90 W		1.8 A 91 W	
	QMC									2 A 60 W		1.2 A 58 W	
Sixteenth Brick	SGC		15 A 50 W	10 A 50 W	7 A 49 W	4 A 48 W	3.3 A 48 W	2 A 48 W	1.8 A 50 W			1 A 48 W	
48 VDC INPUT (34-75 VDC INPUT RANGE, TRANSIENT 100 V)													
	VOUT	1.8 V	3.3 V	5 V	7 V	12 V	15 V	24 V	28 V	30 V	40 V	48 V	50 V
Half Brick	HZC			60 A 300 W		50 A 600 W	40 A 600 W	25 A 600 W	21.5 A 602 W		15 A 600 W		12 A 600 W
	HPC	60 A 108 W	60 A 198 W	46 A 230 W		21 A 252 W	17 A 255 W	10.5 A 252 W	9 A 252 W		6.3 A 252 W	5.2 A 250 W	
	HTC	50 A 90 W	45 A 149 W	34 A 170 W		16 A 192 W	13 A 195 W	8 A 192 W	7 A 196 W		5 A 200 W	4 A 192 W	
Quarter Brick	QTC	40 A 72 W	30 A 99 W	25 A 125 W	20 A 140 W	12 A 144 W	10 A 150 W	6 A 144 W		5 A 150 W		3 A 144 W	
	QGC	32 A 58 W	25 A 83 W	21 A 105 W	15 A 105 W	9 A 108 W	7 A 105 W	4.5 A 108 W		3.5 A 105 W		2.2 A 106 W	
Sixteenth Brick	SGC	28 A 50 W	15 A 50 W	10 A 50 W	7 A 50 W	4.1 A 50 W	3.3 A 50 W		1.8 A 50 W				
72 VDC INPUT (42-110 VDC INPUT RANGE)													
	VOUT	1.8 V	3.3 V	5 V	7 V	12 V	15 V	24 V	28 V	30 V	40 V	48 V	
Half Brick	HPC	60 A 108 W	60 A 198 W	46 A 230 W		21 A 252 W	17 A 255 W	10.4 A 250 W	9 A 252 W		6.3 A 252 W	5.2 A 250 W	
	HTC	50 A 90 W	45 A 149 W	34 A 170 W		16 A 192 W	13 A 195 W	8 A 192 W	7 A 196 W		5 A 200 W	4 A 192 W	
Quarter Brick	QTC		30 A 99 W	25 A 125 W	20 A 140 W	12 A 144 W	10 A 150 W	6 A 144 W		5 A 150 W		3 A 144 W	
	QGC		5 A 83 W	20 A 100 W	15 A 105 W	9 A 108 W	7 A 105 W	4.5 A 108 W		3.5 A 105 W		2 A 96 W	
110 VDC INPUT (66-160 VDC INPUT RANGE, TRANSIENT 170 V)													
	VOUT	3.3 V	5 V	7 V	12 V	15 V	24 V	28 V	30 V	40 V	48 V		
Half Brick	HPC	60 A 198 W	48 A 240 W		21 A 252 W	17 A 255 W	10 A 240 W	9 A 252 W					
	HTC	45 A 149 W	34 A 170 W		16 A 192 W	13 A 195 W	8 A 192 W	7 A 196 W					
Quarter Brick	QTC	30 A 99 W	25 A 125 W	20 A 140 W	12 A 144 W	10 A 150 W	6 A 144 W		5 A 150 W				
	QGC	23 A 76 W	18 A 90 W	15 A 105 W	9 A 108 W	7 A 105 W	4.5 A 108 W		3.5 A 105 W				

Product Family Matrix					
Input Voltage Range	2:1 Input Ratio			8:1 Input Ratio	
	9 V	IQ12 Input Range: 34-75 V Transient: 100 V Max Power: 602 W Eff: Up to 95%	IQ24 Input Range: 18-36 V Transient: 50 V Max Power: 510 W Eff: Up to 95%	IQ32 Input Range: 9-75 V Transient: 100 V Max Power: 255 W Eff: Up to 92%	IQ64 Input Range: 18-135 V Max Power: 200 W Eff: Up to 91%
	18 V				
	25 V	IQ48 Input Range: 34-75 V Transient: 100 V Max Power: 602 W Eff: Up to 95%	IQ24 Input Range: 18-36 V Transient: 50 V Max Power: 510 W Eff: Up to 95%		
	34 V				
	75 V	IQ42H Input Range: 90-210 V Transient: 250 V Max Power: 150 W Eff: Up to 90%	IQ1B Input Range: 66-160 V Transient: 170 V Max Power: 255 W Eff: Up to 93%		
	100 V				
	170 V		IQ4H Input Range: 18-36 V Transient: 50 V Max Power: 510 W Eff: Up to 95%		
475					

Product Family Matrix					
Input Voltage Range	4:1 Input Ratio			12:1 Input Ratio	
	9 V	IQ12 Input Range: 9-36 V Transient: 40 V Max Power: 182 W Eff: Up to 92%	IQ36 Input Range: 18-75 V Max Power: 220 W Eff: Up to 93%	IQ90 Input Range: 34-160 V Max Power: 228 W Eff: Up to 94%	IQ68 Input Range: 12-150 V Transient: 170 V Max Power: 53 W Eff: Up to 90%
	18 V				
	25 V		IQ70 Input Range: 34-135 V Max Power: 240 W Eff: Up to 93%		
	34 V				
	75 V				
	170 V				

Input Voltage	Mode	Output Voltage	Package Size	Series	Thermal Design	Maximum Current	Options Description:		
							Enable Logic	Pin Length	Feature Set
IQ	12: 9-22 V	012: 1.2 V	S: Sixteenth Brick Q: Quarter Brick H: Half Brick F: Full Brick	K: Kilo M: Mega G: Giga T: Tera P: Peta E: Exa Z: Zeta	C: Encased D: Encased, Non-threaded Baseplate V: Encased, Flanged Baseplate	60: 60 A 50: 50 A 30: 30 A 10: 10 A 06: 6 A 02: 2 A (not all shown)	N: Negative	K: 0.110" N: 0.145" R: 0.180" Y: 0.250"	S: Standard (1/8 & ¼ only) C: Current monitor output/trimmable current limit (1/8 & ¼ only) F: Current share/trimmable current limit (half brick only)
	18: 9-36 V	015: 1.5 V							
	24: 18-36 V	018: 1.8 V							
	32: 9-75 V	025: 2.5 V							
	36: 18-75 V	033: 3.3 V							
	48: 34-75 V	050: 5 V							
	64: 18-135 V	070: 7 V							
	68: 12-150 V	120: 12 V							
	70: 34-135 V	150: 15 V							
	72: 42-110 V	240: 24 V							
	90: 34-160 V	280: 28 V							
	1B: 66-160 V	300: 30 V							
	2H: 90-210 V	400: 40 V							
	4H: 180-425 V	480: 48 V							
		500: 50 V							



MOTIEN TECHNOLOGY

www.motien.com.tw

COMPANY OVERVIEW

MOTIEN Technology is the professional and leading manufacturer of power solution since the establishment on 1998, with the great efforts and continually improvement for decades on power supplies, the brand MOTIEN has become well known and a symbol of quality and preferred & trusted DC power source.

Motien has more than 30 series of DC/DC converters, LED drivers and AC/DC converter modules. Products are widely built in modern electronic equipments: Industries Automation equipments, Telecommunication equipments, instruments, transportation system, medical equipments etc.

PRODUCT GROUPS



ISOLATED DC/DC CONVERTERS

- ▶ SIP-Packages
- ▶ DIP-Packages

NON - ISOLATED DC/DC CONVERTERS

- ▶ SIP-Packages
- ▶ SMD-Packages

LED DRIVERS

General Specifications:

- ▶ Power rating: 0.25W~60W
- ▶ DC / DC converters, LED drivers
- ▶ Customized products
- ▶ Minor change of standard product
- ▶ New product development

RAILWAY SERIES

SMD SERIES

MOVELLA

www.movella.com

COMPANY OVERVIEW

Movella is the leading innovator in 3D motion tracking technology and products. Our sensor fusion technologies enable a seamless interaction between the physical and the digital world in consumer electronics devices and professional applications such as Motion Capture, Motion Analysis, healthcare, sports and industrial applications.



MTI-600 SERIES



- Fully supported by the MT Software Suite (free use), enabling our customers a faster time to market
- Small footprint, flexible mounting options
- Industrial grade accuracy & reliability at affordable pricing, 100% calibrated and tested
- Rich interface platform, incl. CAN bus support
- External and internal GNSS-RTK receiver support
- Advanced proprietary XKF3 core sensor fusion algorithms
- State-Of-The-Art hardware components
- Extensive technical support
- RTK Solution
- ITAR-free

MTI 100 SERIES



- Highest performance with resistance to magnetic distortions
- Vibration-rejecting gyroscopes and accelerometers
- Configurable output settings, synchronizes with any 3rd party device








MTI-G-710



- All-in-one sensor system with high-frequency position and orientation output
- Excellent heading tracking without requiring a magnetic field
- Configurable output settings, synchronizes with any 3rd party device

	ROLL/PITCH STATIC	ROLL/PITCH DYNAMIC	YAW	SENSOR FUSION CORE	POSITION & VELOCITY
MTi 1-series					
MTi-1 IMU	-	-	-	-	-
MTi-2 VRU	0.5°	0.8°	AHS	XKF	-
MTi-3 AHRS	0.5°	0.8°	2.0°	XKF	-
MTi-7 GNSS/INS	0.5°	0.5°	1.5°	XKF	1 m 0.05 m/s
MTi 600-series					
MTi-610 IMU	-	-	-	-	-
MTi-620 VRU	0.2°	0.5°	AHS	XKF	-
MTi-630 AHRS	0.2°	0.5°	1.0°	XKF	-
MTi-670 GNSS/INS	0.2°	0.5°	1.0°	XKF	1m 0.05m/s
MTi-680G RTK-GNSS/INS	0.2°	0.5°	1.0°	XKF	0.05m / 0.05m/s
MTi 10-series					
MTi-30 AHRS	0.2°	0.5°	1.0°	XKF	-
MTi 100-series					
MTi-100 IMU	-	-	-	-	-
MTi-200 VRU	0.2°	0.3°	AHS	XEE	-
MTi-300 AHRS	0.2°	0.3°	1.0°	XEE	-
MTi-G-710 GNSS/INS	0.2°	0.3°	0.8°	XEE	1 m 0.05 m/s

