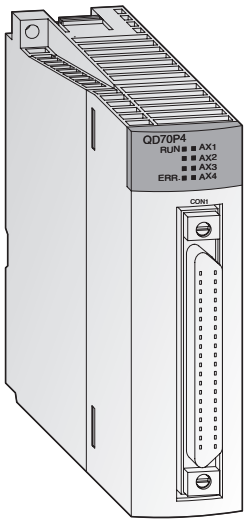
■ Positioning Modules



Multi-axis positioning

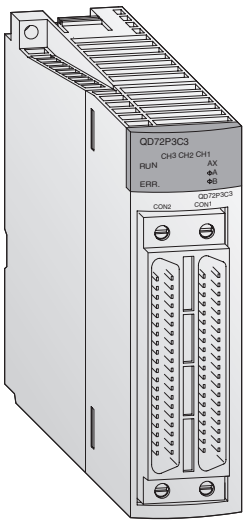
The modules are especially designed for systems including multiple axes that do not require any extensive control. The QD70P4 controls up to 4 axes and the QD70P8 up to 8 axes. Since any number of positioning modules can be used the number of axes to be controlled as well is unlimited.

Special features:

- Control of 4 or 8 axes by one module and more than 8 axes by using multiple modules
- Quick start of up to 8 axes simultaneously (0.1 ms per axis after start command from the CPU)
- Various positioning control systems are selectable.
- Easy parametrizing and positional data setup via optionally available positioning software GX Configurator-PT

Specifications		QD70P4	QD70P8
Number of control axes		4	8
Interpolation		—	
Points per axis		10 (by PLC program or with the positioning software GX Configurator PT)	
Output signal		Pulse chain	
Output frequency	kHz	1–200 000	
Positioning method		PTP positioning; speed/locus positioning; path control	
Positioning	Units	Absolute data: -2 147 483 648–2 147 483 647 pulse Incremental method: -2 147 483 648–2 147 483 647 pulse Speed/position switching control: 0–2 147 483 647 pulse	
	Speed	0–200 000 pulse/s	
	Acceleration/ deceleration processing	Automatic, acceleration and deceleration step by step	
	Acceleration and deceleration time	0–32767 ms	
Pulse output type		Open collector output	
Max. servo motor cable length	m	2	2
I/O points		32	32
Applicable wire size		0.3 mm² (with connector A6CON1); AWG24 (with connector A6CON2)	
Internal power consumption (5 V DC)	mA	550	740
External power consumption (24 V DC)	mA	65	120
Weight	kg	0.15	0.17
Dimensions (WxHxD)	mm	27.4x98x90	27.4x98x90
Order information	Art. no.	138328	138329
Accessories		40-pin connector and ready to use connection cables (refer to pages 57–58)	

■ Positioning Modules



Space efficient positioning

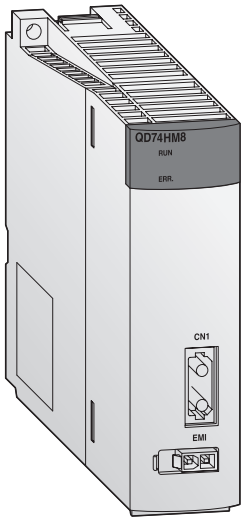
The QD72P3C3 and QD73A1 realize positioning applications with less space requirements.

Special features:

- Minimized space requirement!
- The QD72P3C3 enables the positioning of 3 axes and has 3 integrated counter inputs
- QD73A1 with integrated D/A converter to control servo amplifiers with analog input
- Optimum solution for specific applications!
- Positioning can be controlled by confirming actual movement amount from encoder inputs.

Specifications			QD72P3C3	QD73A1
Number of control axes			3	1
Interpolation			—	—
Positioning	Data items		1 per axis	1
	Method		PTP control: absolute data and/or incremental	PTP control: absolute or incremental; speed/position swiching control: incremental
	Control range		-1073741824–1073741823 pulses	-2147483648–2147483647 pulses (32 bit signed binary)
	Speed		0–100 000 pulse/s	1–4000000 pulse/s
	Acceleration/ deceleration processing		Acceleration and deceleration step by step	Automatic, acceleration and deceleration step by step
	Acceleration and deceleration time	ms	1–5000	2–9999
	Start time		Positioning control, speed control: 1 ms	1.2 ms
	Pulse output method		Open collector output	Analog output (0–±10 V DC, adjustable to ±5–±10 V DC)
	Max. output pulse	kpps	100	—
Counter function	Number of channels		3	1
	Count input signal		1-phase input, 2-phase input; 5–24 V DC	2-phase input
	Counting speed	kpps	100	1000
	Counting range		31-bit signed binary (-1073741824–1073741823)	—
External connection			40-pin connector	15-pin and 9-pin connector
Internal power consumption (5 V DC)		A	0.57	0.52
I/O points			32	48
Weight		kg	0.15	0.2
Dimensions (WxHxD)		mm	27.4x98x90	55.2x98x90
Order information		Art. no.	213230	257759
Accessories			40-pin connector and ready to use connection cables (refer to pages 57–58)	

