



ETHERNET SELECTION GUIDE

BradCommunications™

BradConnectivity™

BradControl™

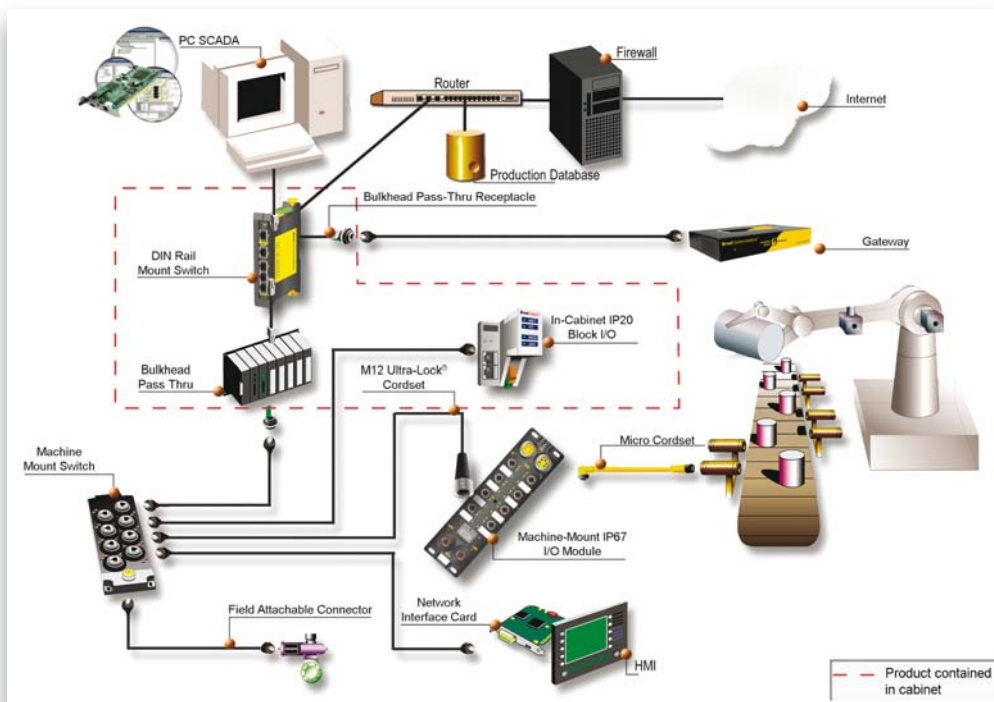


YOUR PARTNER
FOR INNOVATION AND
PERFORMANCE

Woodhead Industries, a Division of

Mollex «Empowers the Industrial Infrastructure» with innovative communication, control and connectivity solutions for a wide range of Industrial Ethernet applications - from the device and sensor level, to the operations and supervisory level, to connectivity with enterprise business and operations systems.

The success of an Industrial Ethernet Network relies on the quality and performance of its underlying infrastructure - all the devices, components and wiring needed to support the network's communications, connectivity and control capabilities. Our Brad[®] automation and networking



solutions are engineered to facilitate reliable information flow, from machines to PCs and PLCs, and all the way from the plant floor to the enterprise.

Brad® Automation Solutions

Our Brad® product lines - including such globally recognized names as Brad Harrison®, applicom®, SST™, mPm®, and RJ-Lnxx® - are designed and built industrial-tough to ensure the flexibility, interoperability and rock-solid performance of your Industrial Ethernet applications. Our industrial network solutions include:

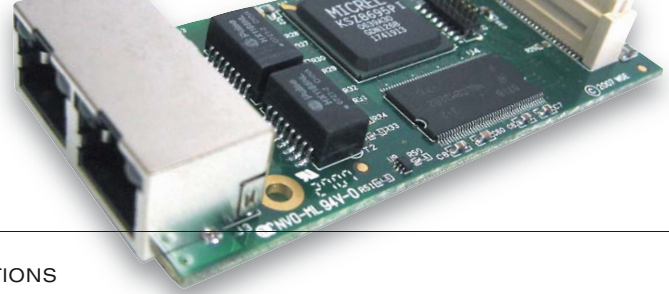
BradCommunications™ - Network interface cards, embedded interfaces, PLC communication modules, Ethernet switches, gateways and simulation & diagnostic tools.

BradConnectivity™ - Connectors,
cordsets and distribution boxes for
sensor, actuator and bus network
applications

BradControl™ - Network I/O modules for
on-machine and in-cabinet applications

BradPower™ - Modular wiring systems
for machine power distribution and
motor control

Woodhead Industries, a Division of Molex, operates from 21 locations in 10 countries spanning North America, Europe and Asia/Pacific. We have the resources to assist you locally with all of your Industrial Ethernet infrastructure requirements.



EMBEDDED INTERFACES

Embedded DC100 OEM Module

NEW



- Fast implementation of Ethernet fieldbus
- One Common Interface for all modules
- Compact, horizontal or vertical mounting
- Simple integration with Direct DP-RAM Access
- Possible storage of configuration in flash
- Independent of Operating Systems
- Lower engineering and integration costs

·Size: 80 x 40 mm
 ·2 x RJ45, 10/100 Mbps auto-negotiation, switch feature
 ·IP address settings: Static, DHCP, BOOTP server, CIP object
 ·RoHS

Characteristics	
·Protocols :	
EtherNet/IP Scanner	
- Implicit and Explicit messaging	
- 4096bytes Inputs / 4096bytes Outputs	
- IGMP v2, Spanning tree	
- CCO Object	
EtherNet/IP Adapter	
- Implicit and Explicit messaging	
- 509 Inputs bytes / 505 Output bytes	
Order Number	
DC100EEA-2R-B10	EtherNet/IP Adapter, bulk of 10
DC100EES-2R-B10	EtherNet/IP Scanner, bulk of 10

For availability of PROFINET I/O and Modbus TCP, contact us

Development Kit for OEM Module

NEW



- Allows development of customer specific application with DC100 OEM module
- Driver and APIs for Windows XP and source code for specific OS (Linux, DOS, QNX, Vx-Works, etc.)

