Flexible High-speed I/O Control Module

Differential input, DC input
differential output, DC output

RD40PD01
Input:12 points, output:14 points

The flexible high-speed I/O control module includes features such as the ability to program control logic and microsecond-fast asynchronous I/O response times to the programmable controller CPU and control bus, realizing stable machine performance minimizing processing speed fluctuation. Equipped with a field programmable gate array (FPGA), easy hardware logic design using the dedicated tool reduces development cost.
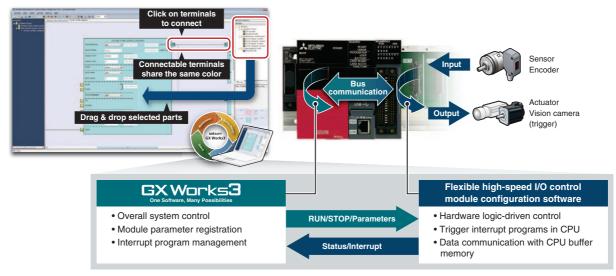
High-speed, stable I/O response

The flexible high-speed I/O control module provides highly accurate control of I/O timing owing to the asynchronous execution of internal control logic to the CPU and control bus. Variation in processing time is reduced to nanoseconds, thereby enabling sensors such as proximity lasers to trigger vision cameras accurately, which is required in product testing equipment in order to capture products moving at high-speed.
Trigger input timing is adjustable to a minimum of 25 ns resolution.

FPGA logic design enables more freedom in customization

Equipped with a FPGA, control logic can be programmed easily using GX Works3. This low-cost alternative to HDL programming, logic synthesis and timing analysis reduces the design process, which is a common feature of general FPGA logic design.

Flexible high-speed I/O control module specifications

Item	RD40PD01	
	DC	Differential
Number of input points (point)	12 (5/24 V DC/differential)	
Number of output points (point)	8 (5…24 V DC, 0.1 A/point)	6
Number of interrupts	8	
Input response time	≤ 1 μs	
Output response time	≤ 1 μs	
Max. pulse input speed (pulse/s)	200 k (200 kHz)	8 M (2 MHz)
Max. pulse output speed (pulse/s)	200 k (200 kHz)	8 M (2 MHz)
Main functions executable using main block combinations	Pulse count, coincidence detection, cam switch, highly-accurate pulse output, PWM output, ratio setting, pulse measurement, electrical interface conversion	
Main hardware logic processing time	Logic operation: Min. 87.5 ns, coincidence output: Min. 137.5 ns, cam switch: Min. 262.5 ns	
External interface*[1]		
40-pin connector	● (2x)	

*1: For more information about external interface (for applicable options, please refer to the relevant product manual), refer to the option lists on page 97.