

GX20.v2 MDR CONTROL CARD



Key Features

- 24V High Current 2-Zone MDR Control Card. Delivers up to 3A continuous current to each MDR roller.
- 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.
- **Built-in ZPA logic. Install without any programming or PLC/Gateway for transport conveyor.**
- Compact Form-Factor that fits inside conveyor channel.
- Direction and Speed Control for MDR Rollers.
- Diagnostic data, e.g. individual motor current, peak current, input voltage.
- Free programming software for conveyor automation, e.g. transport, merge, cross-transfer etc.
- Dual power inputs. Motor power is separate from CPU/Network/Photoeye power. Allows board to remain powered during ESTOP.

Overview

GX20 is our flagship MDR control Card based on EtherCAT Technology, equipped with two high current MDR motor outputs, as well as two inputs for photoeyes.

Compatible rollers include:

- Interroll EC310
- Interroll EC5000 24V AI (20W / 35W / 50W)
- Rulmeca BL3
- Itoh Denki PM500XK
- Itoh Denki PM500XC
- And more

The GX20 allows quick installation of the control system using **M8 plugs** motors and photoeyes, and Snap-On mounting hardware. The device uses **vampire connectors** for easy connection to the Power cables, which allows for significant reductions in installation costs as well as maintenance.

The GX20 unit puts out 0-10V analog voltage to set the motor speed. This value is set by the EtherCAT Gateway e.g. [IntelliCAT Gateway/PLC](#). The motor speed, direction and on/off state are controlled from network polling 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.

The ZPA mode is selected on the rotary dial. In ZPA mode, no EtherCAT master is required. The device operates independently without requiring any programming. Different types of ZPA configurations are supported.

Station ID

The station ID is configured by the rotary switches.



EtherCAT Station ID range : 01 – 64

Station ID between 01 and 64, device operates in EtherCAT Mode.

ZPA Mode Station ID range : 65 – 99

Station ID between 65 and 99, device operates in ZPA mode, no EC master is required.

Enclosure

The metal enclosure safeguards the circuit board by providing solid structural rigidity and resistance to physical impacts. It also prevents dust from entering the device and offers protection against electrostatic discharge to the PCB.



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	Device fault-state Indicator
DIR 1/2	Commanded Motor Direction for each motor

Motor/CPU Power Wiretap Connector



Motor Output Plugs MOT1 and MOT2 – M8 5-Pin Female Connectors

M8 5-Pin (Female) Connectors used for Motor Outputs

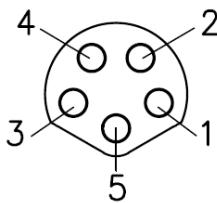
Output Voltage: Power Input Voltage –1V (eg if Power Input is 24v, Power Output will be 23V)

Max Output Continuous Current: 3 Amps

Max Output Peak Current: 5 Amps Peak

Cable Length: 30"

Fuse: Built in PTC Resettable Fuse on each motor output for short circuit and over-current protection.



<u>PIN</u>	<u>Description</u>
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	Fault Input. Digital input (NPN Open-Drain): <ul style="list-style-type: none">• Input tied to 0V (Grounded): NO Fault• Input Unconnected or Open Circuit: Error, Fault state
Pin5	Speed. 0-10V Analog output voltage, max 10mA.

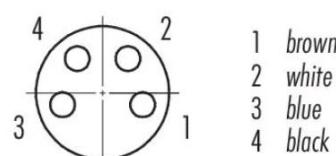
Sensor Input Plugs IN1 and IN2 - M8 4-Pin Female Connectors

M8 4pin (FEMALE)

PhotoEye Voltage: 24V

Max Current: 500mA

Cable Length: 30"



<u>Pin</u>	<u>Description</u>
Pin1	+24V (Brown)
Pin2	Not Used (white)
Pin3	GND (Blue)
Pin4	Signal. PNP. Active when beam is interrupted. (black)

Technical Data

Electrical specifications	
Motor Power	24 VDC (± 4 Volts)
	Max Current: 6Amps.
CPU Power	24 VDC (± 4 Volts)
	Max Current: 100 mA
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 2mA
Motor Fault	Digital input (NPN Open-Drain): <ul style="list-style-type: none">• Input tied to 0V (Grounded): NO Fault• Input Unconnected or Open Circuit: Error, Fault state
Ambient Conditions	
Ambient Temperature	-25 ... 65 °C
Storage Temperature	-25 ... 85 °C
Mechanical Specifications	
Degree of Protection	IP60
Connection	EtherCAT: RJ45 Both In and Out Power: Insulation piercing technology Inputs/outputs: M8 round plug connector in accordance with EN 61076-2-104 Inputs: LF004-GS1-A (4-pin, bushing contacts, screw lock, A-coded) Matching connector: LM004-Gx1-A or similar Outputs: NF005-SS1-B (5-pin, bushing contacts, snap lock, B-coded). Matching connector: NM005-Sx1-B or similar
Mass	400 grams (~0.9 lb)
Mounting	2 clips with Ø 9 mm drill hole
Cable Length	30 inches for Photo Eyes and Motors. 7 inches for Power.

Dimension Data

All Dimensions are in inches(gray) and millimeters(black).