Characteristics	
·Development Board: High Speed USB Adapter	
·Package includes:	
- Electronic documentation	
- DLL source	
- Demo / Test software with source code	
Order Number	
SST-EEA-USB-KIT	USB Development Kit for EtherNet/IP Adapter
SST-EES-USB-KIT	USB Development Kit for EtherNet/IP Scanner

EtherNet/IP Protocol Development Kit

NEW



- Stack allows implementation of Scanner and/or Adapter functionality on various hardware platforms
- Stack performs all communications functions, implicit and explicit messaging
- Application objects in the host system may be accessed from the network via explicit messaging
- Multi platform stack
- Portable on any Real Time OS
- Support of Intel and Motorola format
- Data Exchange
 - Shared memory fully configurable
 - Messaging access

Characteristics	
·Protocols :	
EtherNet/IP Scanner	
- Message Server and Client (UCMM & Class 3)	
- IO Server and Client (Class 1)	
- Explicit messaging	
- IO modes: EO, IO, LO	
- Application watchdog	
EtherNet/IP Adapter	
- Message Server (UCMM & Class 3)	
- IO Server (Class 1)	
- EDS File	
Order Number	
SST-EIP-ADP	EtherNet/IP Adapter Protocol Development Kit
SST-EIP-SCA	EtherNet/IP Scanner and Adapter Protocol Development Kit

PROFINET IO Protocol Development Kit

NEW



- Stack allows implementation of IO-Controller or IO-Device functionality on various hardware platforms
- Conforms to PROFINET IO specifications v2.1
- Multi platform software stack
- Portable on any Real Time OS supporting multi-thread
- Support of Intel and Motorola formats
- Data Exchange
 - Shared memory fully configurable
 - Messaging access
- Advanced IO-Supervisor Configuration Console

Characteristics	
·Protocols :	
IO-Controller	
- Class-A, SRT, IO data, Alarm	
- Max. 1024 IO-Devices	
- 1440 Input and 1440 Output bytes per device	
IO-Device	
- Class-A, SRT, Alarm, GSD file,	
- 1440 Input and 1440 Output bytes	
Order Number	
SST-PFN-DEV	PROFINET IO-Device Protocol Development Kit
SST-PFN-CON	PROFINET IO-Controller Protocol Development Kit
SST-PFN-CON-CNF	OEM Console for PROFINET IO-Controller Protocol Development Kit

OEM / Machine Builder Support

OEMs and machine builders require solutions which provide quick and easy integration of networking capabilities into their own products and systems. As a leading industrial communications provider, we can assist through our hardware and software tools and other services designed with the OEM/machine builder needs in mind.

When using Brad products, lower development costs and access to an expanded market in a faster timeframe is realized, less maintenance support is required and access to expert industrial network support is gained.

To assist our OEM customers we provide a range of engineering services including:

- Specification
- Hardware development/adaptation
- New protocol implementations
- Porting protocol software
- Application integration
- System test
- Certification
- Manufacturing





ENABLING RELIABLE NETWORKS FOR THE MOST DEMANDING APPLICATIONS

SOFTWARE DRIVERS

Software Drivers for
Smaller SCADA Applications



- Well suited for embedded and light architecture (laptop, Panel PC, MMI)
- Economic solution
- 100% software solution
- All Ethernet protocols can run simultaneously and in Client/Server modes

- Mitsubishi Melsec
- Omron Fins
- Modbus TCP & UDP
- Schneider Uni-TE
- Siemens Industrial Ethernet

Characteristics

- Uses PC-based Ethernet card or Serial port
- Software Interfaces included^[1]
- Compatible with various OS^[2]
- Protocols:

- Ethernet TCP/IP** 10/100 Mbps
 - Allen-Bradley EtherNet/IP PCCC Logix 5000
 - Altus Alnet II
 - Alstom SRTIP
 - GE Fanuc SRTIP

Order Number	
DRL-ALL-SWL-X	Software drivers, 1000 tags, all protocols
DRL-ALL-SWF-X	Software drivers, full tags, all protocols

Replace X with:

S	for Software Key
P	for Parallel Dongle (short format)
U	for USB Dongle (no support of NT4)

BradCommunications™ network interface cards and software driver packages include advanced software tools to configure and diagnose your industrial networks. The configuration console is an intuitive project management and configuration tool integrating powerful features that allow quick, easy, and labor-saving integration of the industrial communication protocol with your application. Whatever the protocol, your project is always setup the same way. For network diagnostics, the testing and monitoring tools provide invaluable help in troubleshooting the whole control and communications system. They can be used during systems implementation and also during operation since the tools can coexist with your industrial applications.

NETWORK INTERFACE CARDS

Best Choice for
Large SCADA Applications



- NEW** – Windows Vista™ capable
- Combo Offer: Ethernet + PROFIBUS or Serial
- All Ethernet and PROFIBUS protocols can run simultaneously

- GE Fanuc SRTIP
- Mitsubishi Melsec
- Omron Fins
- Modbus TCP & UDP
- Schneider Uni-TE
- Siemens Industrial Ethernet

Characteristics

- PCI Universal 3.3/5V (PCI-X compatible), PCI Express
- RoHS compliant
- 10/100 Mbps auto-negotiation
- Software Interfaces included^[1]
- Compatible with various OS^[2]
- Protocols:

- Ethernet TCP/IP** 10/100 Mbps
 - Allen-Bradley EtherNet/IP PCCC Logix 5000
 - Altus Alnet II
 - Alstom SRTIP

- PROFIBUS** 9.6 Kbps to 1.5 Mbps
 - Master DP-V0 Class-1 & 2
 - Client S7/MPI
 - Master FDL S5
 - Master PPI/PPI+
 - FDL Send/Receive

- SERIAL** 50 bps to 38.400 kbps
 - Allen-Bradley Master DF1
 - GE Fanuc Master SNP-X
 - Modbus Master

- Modbus Slave (ASCII & RTU)
- Schneider Master/Slave Uni-Telway
- Siemens Master AS511
- Siemens Master TI-Dir

Order Number

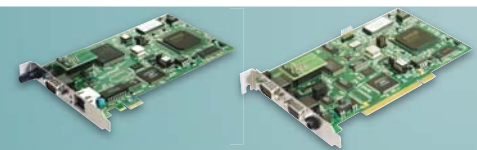
- APP-ETH-PCU-C** PCI bus, 3.3/5V, Ethernet TCP/IP
- APP-EPB-PCU-C** PCI bus, 3.3/5V, Ethernet TCP/IP + PROFIBUS
- APP-ESR-PCU-C** PCI bus, 3.3/5V, Ethernet TCP/IP + Serial