REAL-TIME SENSOR FUSED DATA

		IMU ⁽¹⁾	VRU ⁽²⁾	AHRS ⁽³⁾	GNSS/INS ⁽⁷⁾	RTK-enabled GNSS / INS ⁽⁸⁾	RTK-enabled VINS
		Intertial Measurement Unit	Vertical Reference Unit	Attitude and Heading Reference System	GNSS / GPS enabled Intertial Navigation System	Real Time Kinematics	Attitude and Heading Reference System
	Gyroscope	Roll	Roll	Roll	Roll	Roll	Roll
	Accelerometer	Pitch	Pitch	Pitch	Pitch	Pitch	Pitch
	Magnetometer	Unref. Yaw	Unref. Yaw	Unref. Yaw	Unref. Yaw	Unref. Yaw	Unref. Yaw
	Barometer				3D Position	<u>cm-level</u> 3D Position	3D Position
	GNSS Receiver				3D Velocity	3D Velocity	3D Velocity
					GNSS Time	GNSS Time	GNSS Time
	RTK Corrections						
	Camera (B&W) & Wheel Odometry <small>(External Source)</small>						Long term dead-reckoning

COMPANY OVERVIEW

ADVANCED Motion Controls has earned a reputation for being the most flexible and affordable manufacturer of quality high performance and high power density servo drives. By selecting ADVANCED Motion Controls as your servo drive and controls supplier, you will be adding an integral member to your design engineering team with multi-industry expertise. 30+ years of servo drive manufacturing, with nearly 3 million servo axes built and shipped worldwide!



ANY NETWORK



We also have the ability to quickly produce custom DigiFlex® Performance™ drives utilizing many other common types of network communication.

ANY MOTOR

Three Phase (Brushless)	Single Phase
<ul style="list-style-type: none">▶ Servo – BLDC, PMAC▶ AC Induction (Closed loop vector)▶ Closed loop stepper	<ul style="list-style-type: none">▶ Brushed▶ Voice coil▶ Inductive load

ANY FEEDBACK

ABSOLUTE ENCODER	Tachometer
<ul style="list-style-type: none">▶ EnDAT®▶ Hiperface®▶ BiSS®C – Mode	<ul style="list-style-type: none">▶ ±10 Vdc▶ ±60 Vdc
1 VP – P SIN/COS ENCODER	Aux. Incremental Encoder
INCREMENTAL ENCODER	Resolver
±10 Vdc position	Hall Sensors

ANY CONTROLLER

Digital or analog controllers	Digital or analog controllers
<ul style="list-style-type: none">▶ ±10 Vdc▶ PWM and Direction▶ Step and Direction	<ul style="list-style-type: none">▶ 0 – 5 V (Standard, Inverted or Wigwag)▶ 0 – 5 kW (Standard, Inverted or Wigwag)

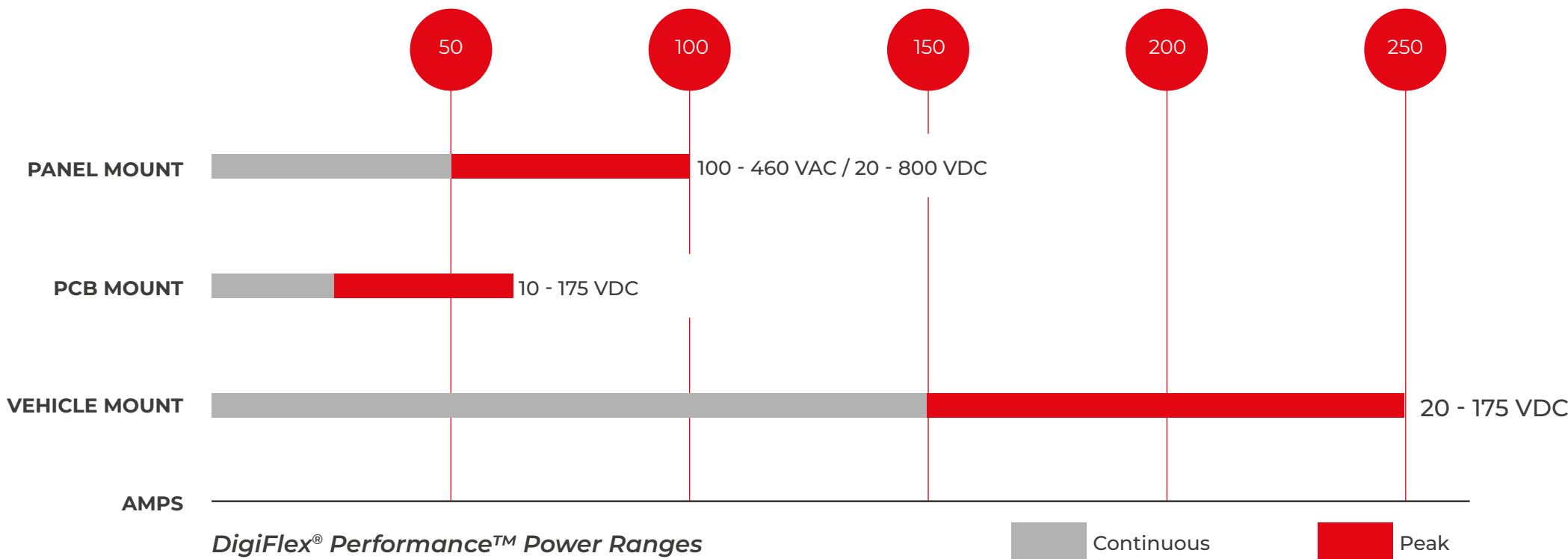
ANY ENVIRONMENT

Extreme Ambient Temperatures	Component Temperature Protection
<ul style="list-style-type: none">▶ Standard products range from -40°C to +85°C▶ Custom products operate down to -50°C and lower, and +100°C and higher!	<ul style="list-style-type: none">▶ Ø PCB operating temperatures up to 105°C

• **ADVANCED Motion Controls Advantages:**

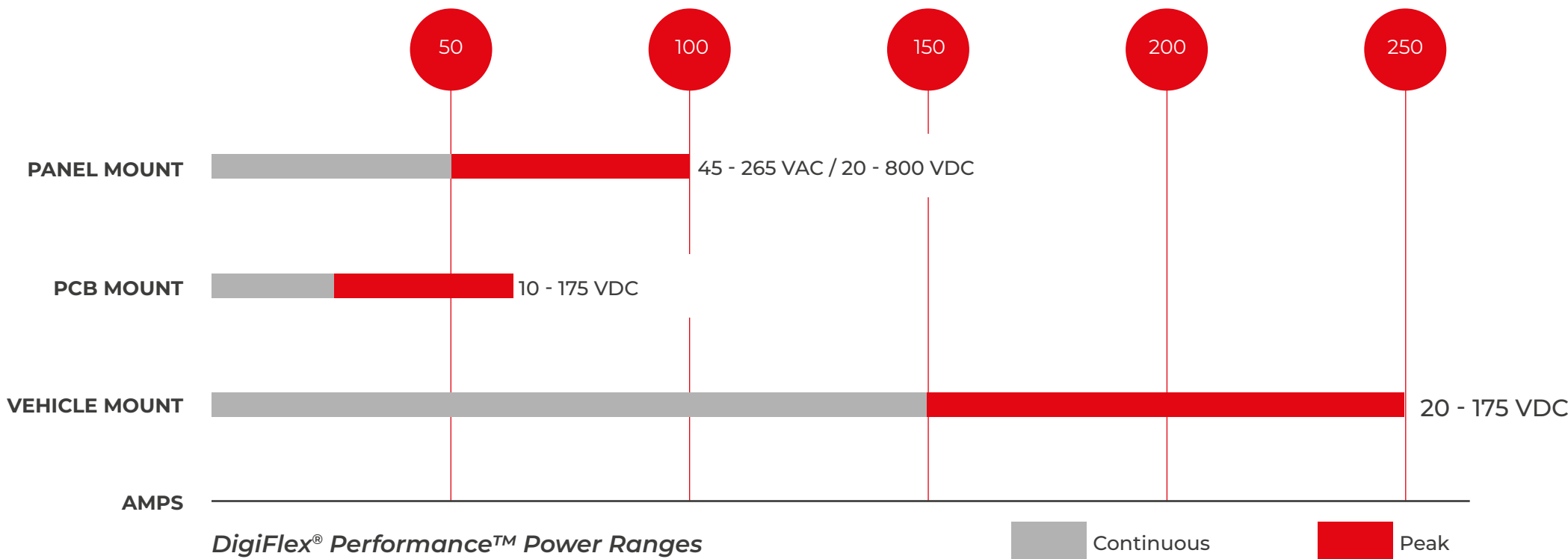
- Battery supplied, mobile operation needing 8+ hours duty / 7-day standby capability
- • ≥98% efficiency to extend overall battery life
- • Multiple power demands
- • Common control system dictated same servo drive interface but with models having different power levels
- • Minimal maintenance
- • Operation typically in remote locations
- • Long service life expected

• **DigiFlex® Performance™ Servo Drives**



- Peak power output up to 27.4kW
- Three phase brushless (servo, closed loop vector, closed loop stepper)
- Single phase (brushed, voice coil, inductive load) motors
- Variety of feedback options - Absolute Encoder (EnDat®, Hiperface®, BiSS® C-Mode), Incremental Encoder, Hall Sensors, Resolver, 1Vp-p Sin/Cos Encoder, Tachometer
- Compatible with DriveLibrary™ - ADVANCED Motion Controls' API for C++ motion programming

• **AxCent™ Servo Drives**



- Unparalleled benefits in both simplicity and performance,
- NOT require computer hardware or software,
- Higher bandwidth and faster response times at a lower cost,
- Including ±10V analog, PWM and Direction, and specialized electric vehicle commands,
- Optical isolation between high and low power signals standard on certain models
- Current, Velocity, and Fault Monitor analog output signals

• **Extended Environment products (AZX – DZX Series)**

ADVANCED Motion Controls' Extended Environment products are designed to operate under harsh thermal and mechanical extremes.

