

**LAPP
SYSTEMS**
TEAMWORK
CHANGES
THE GAME

EXPECT EXCELLENCE.

With a heritage dating back to 1996, Lapp Systems USA was established with the merger of OLFLEX® & Contact Electronics' Systems groups. Today, with over 15 years of combined experience, our engineers and skilled sales support team provide a turn-key solution to your specific application requirements, from design concept through prototype, production, and test. As part of the world-wide Lapp Group, we have access to a large in-house cable/connector/accessory inventory of our own manufactured products and will source components as required to meet your specifications. Our UL & CSA recognized on-site facility and off-site assembly resources allow us to quickly, efficiently, and reliably address projects from the small and simple to the large and complex.

Lapp Systems provides customer assistance in the design and cost effective assembly of servo and motor drive cables, wire harnesses, junction and control panels, control panel remote access ports, populated cable track assemblies, switch and emergency stop boxes, and non-standard industrial connector and harness products for special applications.



LAPP SYSTEMS CAPABILITIES

FULL ENGINEERING DESIGN AND DOCUMENTATION INCLUDING CAD DRAWINGS

CABLE ASSEMBLIES FROM 6 AWG TO 24 AWG

RECTANGULAR, CIRCULAR, AND PIN & SLEEVE CONNECTOR OPTIONS

STANDARD AND CUSTOM CONNECTOR OVERMOLDING

DESIGN AND FABRICATION OF POPULATED CABLE TRACK

COMPLETE RANGE OF INTERCONNECT OPTIONS FOR REMOTE ACCESS PORTS

COMPLIANT WITH IPC/WHMA-A-620, ISO 9001:2008, AND ROHS

ASSEMBLIES CAN BE UL RECOGNIZED & CSA APPROVED AT CUSTOMER REQUEST

PARTNER WITH PRECISION.



CABLE ASSEMBLIES

HIGHLY FLEXIBLE OR STATIONARY SERVO MOTOR AND FEEDBACK, FIELDBUS, AND CUSTOM CABLE ASSEMBLIES

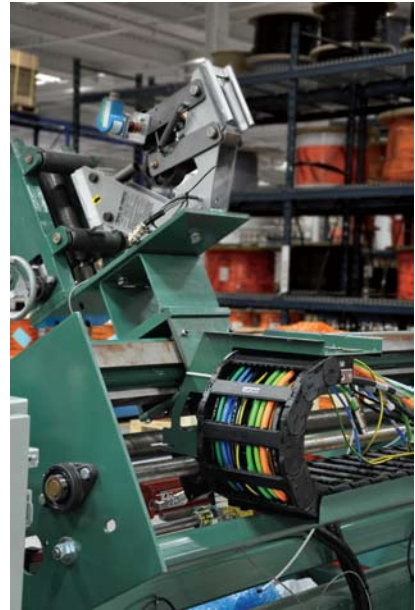
MANY TYPES AND CONFIGURATIONS ARE AVAILABLE FOR QUICK DELIVERY



REMOTE ACCESS PORTS

PORTS ALLOW FOR EASY ACCESS TO A PLC OR INDUSTRIAL COMPUTER DEVICE WITHOUT COMPROMISING SAFETY OVER "LIVE" OPEN CONTROL ENCLOSURES

PRE-WIRED CABLE ASSEMBLIES ARE ALSO OFFERED TO INSURE PROPER COMPONENT TERMINATION



POPULATED TRACK

CUSTOM POPULATED CABLE CARRIERS AND ASSEMBLIES FOR USE IN AUTOMATION AND CONTROL SYSTEMS

ONLY THE HIGHEST PERFORMANCE COMPONENTS

COMPLETE TURN-KEY SOLUTIONS

MOTOR & DRIVE ASSEMBLIES



ROCKWELL/AB ASSEMBLIES

- For Motor Types: MPL, N, H, H/F, Y, MPF, TLY, Ultra 3000/5000, and Kinetix 6000
- Use of various cable types, including custom encoder for flex and static, ÖLFLEX® FD 190 CY, ÖLFLEX® FD 890 CY, & various servo styles such as ÖLFLEX® 709 CY, ÖLFLEX® SERVO LK, & ÖLFLEX® SERVO FD LK
- Overmolded for better environmental protection and integral strain relief
- Long service life

MIN. BEND RADIUS FOR INSTALLATION:	10 x cable diameter
BENDING RADIUS FACTOR DURING TEST:	7.7 x outer diameter
TRAVEL DISTANCE UNDER TEST CONDITIONS:	18 Feet
ACCELERATION UNDER TEST CONDITIONS:	Varied up to 26 feet per second
TEMPERATURE RANGE DURING TEST:	-10°C to +22°C
WORKING VOLTAGE:	Up to 1000 V
SPEED OF TRAVEL DURING TEST:	Varied from 6.5 to 13 feet per second
TEST RESULTS (# OF CYCLES):	8,340,142

For reference only, test data changes depending on cable.