- APP-ETH-PCX** PCI Express 1X, Ethernet TCP/IP (Mar 08)

- APP-DRV-AB-C** Driver License for AB PCCC messaging

PC-Based Control
Applications

EtherNet/IP™
conformance tested



- Deterministic data acquisition for PC-Based control application
- Very fast data exchange – 1000 I/O in 1msec!
- Automatic I/O mapping for easy configuration
- Hardware and Software watchdog
- Remote configuration and diagnostics

Characteristics

- PCI Universal 3.3/5V (PCI-X compatible), PCI Express
- RoHS compliant
- 10/100 Mbps auto-negotiation
- Software Interfaces included^[1]
- Compatible with various OS^[2]

- Protocols:
- EtherNet/IP**
 - I/O Master / Scanner and Adapter
 - Up to 128 simultaneous CIP based connections (Implicit and Explicit messages)
 - EtherNet/IP Devices supported: Generic and Rockwell I/O through EDS files (FlexIO, CompactLogix, etc)
 - IP address settings configurable via the console or DHCP/BOOTP server
 - Client DNS Supported
 - EtherNet/IP conformance tested

- Modbus TCP & UDP**
 - Master/Scanner
 - Up to 127 simultaneous device

- PROFINET I/O**
 - I/O-Controller and I/O-Device (contact us)

Order Number

- DRL-EIO-PCU** PCI bus, 3.3/5V
- DRL-EIO-PCX** PCI Express 1X (Mar 08)

[1] - Software interfaces include: OPC Server, ActiveX control, Wonderware DAServer, Wonderware I/O server, development libraries (DLL, NI LabVIEW / Labwindows, etc.)

[2] - Support Windows 32 bits (XP, 2000, 2003 Server), XPe, NTe, Ardence RTX, VxWorks, QNX, Linux, DOS



ENABLING RELIABLE NETWORKS FOR THE MOST DEMANDING APPLICATIONS

PLC COMMUNICATION MODULE

Communication Module for Allen-Bradley ControlLogix

NEW



- Connects your Allen-Bradley ControlLogix to an Ethernet or Serial network
- No Ladder Logic to write for configuration and data transfer between module and CLX processor
- RLL support: remote configuration and monitoring via RSLinx
- Data exchange: 500 Inputs bytes/496 Output bytes + 32,000 Words Registers
- USB port for user configuration and firmware upgrade
- Up to 8 modules in one CLX rack
- Support Local and Remote chassis

- Characteristics**
- 1 Ethernet port, 10/100 Mbps auto-negotiation
 - 2 Serial ports, 110 bps to 115.2 kbps, RS232/RS485
 - RoHS
 - Protocols:
 - Modbus Master (RTU or ASCII)
 - Modbus Slave (RTU or ASCII)
 - Modbus TCP & UDP Client and Server

Order Number
SST-ESR2-CLX-RLL Ethernet module for Rockwell ControlLogix

I/O SIMULATION

I/O Simulation Software



- Find & fix software bugs earlier before you go online
- Minimize process downtime and startups costs
- Perform control systems testing and operator training
- quickly create a dynamic model to duplicate behaviour of your process
- Simulate multiple controllers at the same time and with a single package

- Characteristics**
- Modern, customizable, visual development/debugging environment
 - Ladder diagram editor for developing simulation logic

Order Number
SST-PICS-PRO-1 Full PICS system, Parallel Dongle
SST-PICS-PRO-1U Full PICS system, USB Dongle
SST-PICS-OPC PICS Pro OPC server
SST-PICS-DDE PICS Pro Wonderware I/O servers

GATEWAYS

Multi Protocol Intelligent Industrial Gateway

- Enables high speed data exchange between industrial devices (PLC, I/O blocks, etc.) through Profibus, Ethernet TCP/IP and Serial networks
- More than 20 000 protocol combinations possible!
- no programming knowledge required, only configuring (tools included)
- Fast data exchange through integrated database (32Kbits/32Kwords)
- Read/write cyclic functions
- Supports unsolicited data exchange from client device

- Characteristics**
- Protocols:
 - Ethernet TCP/IP** 10/100 Mbps
 - Allen-Bradley EtherNet/IP
 - Altus Alnet II
 - Alstom SRTIP
 - GE Fanuc SRTIP
 - Mitsubishi Melsec
 - Omron FINS
 - Open Modbus TCP & UDP
 - Schneider Uni-TE
 - Siemens Industrial Ethernet
 - PROFIBUS** 9.6 Kbps to 12 Mbps
 - DP-V0 Master
 - DP-V0 Slave

- S7/MPI Client
- FDL S5 Client
- SERIAL** up to 115.2 Kbps
 - DF1 Master
 - SNP-X Master
 - Modbus Master
 - Modbus Slave (ASCII & RTU)
 - Uni-Telway Slave
 - AS511 Master
 - TI-Dir Master

Order Number
APP-ESR-GTW Ethernet to Ethernet/Serial Gateway
APP-ESP-GTW Ethernet to Profibus/Ethernet/Serial Gateway

Multi Protocol PROFINET IO Proxy



- Provides real-time connectivity between a PROFINET IO controller and Ethernet/PROFIBUS/Serial devices
- Easy to use: no programming, just configuring

- Characteristics**
- 1 Ethernet port, 10/100 Mbps auto-negotiation
 - 1 Serial port, 110 bps to 115.2 kbps, RS232/RS485
 - Protocols: refer to gateway APP-ESP-GTW

Order Number
APP-PNT-GTW-P PROFINET I/O Proxy to Ethernet or PROFIBUS or Serial

Simple Ethernet to Profibus Tunnelling Gateway



- Cost effective gateway solution
- Remote data acquisition
- DIN rail, IP20 mounting

- Characteristics**
- Speed: 10 Mbps
 - Protocols:
 - Modbus Master/Slave TCP/IP
 - Profibus Slave
 - Modbus Master/Slave (ASCII & RTU)

Order Number
DRL-PFB-SRE ModbusTCP to Profibus/Serial gateway

Simple Ethernet to DeviceNet Tunnelling Gateway



- Cost effective gateway solution
- Remote data acquisition
- DIN rail, IP20 mounting