- Ambient operating temperatures from -40°C to 85°C
- Over Temperature up to 105°C
- Thermal rise cycling in about 2 minutes
- Shock up to 15g's at 11ms
- Vibration up to 30grms on all 3 axes
- Designed to assist system compliance toward: MIL-STD-810F: temperature, thermal shock, humidity, altitude, shock & vibration



COMPANY OVERVIEW

ICPE or Institutul de Cercetări Electrotehnice® was established over 65 years ago. The modern research infrastructure, obtained successfully following the performance of local and international projects, is a solid basis for further research in electrical engineering, and related fields.

DC BRUSHED TORQUE MOTORS

DC Torque Motors operate on the same principles as the conventional DC motors but the magnetic circuit design and consequent mechanical configuration are designed for maximum torque output rather than the usual low torque / high speed characteristic. Arrange of unoused units which are supplied as three separate components, a permanent magnet field assembly, a wound armature with precision bore for mounting and a brush ring assembly or brush segments.

Fixed element – the stator, is equipped with rare earth permanent magnets and the rotor is equipped with a dc specific winding which is connected to an extra flat commutator – brushed system. Low speed Torque Motors are beneficial for direct-drive applications. Position and velocity feedback can be achieved via additions of DC Tachos, Resolvers or Optical Encoders. The unoused motors described below can be offered in custom designed housings for specific applications.



PRODUCT CODE	PEAK TORQUE [mNm]	TORQUE SENSITIVITY [mNm/A]	MOTOR CONSTANT [mNm/W]	OUTSIDE DIAMETER [mm]	HEIGHT [mm]
TQRB-15-0.39	77.7	25,1	10,3	38,10	9,78
TQRB-15-0.51	127	36,3	13,9	38,10	12,95
TQRB-15-0.51-B	141	32,4	16	38,10	12,95
TQRB-15-1.03	333	83,2	39,2	38,10	26,00
TQRB-15-1.1	353	50,4	28,3	38,10	27,94
TQRB-20-1.14	1200	150	86,6	51,00	29,00
TQRB-24-1-C	600	195	68,2	60,32	25,40
TQRB-30-0.78	777	256	87,4	76,20	19,80
TQRB-34-0.51	883	160	74,1	85,725	12,95
TQRB-34-0.95-A	2048	438	195	85,725	24,40
TQRB-34-1.46	3140	551	271	85,725	36,90
TQRB-37-0.54	1060	210	85,4	92,075	13,72
TQRB-37-0.54-B	1060	158	85,4	92,075	13,72
TQRB-37-0.84	2120	358	156	92,075	21,33
TQRB-37-1.46	4000	681	341	92,456	37,008
TQRB-45-0.56	2300	340	146	114,3	14,22
TQRB-45-0.69-B	3250	542	238	114,3	17,45
TQRB-45-0.69-C	3250	963	238	114,3	17,45
TQRB-45-0.86	4590	715	277	114,3	21,84
TQRB-45-1.08	6510	838	401	114,3	27,28
TQRB-51-0.58	2825	251	180	130,175	14,73
TQRB-51-0.93	2800	1400	422	130,175	23,9
TQRB-51-1.0	4800	1200	490	130,175	25,5
TQRB-51-2.1	10000	1515	716	130,175	53,34

D.C. LIMITED ANGLE BRUSHLESS TORQUE MOTORS

Limited Angle Torque Motors are ideal for compact, limited angular excursion, rotary, closed loop servo applications. Operating in the system, these units endure a long storage life and a harsh thermal and mechanical environment. All motors consist of a housed stator with a high density winding around a steel core, molded in a special resin. The rotor is build from high-grade samarium cobalt magnets or neodymium, on a stainless steel core.

- Advantages
- No Torque Ripple

High Angular Acceleration

No Commutation

Brushless

Low Profile



AC SERVO MOTORS – BSM SERIES

BSM Series motors are available with high energy Nd-Fe-B magnets - 6 (six) magnetic poles - F Class Insulation - standard feedback system with resolver - winding protection with PTC - Standard protective structure is IP55 class - torque range from 0.1 to 20 Nm - high torque to weight ratios - superior low speed performance - very low inertia.

In this motor range below options are also available:

- Shaft with keyway according to DIN 6885
- Fail safe brake 24 VDC,
- Shaft seal ring,
- Additional feedback systems (encoder),
- Protection class IP65,
- Custom windings,
- Special dimensions and configurations.

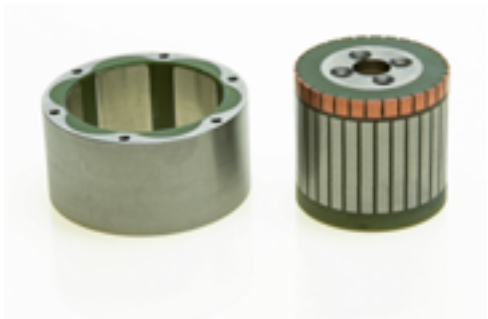


SINUSOIDAL OUTPUT TRANSDUCERS – RESOLVERS

Resolvers which are directly supplied on the rotor winding, used on either limited angle, case in which they are supplied by means of flexible cables or on 360 degrees and, in this case, they are supplied through some collecting rings, as well as resolvers supplied by means of rotary transformer with a constant transformation ratio and the input and output winding terminals on the stator.

Advantages

- Used as an absolute angle transducer,
- Resistance to mechanical stresses,
- Operation within a wide temperature range.



OUTER ROTOR BRUSHLESS MOTOR

PARAMETER	SYMBOL	UNITS	VALUE
Nominal Torque	M _n	Nm	9
Peak Torque	M _{max}	Nm	27
Motor Constant	K _M	N/W	1,4
Voltage	V _{DC}	V	600
Nominal Current	I _n	A	8,3
Torque Constant	K _T	Nm/A _{ms}	1,08
Back EMF Constant	K _E	V _{ms} /krpm	67
No-Load Speed		rpm	7000
Number of Poles	N _p		10
Phase Connection			Y
Line-to-Line Resistance	R _L	Ω	0,4
Line-to-Line Inductance	L _L	mH	5,3
Electric Time Constant	T _E	ms	13,2
Insulation Class			H
Thermal Resistance	T _R	°C/W	1,7
External Diameter	OD	mm	170
Stator/Rotor Length	L	mm	28
Motor Length	TL	mm	55
Inertia	J	kg cm²	105
Weight	Wt	kg	4,2

The stator is a laminated steel core with a three phase windings. The high energy permanent magnets outer rotor configuration provides a more rigid structure for the permanent magnets and has higher inertia.

Advantages

- High torque due to large air gap radius,
- Stable low speed performance without feedback,
- Lower audible noise with reduced cogging.

Other Product Groups

As the company is established to customize different electrical machines there are many different products that ICPE can offer as following:

- Flat brushless servo motors,
- Precision small brushless motors,
- AC servo motors,
- Linear motors,
- Electric generators,
- 2-D robot tables.



SPINEA

www.spinea.com

COMPANY OVERVIEW

The products of the company are suitable for applications, which require high reduction gear ratio, high kinematic precision, zero backlash motion, high torque capacity, high rigidity, compact design in a limited installation space, as well as low weight. They are widely used in automation and industrial robotics, in the field of machine tools manufacturing, in navigation and camera equipment, medical systems and many other fields.

Through intensive development and sales activities, in the course of several years, SPINEA, s.r.o. started to succeed among other manufacturers of high-precision reduction gears.

SPINEA enjoys the membership of international robotics associations, such as the International Federation of Robotics, EU Robotics as well as the German Engineering Federation - VDMA.

• Reduction Gears - Twinspin



The notion “high precision reduction gear” designates the full integration of high precision reduction gear and high precision radial-axial bearing in a single unit. TwinSpin® high precision reduction gears are designed for applications requiring a high reduction ratio, high kinematic accuracy, low lost motion, high moment capacity and high stiffness of a compact design with a limited installation zone, and low mass.

• Actuators



The actuators of the DriveSpin® series combine optimized servomotors and TwinSpin gears, resulting in a dynamic, high performance, and very compact servo actuator with high tilting torque capacity with integrated bearing. The main characteristics of the DriveSpin® actuators include compact design, zero backlash, high dynamic performance, high torsional and tilting stiffness, small size, low mass, simple installation, high load capacity of radial-axial output bearing and easy maintenance.