■ Positioning Modules



SSCNET positioning

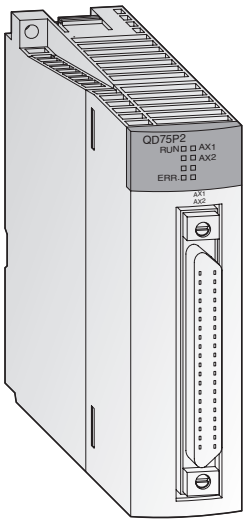
The positioning modules QD74MH are used to control multiple axes via the high speed motion network SSCNETIII.

Special features:

- Eight and sixteen axes positioning modules are available.
- The operation cycle is 0.88 ms
- Easy positioning control functions
- A positioning operation starts up quickly taking as little as 0.88 ms.
- SSCNETIII makes the connection to the servo amplifier possible
- Easy application to the absolute position system

Specifications			QD74MH8	QD74MH16
Number of control axes			8	16
Interpolation			2 to 4 axes linear interpolation (up to 4 groups)	
Control methods			PTP control/locus control (linear only)	
Control units			Pulse	
Positioning data			32 data (positioning data no.1 to 32)/axis (by sequence program)	
Back-up			Basic parameters, OPR parameters, Manual control parameters, System parameters, Servo parameters and positioning parameters can be saved in the flash ROM. (Battery less)	
Positioning	Method		PTP control: incremental and/or absolute data; locus control: incremental and/or absolute data	
	Range		Absolute data: -2 147 483 648–2 147 483 647 pulse Incremental method: -2 147 483 648–2 147 483 647 pulse	
	Speed command range		5–2147000000 pulse/s	
	Acceleration/ deceleration processing		Linear, S-curve	
	Acceleration and deceleration time	ms	0–20000	
	Rapid stop decceleration time	ms	0–20000	
Number of SSCNET III systems			1	
Number of write accesses to flash ROM			Up to 100 000	
I/O points			32	
Internal power consumption (5 V DC)		A	0.7	
Weight		kg	0.15	
Dimensions (WxHxD)		mm	27.4x98x90	
Order information		Art. no.	218106	217994
Accessories			SSCNETIII cable (MR-J3BUS□M(-A/-B))	

■ Positioning Modules



Positioning with an open control loop

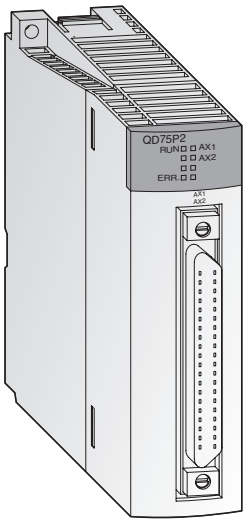
The modules generate the travel command via a pulse chain. The speed is proportional to the pulse frequency and the distance travelled is proportional to the pulse length.

Special features:

- Control of up to three axes with linear interpolation (QD75P4) or circular interpolation (QD75P2, QD75P4)
- Storage of up to 600 positional data in the flash ROM (no back-up battery necessary)
- Units of travel can be defined in pulses, mm, inches or degrees.
- Configuration and presetting of all 600 positional data is performed via the PLC program or with the aid of the programming software GX Configurator QP. This software runs under Windows® 95/98 and Windows® 2000/NT.