- Characteristics**
- Speed: 10 Mbps
 - Protocols:
 - Modbus Master/Slave TCP/IP
 - DeviceNet Slave
 - Modbus Master/Slave (ASCII & RTU)

Order Number
DRL-DVN-SRE ModbusTCP to DeviceNet/Serial gateway



IN-CABINET SWITCHES

Unmanaged Switch In Cabinet DIN Rail Mount



- Plug & Play - No programming required
- Supports all standard 802.3 protocols
- Small footprint in IP30 industrial package
- Redundant, dual-DC power inputs
- Serial port for configuration

Characteristics

- 10/100 Mbps auto-negotiation
- Class 1 Div 2*
- 5, 8 and 9 ports
- Support both copper and fiber wiring
- DIN Rail or panel mount

Order Number	
DRL-241- xxx	5 ports, 4 RJ45 + 1 fiber
DRL-250	5 ports, 5 RJ45
DRL-280	8 ports, 8 RJ45
DRL-281- xxx	9 ports, 8 RJ45 + 1 fiber
DRL-290	9 ports, 9 RJ45
DRL-002	DB9 to RJ45 configuration cordset

[1] Replace **x** with: **M** for **Multi-mode 100 Base**
S for **Single-mode 100 Base**

Replace **xx** with: **SC** for **SC Connector**
ST for **ST Connector**

* BradCommunications™ Industrial Ethernet switches having Class 1 Div 2 certification make them UL/cUL 1604 approved for use in hazardous environments where volatile flammable liquids, gases or vapors could exist in the case of an accident or some unusual operating condition.

Class 1 Div 2 certification enables the use of BradCommunications Industrial Ethernet switches in industries with strict safety regulations including: oil & gas, petrochemical, pipeline, refining, mining, chemical, pharmaceutical and food industries.

Managed Switch In Cabinet DIN Rail Mount



- Supports all standard 802.3 protocols
- Small footprint in IP30 industrial package
- Redundant, dual-DC power inputs
- Serial port for configuration

Characteristics

- 10/100 Mbps auto-negotiation
- Class 1 Div 2*
- 5, 8, 16 and 18 ports
- Support both copper and fiber wiring
- DIN Rail or panel mount
- Advanced features
 - VLAN
 - IGMP snooping
 - RSTP for fault-tolerant loops
 - QoS
 - Web-browser interface

- Network Diagnostics
 - RMON & port mirroring
 - SNMP agent, V1, V2 & V3
- SNMP management suite software

NEW

Order Number	
DRL-332- xxx	5 ports, 3 RJ45 + 2 fiber
DRL-350	5 ports, 5 RJ45
DRL-362- xxx	8 ports, 6 RJ45 + 2 fiber
DRL-380	8 ports, 8 RJ45
DRL-3F0	16 ports, 16 RJ45
DRL-3H0	18 ports, 16 RJ45 + 2 RJ45 10/100/1000
DRL-3H1- xLC	18 ports, 16 RJ45 + 1 fiber 100/1000 LC
DRL-3H2- xLC	18 ports, 16 RJ45 + 2 fiber 100/1000 LC
DRL-002	DB9 to RJ45 configuration cordset

Network Monitoring SNMP OPC Server



- Monitor all SNMP devices
- SNMP diagnostic software with OPC connection to your existing HMI

Characteristics

- Real-time network analysis
- Pre-built tag databases
- SNMP network analyst
- SNMP traps support
- Tag filtering
- OPC DA Server v2

Order Number

DRL-EDS-OPC-BSC	Basic edition, up to 50 devices
DRL-EDS-OPC-EXP	Expert edition (with network analyst and template generator), up to 50 devices
DRL-EDS-OPC-ENT	Enterprise edition (with network agent), unlimited devices

MACHINE MOUNT SWITCHES

Lighty Managed Switch, 8 Ports, M12



- IP67 protection for harsh environments
- Supports all standard 802.3 protocols
- Redundant, dual-DC power inputs
- USB port for configuration

Characteristics

- 10/100 Mbps auto-negotiation
- 8 ports, M12 D-Code Ultra-Lock™ *
- Class 1 Div 2*
- 60 mm wide package size
- Diagnostic LEDs (speed/activity)
- Advanced features

- RSTP	- SNMP	- MAC based security
- QoS	- IGMP Snooping	

Order Number

DRL-880	Lighty managed Switch, 8 ports, M12 Ultra-Lock™
DRL-003	USB configuration cordset

Managed Switch, 8 Ports, M12



- IP67 protection for harsh environments
- Supports all standard 802.3 protocols
- Redundant, dual-DC power inputs
- Serial port for configuration

Characteristics

- 10/100 Mbps auto-negotiation
- 8 ports, M12 D-Code Ultra-Lock™ *
- Class 1 Div 2*
- Diagnostic LEDs (speed/activity)
- Advanced features

- Web-browser	- RSTP	- RMON & port mirroring
- SNMP V1/V2/V3	- QoS	- IGMP Snooping
	- VLAN	

Order Number

DRL-980	Managed Switch, 8 ports, M12 Ultra-Lock™
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Unmanaged Switch, 8 Ports, RJ45



- IP67 protection for harsh environments
- Secure robust connections
- Web-browser interface

Characteristics

- 10/100 Mbps auto-negotiation
- 8 ports, RJ45
- 60 mm wide package size
- Diagnostic LEDs (speed/activity)
- Auto-programming to simplify set up

Order Number

ENHSAURR8	Machine Mount Switch, 8 ports, RJ45
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NETWORK I/O FOR ON-MACHINE AND IN-CABINET APPLICATIONS

IN-CABINET I/O MODULES

Fieldbus Ethernet Coupler



- Modbus TCP/UDP, PROFINET IO, EtherNet/IP
- Built-in 2-port Ethernet switch
- Web server for easy configuration and monitoring
- Carrier Rail DIN 35

Characteristics

- 10/100 Mbps auto-negotiation, 2xRJ45
- Scrolling 4 character status display
- Pushbutton menu selection
- IP Addressing: BOOTP, DHCP or Static
- Front status LEDs for easy diagnostics

Order Number

- BCB-EMB-001** Modbus TCP & UDP Server
BCB-EEA-001 EtherNet/IP Adapter (Dec 07)
BCB-EPD-001 PROFINET IO-Device (Feb 08)