NETZER

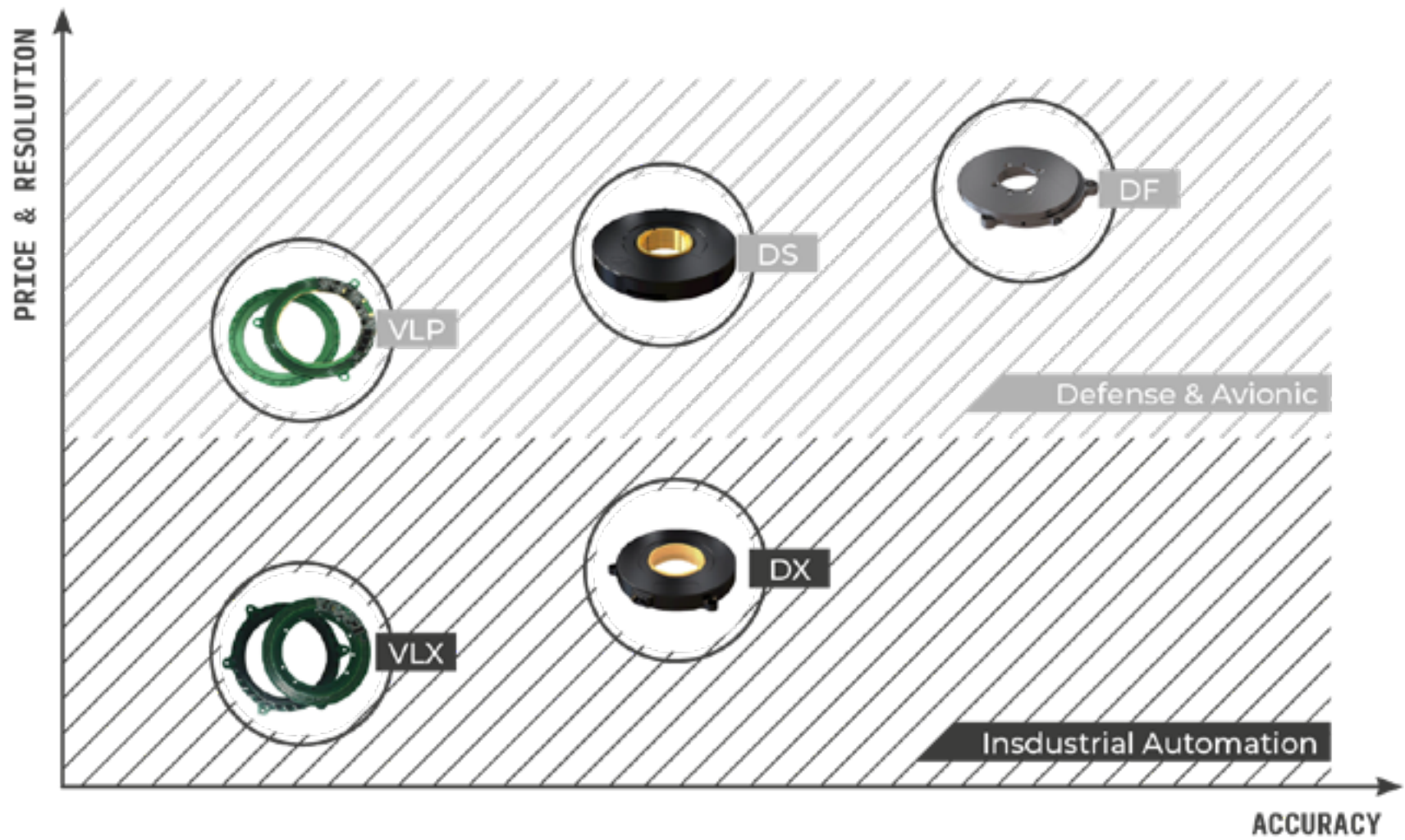
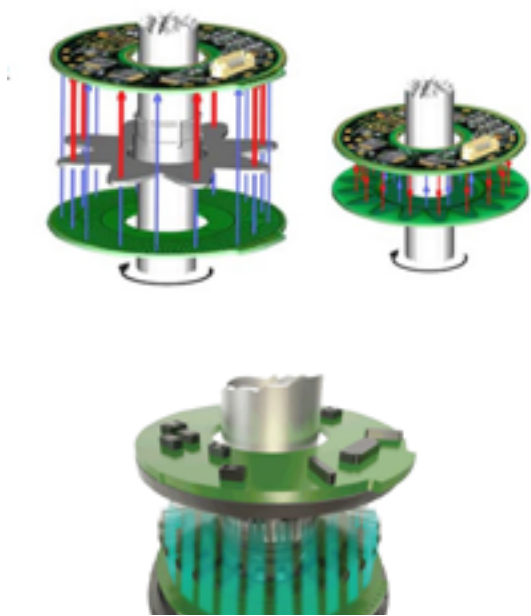
www.netzerprecision.com

COMPANY OVERVIEW

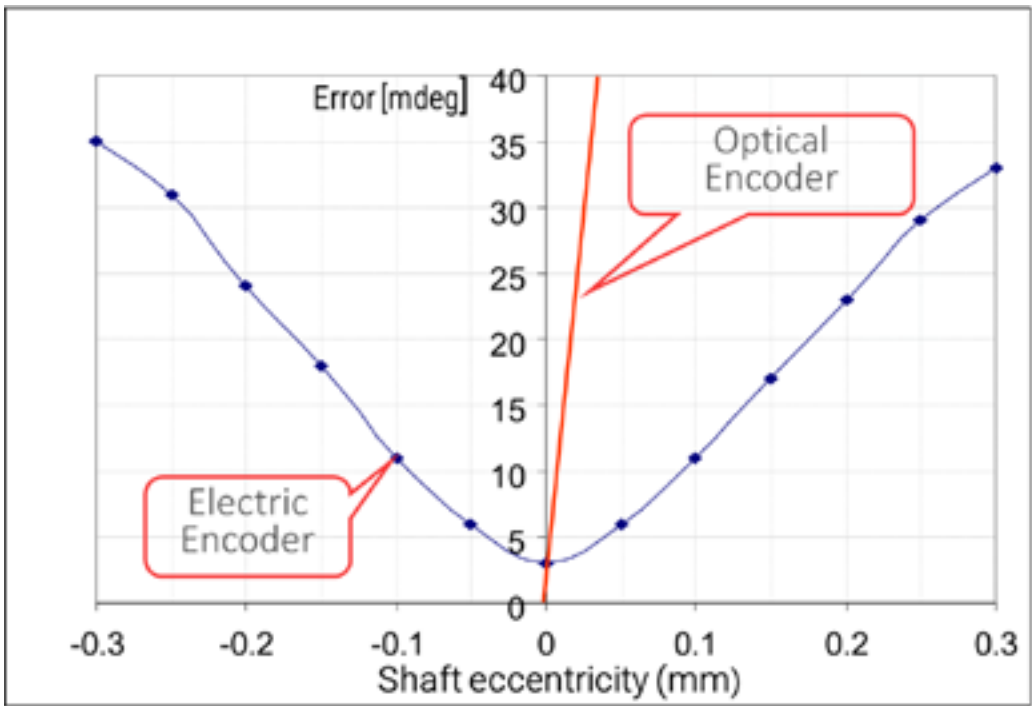
Electric Encoder™ Netzer’s world-wide patented, rugged high performance Electric Encoder™ technology, suits a wide variety of applications ranging from space and avionics, through military and defense, to instrumentation and automotive. The product portfolio includes Rotary & Linear absolute or incremental position encoders, with analog or digital outputs.

The Non-contact, absolute-position relies on interaction between the measured displacement and an internally shielded, space/time modulated, electric field and offers features unsurpassed by traditional optical and magnetic encoders.

- Advantages of Electrical Encoders
 - Simple, robust structure with a virtually no-failure-mechanism,
 - Very low weight, inertia, and profile ($\leq 10\text{mm}$),
 - Ring shaped, hollow shaft with a wide range of diameters,
 - Precision to 0.001° in selected models,
 - Default operation range from -55°C to $+125^\circ\text{C}$,
 - Insensitivity to EMI/RFI and magnetic fields,
 - Ultra-high-speed options,
 - Wide variety of position feedback protocols.
 - The company has structured its product range based

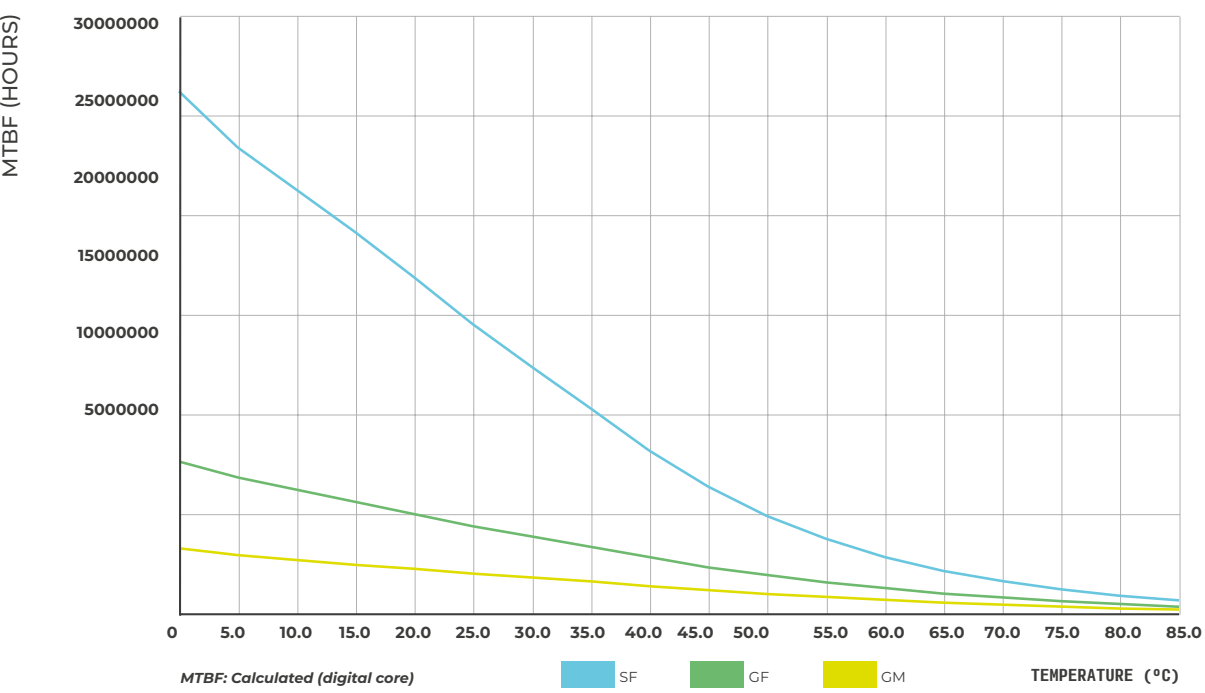


The company has structured its product range based on price performance criteria for different types of applications. For industrial applications DX and VLX products; for defense and avionic applications VLP, DS and DF products are available.