Specifications			QD75P1	QD75P2	QD75P4
Number of control axes			1	2	4
Interpolation			—	2 axis linear and circular interpolation	2, 3, or 4 axis linear and 2 axis circular interpolation
Points per axis			600 pieces of data with PLC program, 100 pieces of data with GX Configurator QP		
Output type			Open collector	Open collector	Open collector
Output signal			Pulse chain	Pulse chain	Pulse chain
Output frequency		kHz	1–200	1–200	1–200
Positioning	Method		PTP control: absolute data and/or incremental; speed/position swiching control: incremental; locus/speed control: incremental; path control: absolute data and/or incremental		
	Units		Absolute data: -2 147 483 648 – 2 147 483 647 pulse -21 4748 364.8 – 214 748 364.7 µm -21 474.83648 – 21 474.83647 inch 0 – 359.99999 degree Inkremental method: -2 147 483 648 – 2 147 483 647 pulse -214 748 364.8 – 214 748 364.7 µm -21 474.83648 – 21 474.83647 inch -21 474.83648 – 21 474.83647 degree Speed/position switching control: 0 – 2 147 483 647 pulse 0 – 21 4748 364.7 µm 0 – 21 474.83647 inch 0 – 21 474.83647 degree		
	Speed		1 – 1 000 000 pulse/s		
	Acceleration/ deceleration processing		0.01 – 20 000 000.00 mm/min 0.001 – 200 000.000 degree/min 0.001 – 200 000.000 inch/min		
	Acceleration and deceleration time		1–8388608 ms (4 patterns each can be set)		
	Rapid stop decceleration time		1–8388608 ms		
Max. length for servo motor cable		m	2	2	2
I/O points			32	32	32
Internal power consumption (5 V DC)		mA	400	460	580
Weight		kg	0.15	0.15	0.16
Dimensions (WxHxD)		mm	27.4x98x90	27.4x98x90	27.4x98x90
Order information		Art. no.	132581	132582	132583
Accessories			40-pin connector and ready to use connection cables (refer to pages 57–58); Programming software: GX Configurator QP, art. no.: 132219		

■ Positioning Modules



Long distance positioning

The modules of the QD75 series are suitable for bridging long distances between module and drive system.

The modules QD75D provide differential outputs, whereas the QD75M and QD75MH are designed for the operation across the motion network SSCNET.

Special features:

- Control of up to four axes with linear interpolation (QD75D4/ QD75M4/QD75MH4) or two axes circular interpolation (all modules except QD75D1/QD75M1/QD75MH1)
- Storage of up to 600 positional data in the flash ROM (no back-up battery necessary)
- Units of travel can be defined in pulses, mm, inches or degrees.
- Configuration and presetting of all 600 positional data is performed via the PLC program or with the aid of the programming software GX Configurator QP.

Specifications			QD75D1	QD75M1	QD75D2	QD75M2	QD75D4	QD75M4
Number of control axes			1	1	2	2	4	4
Interpolation			—	—	2 axis linear and circular interpolation		2, 3, or 4 axis linear and 2 axis circular interpolation	
Points per axis			600 pieces of data with PLC program, 100 pieces of data with GX Configurator QP					
Output type			Differential driver	SSCNET	Differential driver	SSCNET	Differential driver	SSCNET
Output signal			Pulse chain	BUS	Pulse chain	BUS	Pulse chain	BUS
Output frequency		kHz	1–1000	1–1000	1–1000	1–1000	1–1000	1–1000
Positioning	Method		PTP control: absolute data and/or incremental; speed/position swiching control: incremental; locus/speed control: incremental; path control: absolute data and/or incremental					
	Units		Absolute data: -2 147 483 648 – 2 147 483 647 pulse -21 4748 364.8 – 214 748 364.7 µm -21 474.83648 – 21 474.83647 inch 0 – 359.99999 degree Inkremental method: -2 147 483 648 – 2 147 483 647 pulse -214 748 364.8 – 214 748 364.7 µm -21 474.83648 – 21 474.83647 inch -21 474.83648 – 21 474.83647 degree Speed/position switching control: 0 – 2 147 483 647 pulse 0 – 21 4748 364.7 µm 0 – 21 474.83647 inch 0 – 21 474.83647 degree				
	Speed		1 – 1 000 000 pulse/s 0.01 – 20 000 000.00 mm/min 0.001 – 200 000.000 degree/min 0.001 – 200 000.000 inch/min					
	Acceleration/ deceleration processing		Automatic trapezoidal or S-pattern acceleration and deceleration or automatic S-pattern acceleration and deceleration					
	Acceleration and deceleration time		1–8388608 ms (4 patterns, each can be set)					
	Rapid stop decceleration time		1–8388608 ms					
Max. length for servo motor cable		m	10	30	10	30	10	30
I/O points			32	32	32	32	32	32
Internal power consumption (5 V DC)		mA	520	520	560	560	820	820
Weight		kg	0.15	0.15	0.15	0.15	0.16	0.16
Dimensions (WxHxD)		mm	27.4x98x90	27.4x98x90	27.4x98x90	27.4x98x90	27.4x98x90	27.4x98x90
Order information		Art. no.	129675	142153	129676	142154	129677	142155
Accessories			40-pin connector and ready to use connection cables (refer to pages 57–58); Programming software: GX Configurator QP, art. no.: 132219					