Digital Modules



- Input and output modules
- Easy replacement of module without unwiring
- CAGE CLAMP® Connection

Characteristics

- Carrier Rail DIN 35
- Status through Signal LED
- Size: 98 x 80 x 93 mm
- 24 VDC

Order Number

- BCB-FDI-081** 8 input (5ms)
BCB-FDI-161 16 input (5ms)
BCB-FDI-162 16 input (w/ counter)
BCB-TDI-011 Terminal module

- BCB-FDO-081** 8 output (1 A)
BCB-FDO-083 8 output (2 A w/ scp^[1])
BCB-FDO-161 16 output (1 A)
BCB-FDO-163 16 output (2 A w/ scp^[1])
BCB-TDO-012 Terminal module

- BCB-FDM-161** 8 input (5ms) & 8 output (1A)
BCB-FDM-163 8 input (5ms) & 8 output (2A, scp^[1])
BCB-FDM-164 8 input (0.5ms) & 8 output (2A, scp^[1])
BCB-TDM-013 Terminal module

- BCB-FDM-165** 16 input (5ms) - 16 output (2A, scp^[1])
BCB-TDM-016 Terminal module

- BCB-FRO-081** 8 relay output (220V/2A)
BCB-TRO-051 Terminal module

Analog Modules



- Input modules
- Output modules
- Easy replacement of module without unwiring
- CAGE CLAMP® Connection

Characteristics

- Carrier Rail DIN 35
- Size: 98 x 80 x 93 mm
- 12 bit resolution
- 24 VDC

Order Number

- BCB-FAI-082** 8 input (0 - 10 V DC)
BCB-TAI-023 Terminal module
BCB-FAI-084 8 input (0 - 20 mA)
BCB-TAI-124 Terminal module
BCB-FAO-041 4 output +/- 10V
BCB-FAO-042 4 output 0-20mA
BCB-TAO-022 Terminal module

* All BradControl™ IP67 modules with Micro-Change® (M12) ports accept both threaded cordsets and the new BradConnectivity™ Ultra-Lock™ Connection System, the fastest, easiest, and most secure connection ever. Ultra-Lock™ technology is designed for higher performance and reliability to eliminate downtime, increase productivity, and lower costs.

For more information visit:
woodhead.com/ultralock



ON-MACHINE I/O MODULES

Fieldbus Ethernet Module, Threaded and Ultra-Lock™ with 8 Ports, M12 Connection



- Reliable world-class product for harsh environments
- Built-in 2-port Ethernet switch
- Web server for easy configuration and monitoring
- Visible diagnostics through status LEDs for network, module, external power, inputs & outputs

Characteristics

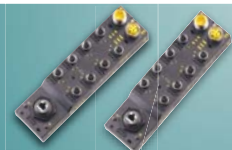
- 10/100 Mbps, 2xM12 D-Code Ultra-Lock™ technology*
- Scrolling 4 character status display
- Pushbutton menu selection
- IP Addressing: BOOTP, DHCP or Static

- 60 mm wide package size
- 8 ports, M12 Ultra-Lock™ technology*
- Modbus TCP & UDP, PROFINET IO, EtherNet/IP

Order Number

- TCDEM-8DOx-D1U^[2]** Modbus TCP 16 inputs
TCDEM-8C2x-D1U^[2] Modbus TCP 14 inputs, 2 outputs
TCDEM-8B4x-D1U^[2] Modbus TCP 12 inputs, 4 outputs
TCDEM-888x-D1U^[2] Modbus TCP 8 inputs, 8 outputs
TCDEM-8YYX-D1U Modbus TCP 16 I/O user configurable
TCDEI-8XXX-D1U EtherNet/IP Adapter, Same IO configuration - see above (Dec 07)
TCDEP-8XXX-D1U PROFINET IO-Device, Same IO configuration - see above (Mar 08)

RJ45 Threaded With 8 Ports, M12 Connection



- Supports EtherNet/IP application layer
- Built-in Web server for remote monitoring and configuration

Characteristics

- 8 input, 8 output points per module
- 10/100 Mbps auto-negotiation, RJ45
- Static or dynamic IP address configuration

Order Number

- TEN-888-R18-05** EtherNet/IP Slave



CONNECTORS, CORDSETS AND DISTRIBUTION BOXES FOR SENSOR, ACTUATOR AND BUS NETWORK APPLICATIONS

NETWORK CONNECTIVITY

Micro-Change® M12 Threaded Cordsets



- Plug & play connection between Ethernet nodes
- Single and double-ended male cordsets
- Straight and 90°
- Shielded and unshielded
- Decoupled option
- Standard and application-specific lengths

Characteristics

- Proven reliable and durable form factor for harsh manufacturing and processing environments
- Industry-standard D-coded keyway
- Cat5e Compliant
- Rugged IP67 - rated connectors for continual connection integrity in industrial environments

Ultra-Lock™ M12 Cordsets



- Maximum-performance push-to-lock technology enabling fast, highly reliable and repeatable IP67/68/69K connections
- Single and double-ended male cordsets
- Straight and 90°
- Shielded and unshielded
- Standard and application-specific lengths

Characteristics

- Industry-standard D-coded keyway
- Cat5e Compliant
- IP67/68/69K

Ultra-Lock™ M12 Receptacles



- Connects external overmolded cordsets with an enclosure
- PCB-Mount, wire leads and cable-to-RJ45
- Female front panel-mount (PG9 or M16) and back panel-mount (M16)

Characteristics

- Accepts both M12 threaded and Ultra-Lock™ cordsets
- Proven reliable and durable form factor for harsh manufacturing and processing environments
- Industry-standard D-coded keyway
- IP67/68/69K

Micro-Change® M12 Field Attachable Connectors / Accessories



- Field termination for specific length or repair using IDC connection system
- Male and female
- M12-to-RJ45 bulkhead adapters

Characteristics

- Provides maximum flexibility by allowing the machine / system builder to determine cable length on site
- Easy to install IDC connectors
- IP67 protection when mated or capped

RJ45 Threaded Cordsets



- Overmolded threaded connectors for secure, robust IP67 connection between Ethernet nodes
- First IP67 industrial Ethernet connector
- Standard and application-specific lengths

Characteristics

- Proven reliability in harsh commercial environments, protecting against vibration, contaminants, electromagnetic interference (EMI), wide temperature ranges and chemicals
- RJ45 plug with ruggedized threaded outer shell
- Cat5e Compliant
- IP67 protection when mated or capped