Netzer products are also verified with their high MTBF as shown in below diagram.

T (°C)	MTBF (HOURS)		
	GF (ground fixed)	GM (ground mobile)	SF (space flight)
25°	4,300,000	2,000,000	1,500,000
85°	450,000	300,000	750,000



● **DF, VLX and vlp Series**

PRODUCT CODE	OD MM	ID MM	HEIGHT MM	RESOLUTION	ACCURACY	INTERFACE
DF - 60	60	30	10	18 bit	< 0.015°	SSI / BISS - C
DF - 100	100	57	10	18 bit	< 0.015°	SSI / BISS - C
DF - 150	150	110	13	18 bit	< 0.015°	SSI / BISS - C

PRODUCT CODE	OD-MM	ID-MM	HEIGHT-MM	WEIGHT-GR	RESOLUTION	ACCURACY	INTERFACE
VLX-60	60	25	8	14	18-20 bit	±0.010°	SSi / BiSS-C
VLP-60	60	25	6	16	18-20 bit	±0.010°	SSi / BiSS-C
VLP-100	100	48	7	42	18-20 bit	±0.006°	SSi / BiSS-C

● **DS Series**

POLYMER HOUSING	DS - 25	DS - 37	DS - 58	DS -70	DS - 90	DS - 130
FUNCTIONAL						
Angular resolution	17 bits	17 bits	18 bits	19 bits	19 bits	19 bits
Accuracy	<± 25 mdeg°	<± 25 mdeg°	<± 20 mdeg°	<± 15 mdeg°	<± 10 mdeg°	<± 10 mdeg°
Maximum usable speed	3,000 rpm		750 rpm		750 rpm	
Measurement range	Unlimited rotation - 360°					
MECHANICAL						
Total weight	4 gr	10 gr	36 gr	50 gr	50 gr	65 gr
Outer diameter / Inner diameter / Profile	25 / 6 / 7 mm	37 / 10 / 8 mm	58 / 20 / 10 mm	70 / 30 / 10mm	90 / 50 / 10 mm	130 / 90 / 10 mm
Construction material (stator/rotor)	Ultem™ Polymer					

● **DL Series**

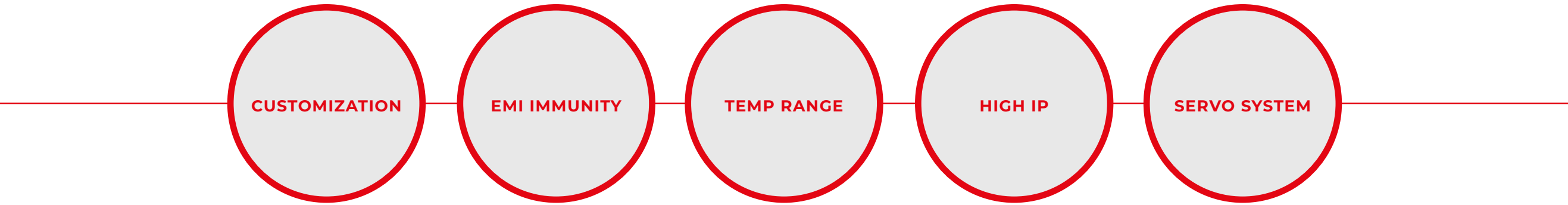
- IP65 sealed metal housing
- Max shaft radial force: 100 N

PRODUCT CODE	OD MM	ID MM	HEIGHT MM	RESOLUTION	ACCURACY	INTERFACE
DL - 25	25	Shaft 4 mm		17 bit	< 0.030°	Digital SSI / BISS
DL - 66	95	Shaft 8 mm		18 bit	< 0.030°	Digital SSI / BISS

COMPANY OVERVIEW

Panlink focuses on high end slip rings’ R&D and manufacturing for 16 years with nearly 100 employees and 3000 square meters production area. The company has powerful R&D and management team providing cutting edge design and process technology.

Product range is very diverse such as military, wind turbine, heavy machinery, large CT, hybrid slip rings etc. to worldwide clients.



• Typical Applications

A slip ring can be used in any electromechanical system that requires unrestrained, intermittent or continuous rotation while transferring power and / or data.

- Defense
- Medical equipment
- Wind power
- Oil exploration
- Environment treatments
- Antenna systems
- Aviation & Navigation
- Robotics
- Port equipment
- Cable reel
- Offshore platform

• Slip Ring Solutions

- Support all kinds of signals and communication protocols.
- Electrical, FORJ, RF and media channels can be flexibly combinedEnvironment treatments.
- Experienced in slip ring solutions for used in SIEMENS and other brand servo-drive systems.
- Can provide suitable slip ring solutions for use in various harsh environments.

• Communication Protocol



• Practical Applications



Multi-channel air hybrid
slip ring



Multi-channel FORJ



Servo system slip ring



Non-contacting slip ring



Pancake slip ring

• **Ultra Miniature Slip Rings for Airborne Fields**

Recommended model: PSR-TM10S

PSR-TM10S is the first ultra-miniature slip ring in China market. With 5.9mm dia x 7.62mm flange, it can provide 1~10 circuits power and signal transfer. Stainless steel housing, hard gold contact materials, V-shape groove design, low torque, low wear, ensure sensor and thermocouples etc. weak signals’ reliable transmission.

• **Typical Applications**

- Aircraft electro-optical pod
- Missile guidance system

• **Multi-circuits Military Slip Rings**

Recommended model PSR-Ms

PSR-Ms series SR are specially designed for space technology experiments. 60-200 circuits optional, can provide power, analog and high speed digital signals transfer. Compliant with EMC and 3D vibration proof, ensure power and signal’s stable transmission without interference

• **Typical Applications**

- Aerospace 3D simulation motion turntable

• **Hybrid Fiber-electrical Slip Rings**

SPEC
<div><div>▶ Contactless, no friction, long lifetime up to 50M revolutions</div><div>▶ Combine various signals - video, series data, network data</div><div>▶ No signal leakage, EMI immunity</div><div>▶ Support multi-channels high speed data transmission</div><div>▶ Small size, light weight, stainless steel, suitable for airborne or marine environments</div><div>▶ With pressure compensation, good sealing, can work in undersea</div><div>▶ 7000m or space environments</div></div>

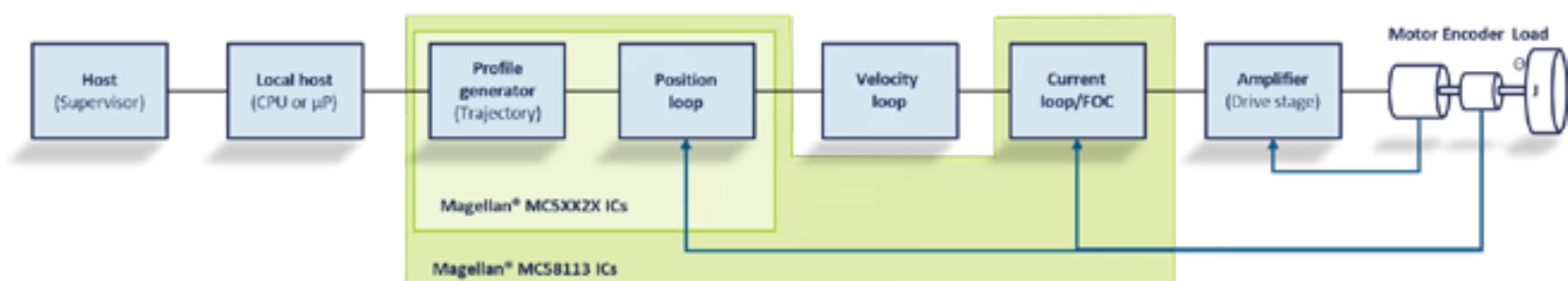
PARAMETERS
<div><div>Fiber: SM a or MM</div><div>Wavelength: 650 - 1650 nm</div><div>Insertion loss: <2 dB (typical: <0.5 dB)</div><div>Return loss: >40 dB (typical:45 dB, 2323 C), >50 dB (MJXA)</div></div>



COMPANY OVERVIEW

ADVANCED Motion Controls has earned a reputation for being the most flexible and affordable manufacturer of quality high performance and high power density servo drives. By selecting ADVANCED Motion Controls as your servo drive and controls supplier, you will be adding an integral member to your design engineering team with multi-industry expertise. 30+ years of servo drive manufacturing, with nearly 3 million servo axes built and shipped worldwide!

