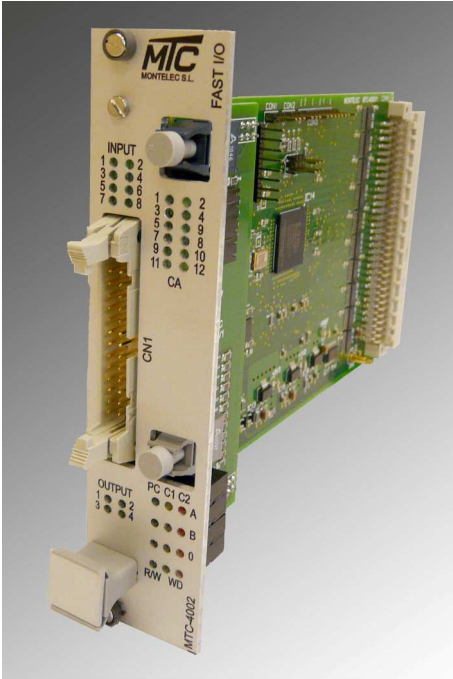


DESCRIPTION



MTC-4002 is a fast counters and interrupts handler card designed to be used in simple applications as well as complex real-time controls.

It is a logic programmable versatile card. It has a generic counters group and other more specifics that cover a wide range of applications. It can still be targeted for specific applications on request.

This card can be used to complement the control of one or more *MTC-4031* through the bus. This is useful in applications that require rigorous control of position, speed or shift registers.

Multiple cards can be connected to the same rack.

The setup is done in a simple and intuitive way using graphical software. The access to the counters and fast I/Os is done from CoDeSys programming environment (www.3s-software.com) using function blocks.

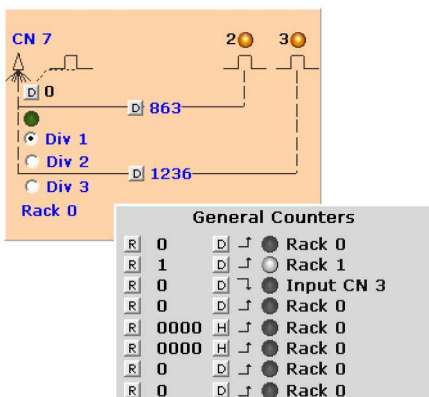
Summary of benefits:

- **Shift register oriented eight counter groups**
- **One counter with eight latched registers**
- **One counter with tracking and one output**
- **One counter with tracking and double output**
- **1 bit Shift Register with four delayed outputs**
- **Twelve interruption sources**

APPLICATION

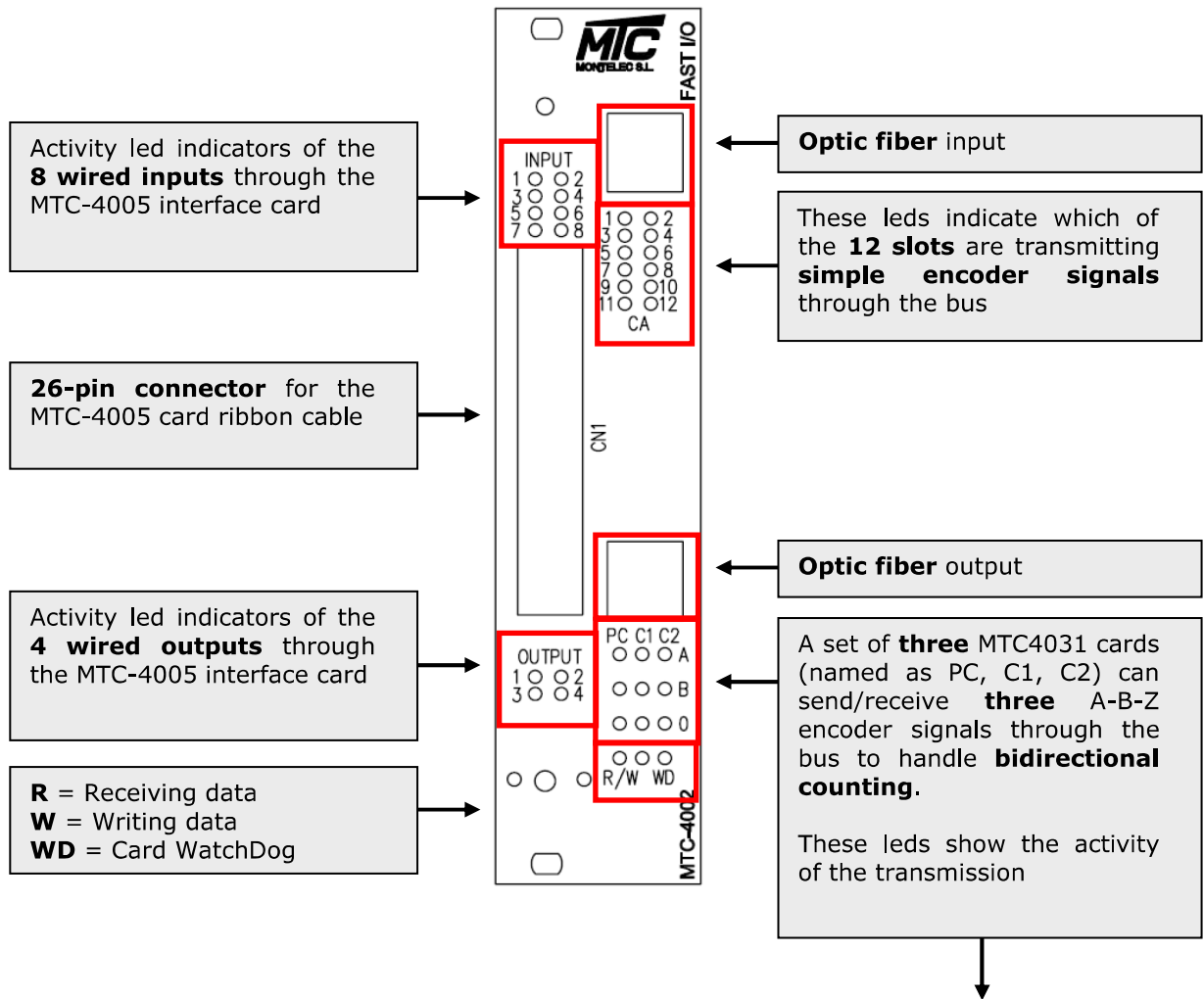
The **MTC-4002** is mainly used in applications that require accuracy on signal counting and a quick response in real time. Note the flexibility and ease of configuration.