RJ45 Threaded Receptacles



- Connects RJ45 threaded cordsets with an enclosure
- Punch-down (IDC), bulkhead feed-thru, direct PCB mount, and PCB-to-cable versions

Characteristics

- Proven reliability in harsh commercial environments, protecting against vibration, contaminants, electromagnetic interference (EMI), wide temperature ranges and chemicals
- RJ45 jack with ruggedized outer shell
- Cat5e Compliant
- Compatible with commercial RJ45 connectors
- IP67 protection when mated or capped

RJ45 Threaded Field Attachable Connectors



- Field termination for specific length or repair using standard crimp tools

Characteristics

- Provides maximum flexibility by allowing the machine / system builder to determine cable length on site
- Easy to install RJ45
- IP67 protection when mated or capped

RJ45 Accessories



- Cover caps with optional lanyards to protect receptacle face when not in use
- Back-end receptacle covers provide additional structural support

Characteristics

- Protects against moisture, dirt and debris



CONNECTORS, CORDSETS AND DISTRIBUTION BOXES FOR SENSOR, ACTUATOR AND BUS NETWORK APPLICATIONS

M12 THREADED CORDSETS - Order Number

MICRO-CHANGE® (M12) SINGLE-ENDED CORDSETS			MICRO-CHANGE® (M12) DOUBLE-ENDED CORDSETS				MICRO-CHANGE® (M12) DOUBLE-ENDED CORDSETS	
MALE STRAIGHT		MALE 90°	MALE STRAIGHT/ MALE STRAIGHT [1]	MALE STRAIGHT/ MALE 90°	MALE 90°/ MALE 90° [1]	MALE RJ45-TO- MALE RJ45	FEMALE STRAIGHT/ MALE RJ45	FEMALE STRAIGHT/ MALE STRAIGHT CROSSOVER
UNSHIELDED / STRANDED CONDUCTOR / PVC JACKET								
0.2M	-	-	-	-	-	-	-	E11B03003M002
0.6M	E10A00603M006	E10A00703M006	E11A06003M006	E11A06203M006	E11A06303M006	E66A06003M006	E16A03003M006	-
1M	E10A00603M010	E10A00703M010	E11A06003M010	E11A06203M010	E11A06303M010	E66A06003M010	E16A03003M010	-
2M	E10A00603M020	E10A00703M020	E11A06003M020	E11A06203M020	E11A06303M020	E66A06003M020	E16A03003M020	-
3M	E10A00603M030	E10A00703M030	E11A06003M030	E11A06203M030	E11A06303M030	E66A06003M030	E16A03003M030	-
4M	E10A00603M040	E10A00703M040	E11A06003M040	E11A06203M040	E11A06303M040	E66A06003M040	E16A03003M040	-
5M	E10A00603M050	E10A00703M050	E11A06003M050	E11A06203M050	E11A06303M050	E66A06003M050	E16A03003M050	-
10M	E10A00603M100	E10A00703M100	E11A06003M100	E11A06203M100	E11A06303M100	E66A06003M100	E16A03003M100	-
SHIELDED / STRANDED CONDUCTOR / PVC JACKET								
0.2M	-	-	-	-	-	-	-	E11B03015M002
0.6M	E10A00615M006	E10A00715M006	E11A06015M006	E11A06215M006	E11A06315M006	-	-	-
1M	E10A00615M010	E10A00715M010	E11A06015M010	E11A06215M010	E11A06315M010	-	-	-
2M	E10A00615M020	E10A00715M020	E11A06015M020	E11A06215M020	E11A06315M020	-	-	-
3M	E10A00615M030	E10A00715M030	E11A06015M030	E11A06215M030	E11A06315M030	-	-	-
4M	E10A00615M040	E10A00715M040	E11A06015M040	E11A06215M040	E11A06315M040	-	-	-
5M	E10A00615M050	E10A00715M050	E11A06015M050	E11A06215M050	E11A06315M050	-	-	-
10M	E10A00615M100	E10A00715M100	E11A06015M100	E11A06215M100	E11A06315M100	-	-	-
SHIELDED / STRANDED CONDUCTOR / PUR JACKET [2]								
0.2M	-	-	-	-	-	-	-	E11B03010M002
0.6M	E10A00610M006	E10A00710M006	E11A06010M006	E11A06210M006	E11A06310M006	-	-	-
1M	E10A00610M010	E10A00710M010	E11A06010M010	E11A06210M010	E11A06310M010	-	-	-
2M	E10A00610M020	E10A00710M020	E11A06010M020	E11A06210M020	E11A06310M020	-	-	-
3M	E10A00610M030	E10A00710M030	E11A06010M030	E11A06210M030	E11A06310M030	-	-	-
4M	E10A00610M040	E10A00710M040	E11A06010M040	E11A06210M040	E11A06310M040	-	-	-
5M	E10A00610M050	E10A00710M050	E11A06010M050	E11A06210M050	E11A06310M050	-	-	-
10M	E10A00610M100	E10A00710M100	E11A06010M100	E11A06210M100	E11A06310M100	-	-	-

ULTRA-LOCK™ M12 CORDSETS – Order Number

DOUBLE-ENDED CORDSETS			DOUBLE-ENDED CORDSETS
MALE STRAIGHT / MALE STRAIGHT	MALE STRAIGHT / MALE 90°	MALE 90° / MALE 90°	THREADED FEMALE STRAIGHT / MALE STRAIGHT CROSSOVER
UNSHIELDED / STRANDED CONDUCTOR / PVC JACKET			
0.2M	-	-	E1WB03003M002
0.6M	EWWA06003M006	EWWA06203M006	-
1M	EWWA06003M010	EWWA06203M010	-
2M	EWWA06003M020	EWWA06203M020	-
3M	EWWA06003M030	EWWA06203M030	-
4M	EWWA06003M040	EWWA06203M040	-
5M	EWWA06003M050	EWWA06203M050	-
10M	EWWA06003M100	EWWA06203M100	-
SHIELDED / STRANDED CONDUCTOR / PVC JACKET			
0.2M	-	-	E1WB03015M002
0.6M	EWWA06015M006	EWWA06215M006	-
1M	EWWA06015M010	EWWA06215M010	-
2M	EWWA06015M020	EWWA06215M020	-
3M	EWWA06015M030	EWWA06215M030	-
4M	EWWA06015M040	EWWA06215M040	-
5M	EWWA06015M050	EWWA06215M050	-
10M	EWWA06015M100	EWWA06215M100	-
SHIELDED / STRANDED CONDUCTOR / PUR JACKET [2]			
0.2M	-	-	E1WB03010M002
0.6M	EWWA06010M006	EWWA06210M006	-
1M	EWWA06010M010	EWWA06210M010	-
2M	EWWA06010M020	EWWA06210M020	-
3M	EWWA06010M030	EWWA06210M030	-
4M	EWWA06010M040	EWWA06210M040	-
5M	EWWA06010M050	EWWA06210M050	-
10M	EWWA06010M100	EWWA06210M100	-