MAGELLAN POSITIONING IC FAMILY



• **Magellan® MC58113 Ics**

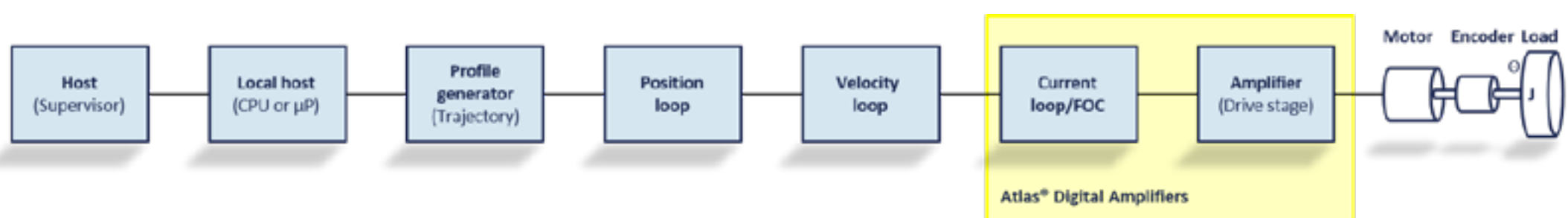
- Intelligent, single-axis
- Multi-motor
- Easy, preconfigured motion commands
- Digital current loop
- Onboard memory

• **Magellan® MC5XX2X ICs**

- Intelligent, multi-axis
- Multi-motor
- Easy, preconfigured motion commands
- Digital current loop
- Onboard memory



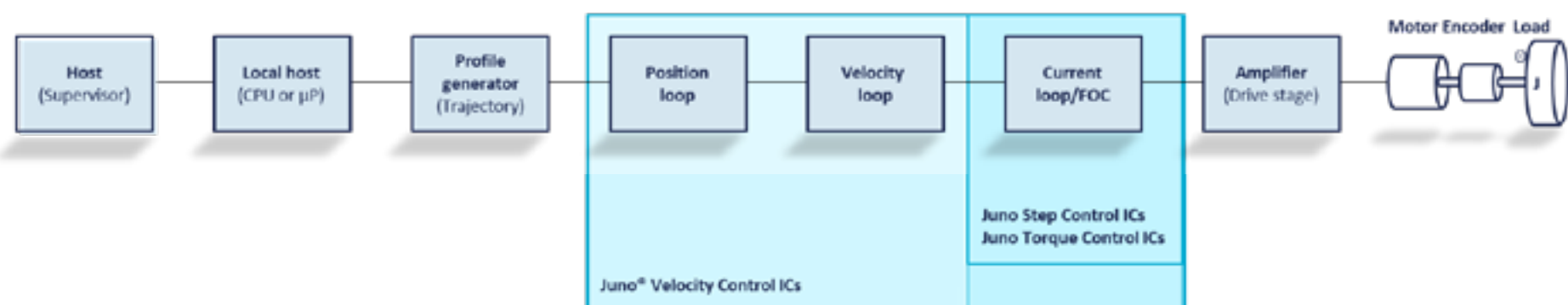
ATLAS® DIGITAL AMPLIFIERS



- Intelligent, single-axis
- Multi-motor
- Easy, preconfigured motion commands
- Digital current loop
- Onboard memory



JUNO® VELOCITY & TORQUE IC FAMILY



- Ultra-efficient performance
- Four-quadrant control
- Safety features built in






Velocity Control ICs: Sophisticated velocity and torque control of 3-phase brushless DC, DC brush, step motors or multi-motor. Step Motor Control ICs: State of the art step motor control with pulse and direction or SPI command input. Torque Control ICs: Ultra precise torque control for 3-phase brushless DC and DC brush motors with direct analog or SPI command input.






COMPANY OVERVIEW

ODU, founded in 1942, is one of the leading international suppliers of connection systems. Our company employs 1,650 people around the world. The group of companies has its headquarters in Mühldorf am Inn, Germany. ODU also has production sites in Romania, USA and China.

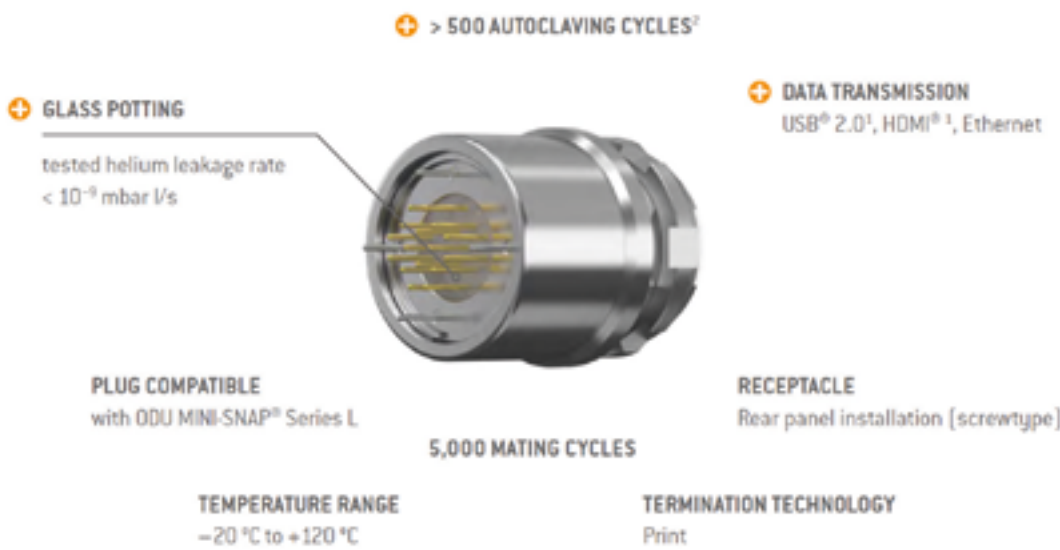
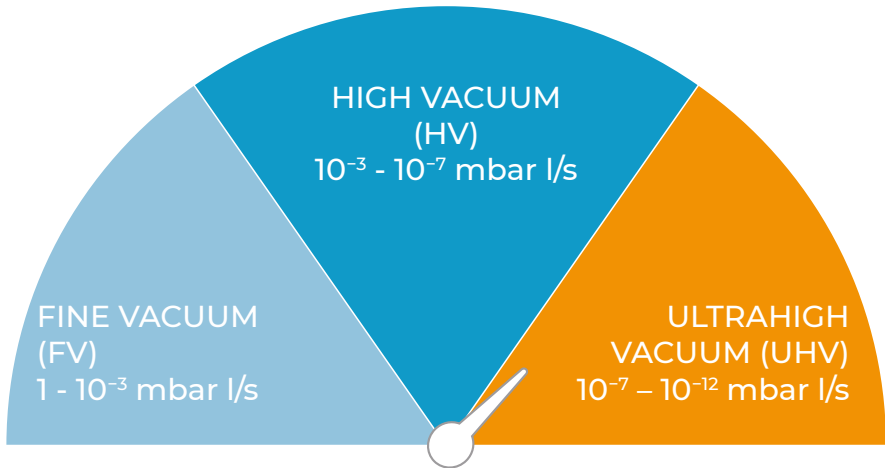
ODU AMC®

					
	ODU AMC® BREAK-AWAY	ODU AMC® PUSH-PULL	ODU AMC® EASY-CLEAN	ODU AMC® HIGH-DENSITY	ODU THREADED CONNECTOR
Mating cycles	Up To 5,000	Up To 5,000	Up To 5,000	Up To 5,000	Up To 2,000
Locking principle	Break-Away	Push-Pull	Break-Away	Break-Away	Screw Locking
Coding options (mechanical)	Pin/Groove	Pin/Groove	Pin/Groove	Pin/Groove	Pin/Groove
Coding options (optical)	Dot Marking, Color Coding	Dot Marking, Color Coding	Dot Marking, Color Coding	Dot Marking, Color Coding	Color Coding
Max. number of contacts	37	55	19	27	26
Transmission options	Signal, Data, Power	Signal,Data, Power	Signal	Signal, Data	Signal, Data, Power
Available termination technologies	Solder, PCB	Solder, PCB	Solder, PCB	Solder, PCB	Solder, PCB
Max. IP protection in mated condition	IP6K9K	IP6K9K	IP6K8 and IP6K9K	IP6K8	IP6K8

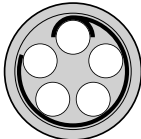
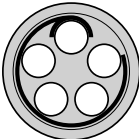
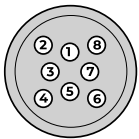
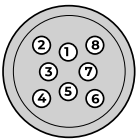
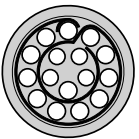
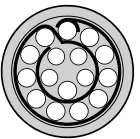
ODU MINI-SNAP®

			
	ODU MINI-SNAP® PIN AND GROOVE CODING	ODU MINI-SNAP® HALF-SHELL CODING	ODU MINI-SNAP® CODING USING SPLIT INSULATORS
Mating cycles	> 5,000	> 5,000	> 5,000
Locking principle	Push-Pull	Push-Pull	Push-Pull
Coding options (mechanical)	Pin/Groove	Half-Shell	Insulator
Coding options (optical)	Dot Marking	Dot Marking	Dot Marking
Max. number of Contacts	40/30	27	10
Transmission options	Signal, Data, Power	Signal, Data, Power	Signal, Data
Available termination technologies	Solder, Crimp, PCB	Solder, Crimp, PCB	Solder, PCB
Max. IP protection in unmated condition	IP68	IP68	IP68
Max. IP protection in mated condition	IP50/IP68	IP68	IP68




Hermetic Sealing







● ODU MINI-SNAP Hermetic Sealing Receptacles

	G80L0Q- PU5RF00-00V0	G80L0Q- PU5QF00-00V0	G81L0Q- PD8RC00-00V0	G81L0Q- PD8QC00-00V0	G82L0Q- P16RC00-00V0	G82L0Q- P16QC00-00V0
ø Panel cut-out	9.1 mm + 0.1	9.1 mm + 0.1	12.1 mm + 0.1	12.1 mm + 0.1	15.1 mm + 0.1	15.1 mm + 0.1
Number of contacts	5	5	8	8	16	16
						
Contact style	Pin	Socket	Pin	Socket	Pin	Socket
He leakage rate acc. to DIN EN 60512-14-2:2006	Tested at < 10 ⁻⁹ mbar l/s					
Insulator material	Glass + PEEK					
Data transfer protocol	USB® 2.0 ¹		Ethernet (CAT 5)		HDMI® ¹	
Data transfer rate	480 Mbit/s		1 Gbit/s		14.4 Gbit/s	
Single contact nominal current	4 A		3.8 A		4.2 A	
Nominal current insert	3 A		2.4 A		2.1 A	
Nominal voltage acc. to IEC 60664	10 V AC	7.5 V AC	32 V AC		32 V AC	