SIEMENS

- Designed to Standard 6FX8002
- Applications:
 - Sensor leads for signal requirements
 - Motor connection cables for power requirements
 - The oil-resistant PVC or PUR cable jacket allows them to be used particularly in industrial areas

6FX5002 is available upon request

Technical Data

Approvals:

- Power Cables - UL Style 20234; CSA AWM II A/B FT1
- Signal Cables - UL Style 20236; CSA AWM II A/B FT1

Minimum Bend Radius:

- Stationary - 6 x cable diameter
- Flexible - 10 x cable diameter



INDRAMAT

- Designed to IKG/IKS Standard
- Applications:
 - Motor connection cables for power requirements
 - Highly flexible servomotor cable, especially suitable for use in power chains. 100% compatible with Indramat systems. The oil-resistant, PUR jacket enables use in industrial areas.

Technical Data

Approvals:

- Power Cables - UL Style 20234; CSA AWM II A/B FT1
- Signal Cables - UL Style 20236; CSA AWM II A/B FT1

Minimum Bend Radius:

- Flexible-
 - < 4.0 mm2: 10 x cable diameter
 - > 4.0 mm2: 12 x cable diameter

FIELD BUS ASSEMBLIES



DEVICENET

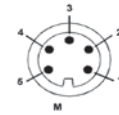
These flexing molded cordsets offer Trunk(Thick) and Drop(Thin) connectivity in a DeviceNet™ application. Our flexing solutions offer the ability to connect in a motion system such as X,Y,Z motion equipment. The Static versions offer the same functionality as the flexing in terms of connectivity but in a stationary environment. A conveyor system is a good example of use for this product.

AVAILABLE CONFIGURATIONS

- Single Ended Cordsets with 7/8" Connectors
- Extension Ended Cordsets with Thick Panel Mount Receptacles
- Thick Trunk Extension Ended Cordsets
- Thick Back Panel Mount Trunk Extension Cordsets
- Thin Drop Single Ended Cordsets
- Thin Drop Single Extension Cordsets

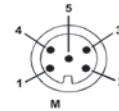
Note: Thick = 7/8" Connector; Thin = M12 Connector

7/8-16 UN CONNECTOR (5-PIN, THICK TRUNK)



- Pinouts**
1. Bare (Shield Drain Wire)
 2. Red (+ Voltage)
 3. Black (- Voltage)
 4. White (CAN_H)
 5. Blue (CAN_L)

M12 CONNECTOR (5-PIN, THIN-DROPI)



PROFIBUS

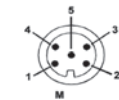
Flexing: These pretested, molded cordsets utilize high quality continuous flex cable and integral molded strain relief. They are designed to provide interconnection between simple devices, such as sensors and actuators and high level devices, such as PLCs and computers, in high motion applications.

Static: When continuous flexing is not required, these cordsets offer long-lasting, reliable performance at a reduced cost.

AVAILABLE CONFIGURATIONS

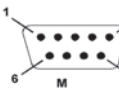
- Single Ended Cordsets - M12 Euro to Flying Leads
- M12 Euro Male to Female Cordsets
- Panel Mount Receptacle with Jacketed Cable
- Sub D Y-Cordsets: D'Sub to Two M12 Euro Connectors
- D'Sub to One M12 Euro Connector or Flying Leads

M12 CONNECTOR (5-PIN)



- Pinouts**
1. 5 Vdc
 2. Green (Bus-A)
 3. Ground
 4. Red (Bus-B)
 5. Shield

DB9 D-SUB CONNECTOR

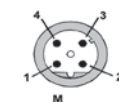


- Pinouts**
182. not used
 - Red (Bus-B)
 - 4,5,6&7. not used
 8. Green (Bus-A)
 9. not used

ETHERNET

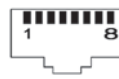
CAT5 Network environments can be found throughout the factory floor. The use of both the RJ45 and M12 connector protocols are common. Our continuous flex CAT5 cable offers a unique solution toward satisfying the stringent needs of motion systems, where a network connection has been integrated for program interface from remote locations. Offering is designed for continuous flex applications but static can also be supported.