ULTRA-LOCK™ M12 RECEPTACLES - Order Number

FRONT PANEL MOUNT		
PCB-MOUNT	PCB W/LEADS	
PG9	ERWD2J30	ERWAAJ3000C050
M16	ERWD2U30	ERWAAU3000C050
BACK PANEL MOUNT		
PCB-MOUNT	PCB W/LEADS	CABLE-TO-RJ45
M16	ERWD2U70	ERWPAU7003M006
M16*	ERWF2U70	-
*with Board locking feature		

M12 FIELD ATTACHABLE CONNECTORS - Order Number

MALE	FEMALE
E1AS06-52	E1AS00-52

M12 TO RJ45 ACCESSORIES - Order Number

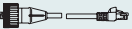
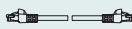
BULKHEAD ADAPTER (M12-TO-RJ45)	
STRAIGHT	90°
ER1PADAPTER	ER1PADAPTER90

[1] Also available in decoupled configuration
[2] PROFINET compliant



CONNECTORS, CORDSETS AND DISTRIBUTION BOXES FOR SENSOR, ACTUATOR AND BUS NETWORK APPLICATIONS

RJ45 THREADED CORDSETS - Order Number

SINGLE-ENDED CORDSETS		DOUBLE-ENDED CORDSETS			
MALE THREADED		MALE THREADED / MALE THREADED	MALE THREADED / MALE STANDARD	MALE STANDARD / MALE STANDARD	
					
SHIELDED / SOLID CONDUCTOR / PUR JACKET / UL/CSA [1]					
0.6M	ENS3105M006	ENS3115M006	ENS3135M006	ENS3335M006	
1M	ENS3105M010	ENS3115M010	ENS3135M010	ENS3335M010	
2M	ENS3105M020	ENS3115M020	ENS3135M020	ENS3335M020	
3M	ENS3105M030	ENS3115M030	ENS3135M030	ENS3335M030	
4M	ENS3105M040	ENS3115M040	ENS3135M040	ENS3335M040	
5M	ENS3105M050	ENS3115M050	ENS3135M050	ENS3335M050	
10M	ENS3105M100	ENS3115M100	ENS3135M100	ENS3335M100	
SHIELDED / STRANDED CONDUCTOR / PUR JACKET / KEVLAR-WRAPPED [1]					
0.6M	ENP3105M006	ENP3115M006	ENP3135M006	ENP3335M006	
1M	ENP3105M010	ENP3115M010	ENP3135M010	ENP3335M010	
2M	ENP3105M020	ENP3115M020	ENP3135M020	ENP3335M020	
3M	ENP3105M030	ENP3115M030	ENP3135M030	ENP3335M030	
4M	ENP3105M040	ENP3115M040	ENP3135M040	ENP3335M040	
5M	ENP3105M050	ENP3115M050	ENP3135M050	ENP3335M050	
10M	ENP3105M100	ENP3115M100	ENP3135M100	ENP3335M100	
UNSHIELDED / STRANDED CONDUCTOR / PUR JACKET / UL/CSA [1]					
0.6M	ENQ3105M006	ENQ3115M006	ENQ3135M006	ENQ3335M006	
1M	ENQ3105M010	ENQ3115M010	ENQ3135M010	ENQ3335M010	
2M	ENQ3105M020	ENQ3115M020	ENQ3135M020	ENQ3335M020	
3M	ENQ3105M030	ENQ3115M030	ENQ3135M030	ENQ3335M030	
4M	ENQ3105M040	ENQ3115M040	ENQ3135M040	ENQ3335M040	
5M	ENQ3105M050	ENQ3115M050	ENQ3135M050	ENQ3335M050	
10M	ENQ3105M100	ENQ3115M100	ENQ3135M100	ENQ3335M100	
SHIELDED / SOLID CONDUCTOR / PUR JACKET [1]					
0.6M	ENV3105M006	ENV3115M006	ENV3135M006	ENV3335M006	
1M	ENV3105M010	ENV3115M010	ENV3135M010	ENV3335M010	
2M	ENV3105M020	ENV3115M020	ENV3135M020	ENV3335M020	
3M	ENV3105M030	ENV3115M030	ENV3135M030	ENV3335M030	
4M	ENV3105M040	ENV3115M040	ENV3135M040	ENV3335M040	
5M	ENV3105M050	ENV3115M050	ENV3135M050	ENV3335M050	
10M	ENV3105M100	ENV3115M100	ENV3135M100	ENV3335M100	

[1] 4th digit represents wiring (1=10BaseT, 2=568A, 3=568B)

RJ45 THREADED RECEPTACLES - Order Number

110 PUNCHDOWN RECEPTACLES	DIRECT-MOUNT PCB RECEPTACLES	SOLDER PCB RECEPTACLES
ENDR2FB5	ENPR1FF5	ENSR1FB5
SOLDER PCB + CABLE TERMINATION RECEPTACLES [2]	SOLDER PCB + CABLE + MALE RJ45 TERMINATION RECEPTACLES [2]	
0.305M 1M	ENSR1FB5C305 ENSR1FB5M010	ENSP1F5C305 ENSP1F5M010
INLINE INTERCONNECT RECEPTACLES	BULKHEAD PASSTHRU RECEPTACLES	
	RJ45	RJ11
	ENSP1F5	ENSP6F5
RJBG16821	RJBG17946	

[2] 5th digit represents wiring (1=10BaseT, 2=568A, 3=568B)