● ODU Circular Plastic Connectors

			
	ODU MEDI-SNAP® PUSH-PULL	ODU MINI-SNAP® PC	ODU MINI-MED®
Mating Cycles	2,000/5,000	> 5,000	> 1,000
Locking Principle	Push-Pull / Break-Away	Push-Pull	Break-Away
Coding Options (Mechanical)	Pin/groove	Half-shell	Pin/groove
Coding Options (Optical)	Arrow marking, color coding	Arrow marking	Arrow marking
Max. Number Of Contacts	26	27	6
Transmission Options	Signal, power, fluids (liquids and gases)	Signal	Signal
Available Termination Technologies	Solder, crimp, PCB	Solder, crimp, PCB	Solder
Max. IP Protection In Unmated Condition	IP68	IP50	IP50
Max. IP Protection In Mated Condition	IP64/ IP67	IP67	IP67

● Electrical Contacts

				
	ODU SPRINGTAC®	ODU LAMTAC®	ODU TURNTAC®	ODU SPRINGTAC® FLATSOCKET
Primary Attribute	High mating cycles	High temperature & current	Rugged	High mating cycles
Contact Technology	Springwire technology	Lamella technology	Turned, slotted contacts	Springwire technology
Reliability (Contact Points)	44 wire springs (size Ø 6 mm)	19 double contacting lamella louvres (size ø 6mm)	4 contact fingers (size Ø 6 mm)	30 wire springs (size □ 6.3 x 0.8 mm)
Nominal Current	100 A (size Ø 6 mm)	115 A (size Ø 6 mm)	100 A (size Ø 6 mm)	27 A (size □ 6.3 x 0.8 mm)
Angular Misalignment	+/- 1°	+/- 1°	+/- 5° *	
Mating Cycles	> 100,000	> 10,000	> 10,000	> 50,000
Temperature Range Standard Version	-40 °C to 125 °C	-40 °C to 150 °C	-40 °C to 125 °C	-40 °C to 125 °C
Temperature Range High-Temp. Version		on request		
Contact Size	from Ø 0.76 mm	from Ø 1.5 mm	from Ø 1.5 mm	from □ 0.64 x 0.64 mm
Standard Plating	Ag / Au	Ag / Au	Ag / Au	Ag / Au
Crimp Termination	●	●	●	●
Screw Termination	●	●	●	●
For Busbars (Through-Hole Design)	●	●		

*max. 5° misalignment in mounting position with corresponding design of the contact chamber.

OMNETICS

www.omnetics.com

COMPANY OVERVIEW

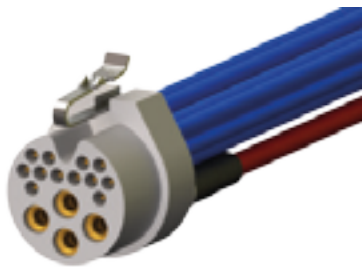
Omnetics is a world-class miniature connector design and manufacturing company with over 30 years of experience, focused on Micro-miniature and Nano-miniature highly reliable electronic connectors and interconnection systems. Our miniature connectors are designed and assembled in a single location at our plant in Minneapolis, Minnesota.

SINGLE ROW NANO-D							
Horizontal SMT (AA)	Vertical SMT (VV)	Straight Tails (DD)	Thru-Hole Horizontal (H2)	Thru-Hole Vertical (V2)	Pre-Wired (W2)	Jumpers (JU)	MILDTL-32139 QPL

LATCHING NANO-D			
Surface Mount (AA)	Flex Mount (FF)	Straight Thru-Hole (DD)	Pre-Wired (WD)

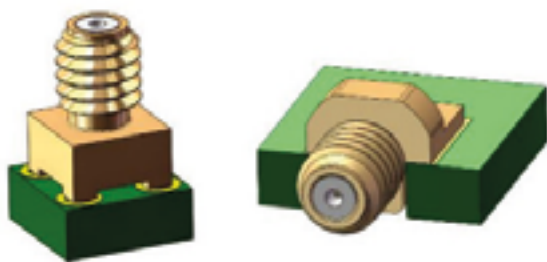
LOW PROFILE MICRO-D				
Discrete Wired (WD)	Right Angle Thru-Hole (H1)	Right Angle Thru-Hole (R2)	Solder Cup (SS)	Straight Thru-Hole (S2)

● Power and Signal Micro Hybrids: 10A, 5A, 3A



● Nano Coax Connectors

Omnetics Nano Coax contacts are available either in a Hybrid Micro-D or as a standalone contact... The standalone version provides optimal performance in one of the lowest form factors on the market. The Nano Coax contacts are designed to be terminated to a low-loss 29 AWG (.047”) 50 coax cable. Cable-Cable: 20GHz / Edge Launch: 20GHz / Thru Hole: 10GHz



● **Micro 360® Circular Connectors**

Omnetics’ Micro Circular Connector Series utilizes Omnetics’ rugged and reliable Flex-Pin contact system, is spaced on 50 mil (1.27mm) centerlines, features a mated length of less than 12.4 mm, and is specified to MIL-DTL-83513.

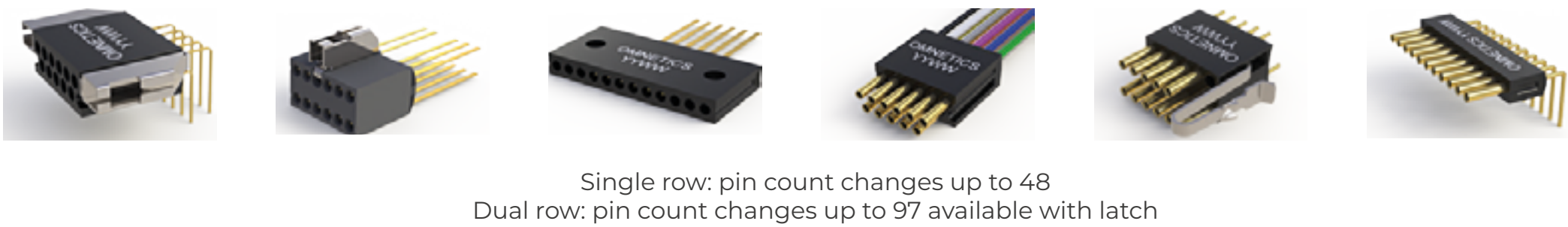


● **IP68 Nano Circulars**

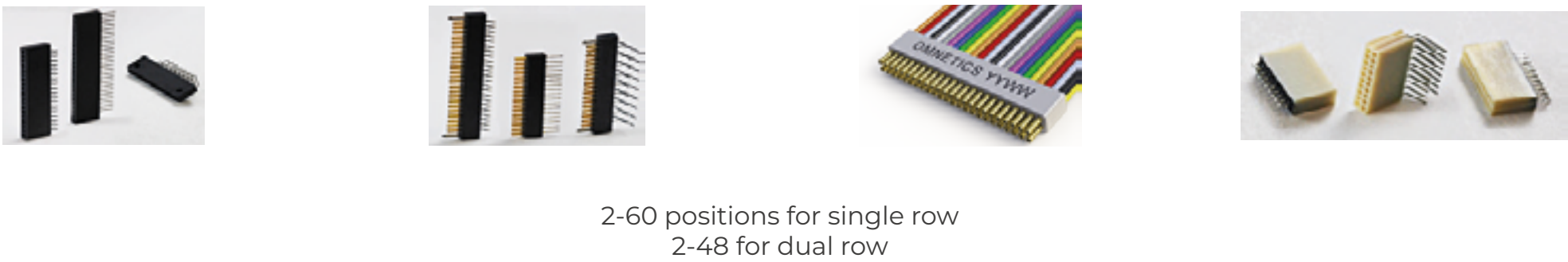
Omnetics’ Micro Circular Connector Series utilizes Omnetics’ rugged and reliable Flex-Pin contact system, is spaced on 50 mil (1.27mm) centerlines, features a mated length of less than 12.4 mm, and is specified to MIL-DTL-83513.



● **Micro Strip Connectors**

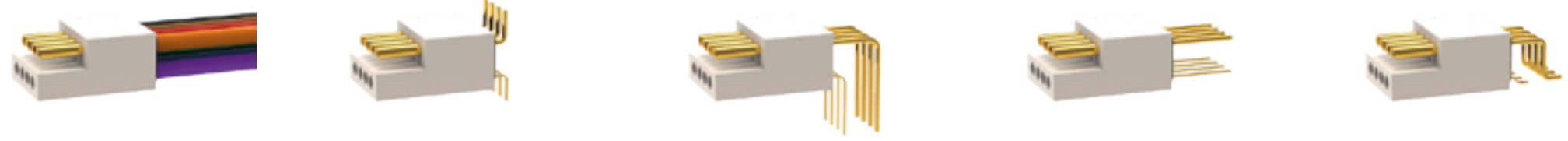


● **Nano Strip Connectors**



● **Polarized Nano Connector (PZN)**

This configuration effectively polarizes the connector without the additional space required for guide pins. Termination options include: Pre-Wiring, Straight tail, Horizontal SMT, and Vertical SMT. Up to 24 positions.



● **Capabilities**

LATCHING NANO-D	EMI SHIELDING	CUSTOM HARNESSING	CUSTOM METAL SHELL

TEL DOR

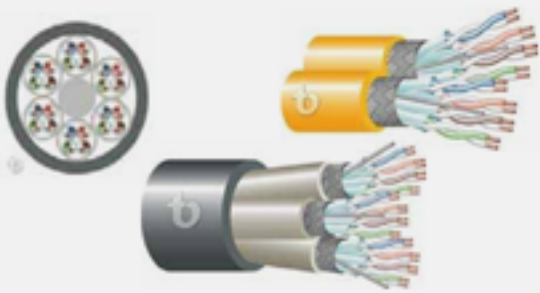
www.teldor.com

COMPANY OVERVIEW

TELDOR Cables & Systems Ltd. manufactures a wide range of wires and cables for telecommunications, electronics, and electricity, and is a leader in the design and production of high data-rate Copper and Optical LAN cables, Industrial BUS, Instrumentation and Control Cables.