These are some of their applications:

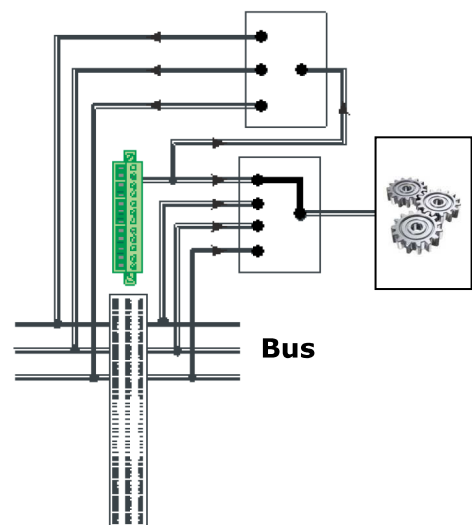


- Incremental / decremental counting
- Angular speed and frequency measurements
- Interrupts generation to the MTC-4000 CPU
- Signal tracking
- Shift registers
- Motor controls with speed or position loops
- System synchronizations
- Signals delay
- Period measurements

FRONTAL COVER ELEMENTS DESCRIPTION



For more information related with the interface card, refer to this manual:
"MTC-4005 Interface fast inputs"



TECHNICAL SPECIFICATIONS

Size format	
▪ Europe size card	
Precision	
▪ High-speed internal oscillator.....	80MHz
Frontal elements	
▪ 1 optic fiber input	clock input (<i>optional</i>)
▪ 1 optic fiber output	physical inputs repeater mode (<i>optional</i>)
▪ 1 ribbon cable connector.....	26-wires (<i>interface card</i>)
▪ I/O status led diodes	8 inputs + 4 outputs
▪ Encoder status led diodes 3 triple inputs (A-B-Z) of MTC4031
 12 simple inputs of MTC4031
Inputs	
▪ Input type	opto-coupled (24V)
▪ Quantity	8 (through interface) + 1(optic fiber)
▪ Maximum operating frequency	150 KHz
▪ Resource	MTC-4005 Interface card
Outputs	
▪ Output type:	opto-coupled (24V)
▪ Quantity	4 (through interface) + 1(optic fiber)
▪ Resource	MTC-4005 Interface card
Interrupts	
▪ Source quantity	12
▪ Generation source.....	two hardware interrupts (BUS1 / BUS2) in CoDeSys
▪ Edges	rising edge ↑ / falling edge ↓
▪ Enabling mask registers	
▪ Triggering flags registers	
Comunication between cards	
▪ Signal handling between MTC-4002.....	2 double I/O channels
▪ Encoder signal handling of MTC-4031	3 triple configurable channels
Counters	
▪ Shift register oriented 8 counter groups	1 channel / 16bits
▪ One counter with eight latched registers	1 channel / 32bits
▪ One counter with tracking and double output	
▪ One counter with tracking and one output	
→ Clock source:.....	configurable
→ Input source:.....	configurable
▪ Counter for position control with sensor	
→ 1 self-directioned counter X4	16 bits
→ 1 self-directioned counter X4	32 bits
→ 2 inputs and 2 asociated registers	
Shift Registers	
▪ Register resolution	1 bit
▪ Input source:	8 external inputs (<i>configurable</i>)
▪ Output quantity:.....	4
▪ Register clock:	divisible X1 or X2 (<i>configurable</i>)
▪ Maximum delay:	65536 steps
Filters	
▪ Configurable by program for all elements	16 filters
▪ Filter f_{max} (<i>clocks</i>):.....	1,25MHz
▪ Filter f_{min} (<i>clocks</i>):	38,1469Hz
▪ Minimum filter pulse width (<i>I/Os and INTs</i>).....	400ns
▪ Maximum filter pulse width (<i>I/Os and INTs</i>).....	13,1072ms