RJ45 THREADED FIELD ATTACHABLE CONNECTORS - Order Number

FOR STRANDED CORE	FOR SOLID CORE
ENQAM315	ENSAM315

RJ45 ACCESSORIES - Order Number

CAP	CAP & LANYARD	BACKEND RECEPTACLE COVER
 FEMALE	 FEMALE	
65-0300	67-0300	RJBG17756
 MALE	 MALE	
65-0301	67-0301	

POWER CONNECTIVITY

Auxiliary Power 5-Pole Media [1]

- Supplies auxiliary power to a variety of devices, including active I/O modules or machine stop tees

- Complete system of cordsets (single and double-ended), tees and receptacles
- Standard and application-specific lengths

- Characteristics**
- Rugged IP68 rated connectors bring power to active I/O modules reliably
 - Variety of connector configuration and cable length options available

POWER CORDSETS - Order Number

MINI-CHANGE® SINGLE-ENDED CORDSETS

	MALE STRAIGHT	MALE 90°	FEMALE STRAIGHT	FEMALE 90°
	UL STOOW PVC CABLE, NEC COLOR CODE			
2M	105006A01M020	105007A01M020	105000A01M020	105001A01M020
4M	105006A01M040	105007A01M040	105000A01M040	105001A01M040
5M	105006A01M050	105007A01M050	105000A01M050	105001A01M050
6M	105006A01M060	105007A01M060	105000A01M060	105001A01M060
10M	105006A01M100	105007A01M100	105000A01M100	105001A01M100

MINI-CHANGE® DOUBLE-ENDED CORDSETS

	FEMALE STRAIGHT / MALE STRAIGHT	FEMALE 90° / MALE STRAIGHT	FEMALE STRAIGHT / MALE 90°	FEMALE 90° / MALE 90°
	UL STOOW PVC CABLE, NEC COLOR CODE			
0.6M	115030A01M006	115031A01M006	115032A01M006	115033A01M006
1M	115030A01M010	115031A01M010	115032A01M010	115033A01M010
2M	115030A01M020	115031A01M020	115032A01M020	115033A01M020
3M	115030A01M030	115031A01M030	115032A01M030	115033A01M030
4M	115030A01M040	115031A01M040	115032A01M040	115033A01M040
5M	115030A01M050	115031A01M050	115032A01M050	115033A01M050

MICRO-CHANGE® (M12) SINGLE-ENDED CORDSETS

	MALE STRAIGHT	MALE 90°	FEMALE STRAIGHT	FEMALE 90°
	PVC CABLE, IEC COLOR CODE FOR COMPACT I/O MODULES [2]			
0.6M	-	-	-	-
1M	-	-	-	-
2M	805006E03M020	805007E03M020	805000E03M020	805001E03M020
3M	-	-	-	-
4M	805006E03M040	805007E03M040	805000E03M040	805001E03M040
5M	805006E03M050	805007E03M050	805000E03M050	805001E03M050
10M	805006E03M100	805007E03M100	805000E03M100	805001E03M100

MICRO-CHANGE® (M12) DOUBLE-ENDED CORDSETS

	FEMALE STRAIGHT / MALE STRAIGHT	FEMALE 90° / MALE STRAIGHT	FEMALE STRAIGHT / MALE 90°	FEMALE 90° / MALE 90°
	UL ITC/PLTC HIGH FLEX TPE CABLE, IEC COLOR CODE FOR COMPACT I/O MODULES [3]			
0.6M	-	-	-	-
1M	-	-	-	-
2M	885030E03M020	885031E03M020	885032E03M020	885033E03M020
3M	-	-	-	-
4M	885030E03M040	885031E03M040	885032E03M040	885033E03M040
5M	885030E03M050	885031E03M050	885032E03M050	885033E03M050
10M	885030E03M100	885031E03M100	885032E03M100	885033E03M100

	MALE STRAIGHT	MALE 90°	FEMALE STRAIGHT	FEMALE 90°
	UL ITC/PLTC HIGH FLEX TPE CABLE, IEC COLOR CODE FOR COMPACT I/O MODULES [3]			
0.6M	-	-	-	-
1M	-	-	-	-
2M	805006K05M020	805007K05M020	805000K05M020	805001K05M020
3M	-	-	-	-
4M	805006K05M040	805007K05M040	805000K05M040	805001K05M040
5M	805006K05M050	805007K05M050	805000K05M050	805001K05M050
10M	805006K05M100	805007K05M100	805000K05M100	805001K05M100

	FEMALE STRAIGHT / MALE STRAIGHT	FEMALE 90° / MALE STRAIGHT	FEMALE STRAIGHT / MALE 90°	FEMALE 90° / MALE 90°
	UL ITC/PLTC HIGH FLEX TPE CABLE, IEC COLOR CODE FOR COMPACT I/O MODULES [3]			
0.6M	-	-	-	-
1M	-	-	-	-
2M	885030K05M020	885031K05M020	885032K05M020	885033K05M020
3M	-	-	-	-
4M	885030K05M040	885031K05M040	885032K05M040	885033K05M040
5M	885030K05M050	885031K05M050	885032K05M050	885033K05M050
10M	885030K05M100	885031K05M100	885032K05M100	885033K05M100

POWER RECEPTACLES - Order Number

MINI-CHANGE® RECEPTACLES

	MALE STRAIGHT	FEMALE STRAIGHT
½" NPT thread + 12" leads	1R5006A20A120	1R5000A20A120
M16 thread + 12" leads	51209-030	

POWER FIELD-ATTACHABLE CONNECTORS - Order Number

MINI-CHANGE® FIELD-ATTACHABLE CONNECTORS

	MALE STRAIGHT	FEMALE STRAIGHT
	1A5006-34	1A5000-34

POWER TEES - Order Number

MINI-CHANGE® TEES	MINI-CHANGE® / MICRO-CHANGE® (M12) TEES
STANDARD BUS DROP TEE	BUS DROP MICRO TEE
PBAPT	PBAPT-D

MALE STRAIGHT	FEMALE STRAIGHT
8A4006-32	8A4000-32

[1] 4-Pole Mini-Change® auxiliary power cordsets also available

[2] The standard coupling nut is nickel-plated brass. For 316 Hex stainless steel, add an "8" at the end

[3] The standard coupling nut is nickel-plated brass with Teflon coating. For 316 Hex stainless steel, add an "8" at the end

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