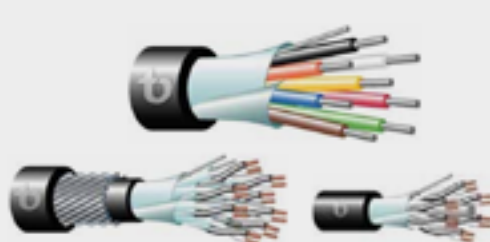
The factory was established in 1966 at Kibbutz Ein-Dor, in Israel’s Lower Galilee. TELDOR is a leading manufacturer in the development and production of advanced electronic, FiberOptic and data communication cables, as well as outside plant Telecom cables.

Category Cable Data Center Solutions




Cat.5e, Cat.6, Cat.6A, Cat.7, Cat.7A solutions for data centers, patch cords and hybrid cables. Industrial Ethernet Outdoor Data Solutions.

Instrumentation Cable Solutions



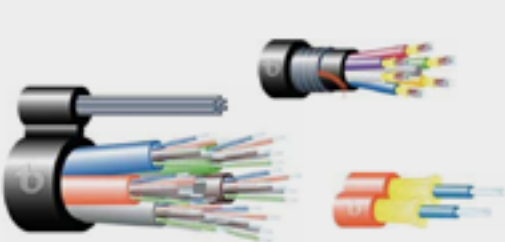
Indoor and Outdoor Cables for the Process Industry, Petrochemical Industry, Unshielded and Shielded, Armored and Unarmored for Automation, Bus Cable and Hazardous Areas.

Signal & Control Cable Solutions




Instrumentation, Thermocouple, Bus Cables and Security Cables.

Optical Cable Solutions



Optical Cables for Indoor, Outdoor, Distribution, Breakout, Tactical and Jumper Applications. Rus Approved.

Military & Special Cable Solutions



Tactical Cables, Tailor-Made Cables with Special Armoring and Sheathing Materials for Medical, Oil & Gas, Military and Special Applications with Different Conductor Sizes within the Cable; Composite or Hybrid Cable Design.

MARKET SEGMENTS



Defence Line Overview

- Specialty cables (EPD, Custom Design)
- Tactical Fiber Optic cables
- Tactical Data (Category) cables
- Marine & Underwater Cable
- Hybrid and Composite cables
- Wires

Armoring

- Long life cycle & high reliability
- Designed to fit system and operational needs
- Endurance in harsh environmental conditions
- Excellent mechanical properties
 - Galvanized Steel Wires (SWA)
 - Steel Braid Armor (SBA)
 - Corrugated Steel Armor
 - Copper Braid Armor
 - Bronze Wire Armor
 - Dielectric/Glass Armor

Standards & Certifications

- **MIL-DTL-24643**
Low Smoke Zero Halogen Shipboard cable
- **MIL-DTL-24640**
Lightweight, Low Smoke, Electric Cables for Navy Shipboard Applications
- **MIL-DTL-3432**
Cables (Power and Special Purpose and Wire, Electrical (300 and 600 Volts)
- **MIL-49291/3**
Performance Specification: Fiber, Optical, General Specification
- **MIL-PRF-85045**
Performance Specification: Cables, Fiber Optics, General Specification including Tactical
- **MIL-C-17**
Cable, Radio Frequency, Coaxial
- **MIL-STD-810-F**
Test Method Standard for Environmental Engineering Considerations and Laboratory Tests

COMPUTER & LAN CABLES

Bandwidth (MHz)	Application	Cat.	Standarts
100	10/100 BaseT 1 GBaseT(1GbE)	5e	ISO/IEC 11801, IEC 61156-5/6. TIA/EIA 568B/C
250	10/100 BaseT 1 GBaseT(1GbE)	6	ISO/IEC 11801, IEC 61156-5/6. TIA/EIA 568B/C
500	10 GBaseT	6A	ISO/IEC 11801, IEC 61156-5/6, TIA/EIA 568C
600	10 GBaseT ++	7	IEC 61156-5/6
1000	10 GBaseT +++	7A	IEC 61156-5/6
1200	Multiservice	N/A	IEC 61156-7/8
2000	40GB/s	8	ISO/IEC 11801, IEC 61156-9/10, TIA/EIA 568C



Thermal Pads

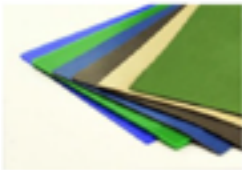


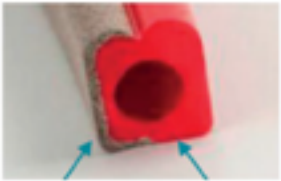






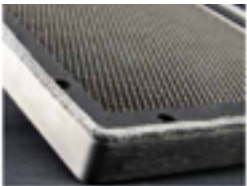







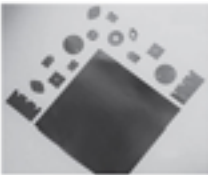
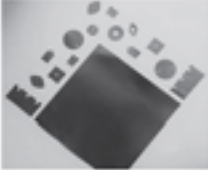








EMI Shielding Components

P&P TECHNOLOGY

www.p-p-t.co.uk

COMPANY OVERVIEW

About EMC/EMI shielding solutions EMCEMI Staff have between them, over 50 years’ experience in the manufacturing processes involved in making high quality & reliable EMC & RFI components, while specialising in the manufacture and supply of a wide range of products which are manufactured at our brand new factory in Essex in the United Kingdom. We manufacture components to MIL83528C specification.

			
Conductive Elastomers	Conductive Elastomers	Conductive Elastomers Moulded ‘O’ Rings	Co-extrusion Conductive Gasket
			
Aluminium Honeycomb Vents	Round Aluminium Honeycomb Vents	Steel Honeycomb Vents	Oriented Wires in Silicone
			
Knitted Wire Mesh	Knitted Wire Mesh over Elastomer Core	Knitted Wire Mesh with Enviromental IP Carrier	Knitted Wire Mesh Moulded to Silicon-Fluorosilicone
			
Fabric Over Foam	Neoprene Sponge	Copper & Aluminium Conductive Foil Tape	Shielded Windows
			
Compressed Mesh ‘O’ Rings	Conductive Sponge Material	Thermal Graphite	Composite Wire Mesh
			
Expanded Wire Gasket	Co-extrusion Conductive	Thermal Gap Pad	Connector Gaskets
			
Silicone	Copper Fingerstock	Shielded Windows	Thermal Pad

SILICON POWER

www.silicon-power.com

COMPANY OVERVIEW

With over 16 years of experience, Silicon Power has become a trusted service-driven provider of professional NAND flash storage and DRAM modules for industrial and enterprise applications.

DDR4 DRAM MODULES					
Model	SODIMM	UDIMM	ECC SODIMM	ECC UDIMM	ECC RDIMM
DRAM Type	DDR4	DDR4	DDR4	DDR4	DDR4
Capacity	2GB, 4GB, 8GB, 16GB, 32GB	4GB, 8GB, 16GB, 32GB	4GB, 8GB, 16GB, 32GB	4GB, 8GB, 16GB, 32GB	4GB, 8GB, 16GB
Data Rate	2400 / 2600 MHz	2400 / 2600 MHz	2400 / 2600 MHz	2400 / 2600 MHz	2400 / 2600 MHz
CAS Latency	CL17 / CL19	CL17 / CL19	CL17 / CL19	CL17 / CL19	CL17 / CL19
Voltage	1.2V	1.2V	1.2V	1.2V	1.2V
Pin Count	260 Pin	288 Pin	260 Pin	288 Pin	288 Pin
Data Width	64Bits	64Bits	72Bits	72Bits	72Bits
PCB Heigth	30.13 mm	31.40 mm	30.13 mm	31.40 mm	31.40 mm
Standard 0~85°C	Supported	Supported	Supported	Supported	Supported
Industrial -40~85°C	Supported	Supported	Supported	Supported	Supported
Storage -55~95C	Supported	Supported	Supported	Supported	Supported

DDR3 DRAM MODULES					
Model	SODIMM	UDIMM	ECC SODIMM	ECC UDIMM	ECC RDIMM
DRAM Type	DDR3L	DDR3L	DDR3L	DDR3L	DDR3L
Capacity	2GB, 4GB, 8GB	2GB, 4GB, 8GB	4GB, 8GB	4GB, 8GB	8GB
Data Rate	1600 MHz	1600 MHz	1600 MHz	1600 MHz	1600 MHz
CAS Latency	CL 11	CL 11	CL 11	CL 11	CL 11
Voltage	1.35V	1.35V	1.35V	1.35V	1.35V
Pin Count	204 Pin	240 Pin	204 Pin	240 Pin	240 Pin
Data Width	64Bits	64Bits	72Bits	72Bits	72Bits
PCB Heigth	30.50 mm	30.50 mm	30.50 mm	30.50 mm	30.50 mm
Standard 0~85°C	Supported	Supported	Supported	Supported	Supported
Industrial -40~85°C	Supported	Supported	Supported	Supported	Supported
Storage -55~95°C	Supported	Supported	Supported	Supported	Supported

SSDS					
Form Factor	M.2	M.2	2.5"	2.5"	mSATA
Interface	PCIe Gen3, NVMe	SATA III	SATA III	IDE / PATA	SATA III
Capacity	64 GB - 2 TB	8 GB - 1 TB	8 GB - 4 TB	128 MB - 128 GB	8 GB - 1 TB
Supported Flash Types	3D TLC	SLC, MLC, 3D TLC	SLC, MLC, 3D TLC	SLC, MLC	SLC, MLC, 3D TLC
Industrial -40~85°C	Supported	Supported	Supported	Supported	Supported

FLASH CARDS				
Form Factor	CFExpress	Compact Flash	SD	micro SD
Interface	Cfast 2.0	CF 6.0	SD 3.0	SD 3.0
Capacity	4 GB - 512 GB	128 MB - 256 GB	256 MB - 256 GB	256 MB - 256 GB
Supported Flash Types	SLC, MLC, 3D TLC	SLC, MLC	SLC, MLC, 3D TLC	SLC, MLC, 3D TLC
Industrial -40~85°C	Supported	Supported	Supported	Supported



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