GX20v3 MDR CONTROL CARD

- **UL and CE Certified. (UL Recognized Component)**
- 24V High Current 2-Zone MDR Control Card. Each motor output can deliver up to 3A continuous current to MDR rollers.
- High Performance and reliable EtherCAT Connectivity. 1KHz or faster scan time/polling rate.
- Built-in Reverse polarity, power rails transients, overcurrent and short circuit protections.
- Diagnostic data, e.g. individual motor current, peak current, input voltage.
- Free programming software for conveyor automation, e.g. transport, merge, cross-transfer etc.
- Independent Motor and Cpu power for redundant power operation. CPU, PhotoEyes, Inputs still operate even when motor power is interrupted because of ESTOP or other events.
- Compact Form-Factor and spill-proof enclosure that fits inside conveyor channel.

Overview

The GX20 MDR Control Card is a device used in Conveyor systems for controlling and driving MDR rollers. Each GX20 card can control up to two motors. Compatible rollers include:

- Interroll EC310
- Interroll EC5000 24V (Upto 75W)
- Rulmeca BL3
- Itoh Denki MDRs
- And more

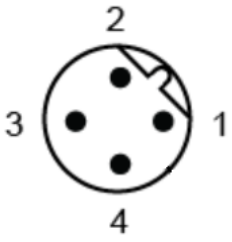
EtherCAT Network

A key feature of the GX20 is its use of EtherCAT for the data network, ensuring high-speed and efficient communication. The system also supports hot-swapping of these cards in case a unit needs to be replaced. With EtherCAT, GX20 can be used in a Ring-Topology configuration, allowing two separate network connections so communications can continue even if there is a break in the network chain.

Connectors Data

Board Power:
CPU/NET/SNSR PWR

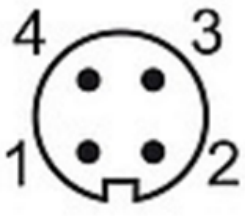
M12-B (MALE) – 24V Power
Voltage Range: 22VDC – 26VDC (Above 28V the board may suffer permanent damage)
Max Current: 500 mA (includes combined two PhotoEyes Current)
Typical Current: Board current is 75mA, Photoeye* current is 30mA each
Input Power: At 24V board takes 1.5W, Photoeye power is 1W each
Cable Length: 7.5”
* Photoeyes used in examples are Allen Bradley 42EF-P2MPB-F4 and PnF ML17-54/59/103



Pin	Description
Pin1	+24V (Brown)
Pin2	Not Connected
Pin3	GND (Blue)
Pin4	Not Connected

Motor Power Input:
MTR PWR

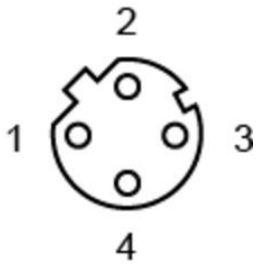
M12-A (MALE) – 24V Power
Voltage Range: 20VDC – 26VDC
Max Continuous Current: 6 Amps
Max Peak Current: 10 Amps peak
Cable Length: 8”



Pin	Description
Pin1	+24V (Brown)
Pin2	Not Connected
Pin3	GND (Blue)
Pin4	Not Connected

EtherCAT Ports:
Net-In/Net-Out

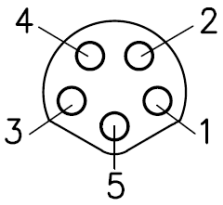
M12-D (FEMALE) Connector – Auto MDIX Capable
Cable Length: 8”



Pin	Description
Pin1	Tx (+) | Rx(+)
Pin2	Rx (+) | Tx(+)
Pin3	Tx (-) | Rx(-)
Pin4	Rx (-) | Tx(-)

Motor Outputs:
M1/M2

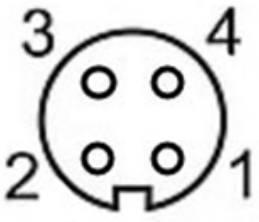
M8 5-Pin (Female) Connectors used for Motor Outputs
Output Voltage: Motor Power Input Voltage –1V (eg if Motor Power Input is 24, Motor Power Output will be 23V)
Max Output Continuous Current: 3 Amps
Max Output Peak Current: 5 Amps Peak
Cable Length: 15”
Fuse: Built in PTC Resettable Fuse on each motor output for short circuit and over-current protection.



PIN	Description
Pin1	+24V
Pin2	Direction Output. PNP output to provide 24V up to 5mA when activate Direction signal. OFF: Open Circuit ON: 24V, Max 5mA
Pin3	GND
Pin4	Digital input (NPN Open-Drain): • Input tied to 0V (Grounded): NO Fault • Input Unconnected or Open Circuit: Error, Fault state
Pin5	Speed. 0-10V Analog output voltage, max 10mA.

PhotoEye Inputs: IN1/IN2

M12-A (FEMALE) connector used for Inputs
PhotoEye Voltage: 24V
Max Current: 500mA
Cable Length: 27”



Pin	Description
Pin1	+24V (Brown)
Pin2	PNP, Active when beam interrupted, eg AB 42EF-P2MPB-F4
Pin3	GND (Blue)
Pin4	Not Used

Diagnostic Data

The GX20 also provides **Diagnostic data for Motor Voltage, individual Motor current as well as peak current**. This information is helpful to identify failing motor and quickly avoid downtime. The information is relayed back to the Gateway/PLC over EtherCAT and then to the PC/PLC/HMI app for monitoring.

Station ID

The station ID is configured by the rotary switches. The valid station ID range is 01 to 64.

Plastic Sealed Case

The plastic product case is a durable solution for protecting the circuit from liquid spills and short circuits. The top cover can be pried-open along the long sides to access the rotary switches.

Status LEDs

CPU	Status of CPU
FLT 1/2	Motor Fault States
MTR 1/2	On/Off State of connected motor
SNSR 1/2	On/Off State of connected sensor
ERROR	Gx20 fault-state Indicator, over/under voltage
DIR 1/2	Commanded Motor Direction

Technical Data

Electrical specifications	
Motor Power	24 VDC (±4 Volts)
Inputs	
Number/Type	2 Inputs for Sensors (IN1, IN2) Above 16V triggers the input.
Outputs	
Number/Type	2 outputs for DC roller motors (MOT1, MOT2)
Current	3A continuous current to each MDR rollers.
Overload Protection	Resettable Fuse, triggers > 3 Amps for 3 to 5 seconds for each motor. Auto recovers on power cycle and cool off time.
Roller Speed Signal	0 … 10 V
Roller Direction Signal	OFF: Open Circuit. ON: 24V, Max 5mA
Motor Fault	Digital input (NPN Open-Drain): • Input tied to 0V (Grounded): NO Fault • Input Unconnected or Open Circuit: Error, Fault state
Ambient Conditions	
Ambient Temperature	-15 ... 50 °C
Relative humidity:	5…95%
Storage Temperature	-25 ... 85 °C
Mechanical Specifications	
Degree of Protection	IP67
Mass	325 grams (~12 ounce)
Mounting	2 clips with Ø 9 mm drill hole