M12 CONNECTOR (4-PIN D-CODE)



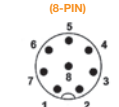
- Pinouts**
1. Wht/Org (Tx+)
 2. Wht/Grn (Rx+)
 3. Org (Tx-)
 4. Grn (Rx-)

RJ 45 CONNECTOR



- Pinouts**
1. Wht/Org (Tx+)
 2. Org (Tx-)
 3. Wht/Grn (Rx+)
 4. Blue (TRD2+)
 - 4&5. not used
 6. Grn (Rx-)
 - 7&8. not used

M12 CONNECTOR (8-PIN)



- Pinouts**
1. White/Blue
 2. White/Brown
 3. Brown
 4. Orange
 5. White/Green
 6. White/Orange
 7. Blue
 8. Green

- Pinouts**
1. Wht/Org (TRD0+)
 2. Org (TRD0-)
 3. Wht/Grn (Rx+)
 4. Blue (TRD2+)
 5. Wht/Blue (TRD2-)
 6. Grn (TRD1+)
 7. Wht/Brn (TRD3+)
 8. Brn (TRD3-)

CABLE & CUSTOM ASSEMBLIES



Our goal is to provide the entire solution for our customers. The burden of developing a concept, applying the engineering, and transitioning to production can be very taxing on company resources. Our engineering expertise and proactive assembly processes will enable a customer to conserve resources for other needs. We can review the interconnection needs, recommend connectivity solutions, provide concept drawings, quotations, final engineering drawings, and quality finished products. All the customer needs to do is provide either data or access and subsequently, a purchase order. It's as easy as that.

REMOTE ACCESS PORTS



OSHA in conjunction with NFPA define safe work practices for employees working on or around live voltage. Personnel who have not been certified as trained and wearing approved personal protective equipment, shall not open panels over 50VDC to program a device within the panel.

Remote Access Ports provide programming access without opening the panel to allow you to comply with:

- OSHA 29 CFR 1910.147
- NFPA 70E and NFPA 79 Electrical Machinery Safety Standard 2002 Edition, Sections 16.1.1 (6), 16.1.2

Standard and custom configurations are available. These include: AC outlets, circuit breakers, DIN couplers, phone jacks, D-sub connectors, key lock switches, computer data storage devices and just about any component that can fit in the available port housings.

PLC TYPE	RELATIVE PROTOCOLS
A-B PLC-5/10	DB9F (Programming Terminal) 3P Header (DH+)
A-B PLC 5/12, 5/15, & 5/25	DB9F (Programming Terminal) 3P Header (DH+) 3P Header (Remote I/O)
A-B PLC 5	8P Mini Din (DH+) 3P Header (DH+)
SLC 5/04	3P Header (DH+) 8P Mini Din (DH+) DB9F (RS232/DH485)
SLC 5/03	RJ45 (DH485) DB9F (RS232/DH485)
SLC 5/02	RJ45 (DH485)
SLC 5/01	RJ45 (DH485)
SLC 500	RJ45/TB INTFC (DH485)
A-B Panelview 900	DB9F RS232
A-B Panelview 1200E/1400E	DB9F (Programming)
A-B Control Net	RJ45 (DH485)
A-B 1394	DB9F (RS232)
A-B PLC 2	DB15F
A-B Device Net	5P Header
GE SNP	DB9M
GE SNP	DB15F
GE CNC	PCR20M
Siemens Current Loop	DB15F
Modicon Modbus	DB9F
Modicon Modbus +	DB9M

POPULATED TRACK



Lapp Systems specializes in custom populated cable carriers and assemblies for use in the automation control and drive industries.

Research and collaboration with the major drive manufacturers has led to the development of connectorized cable assemblies for use with servo and VFD systems. These assemblies are custom designed by Lapp's team of experts to meet the unique demands of each application, from high flex to stationary. Custom cable carrier systems are also used in robotic and automation control applications, and feature ease of use and substantial time and cost savings, because material management and installation functions are performed by Lapp. As a result, system failures and downtime often caused by improper installation of products is eliminated, insuring longer life and reliability in even the most demanding applications.

Additional benefits include factory testing, a performance warranty on the entire system, and fast delivery times.

STEPS FOR DESIGN

- Initial request-list of requirements
- Initial design
- Review design
- CAD drawing
- Approval for drawing
- 1st article

WHAT CAN BE INCLUDED

- Cables
- Connectors
- Hoses

WHY USE LAPP

- Overall cost savings
- Longer flex life and reliability
- Custom design for each application
- Performance warranty
- Assemblies by the experts in cable/connector design

ÖLFLEX[®]
Power And Control Cables

SKINTOP[®]
Cable Glands

SILVYN[®]
Conduit

ETHERLINE[®]
Industrial Ethernet

EPIC[®]
Connectors

UNITRONIC[®]
Data Cables

FLEXIMARK[®]
Marking Systems

HITRONIC[®]
Fiber Optic Cables



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