Pulse Meter

MP-Q02H(RS485)

Technical Support Manual

MP5Y/W

Preface

Thank you very much for selecting Autonics products.

Please familiarize yourself with the information contained in the **Safety Precautions** section before using this product.

This user manual contains information about the product and its proper use, and should be kept in a place where it will be easy to access.

Technical Support Manual Guide

- Please familiarize yourself with the information in this manual before using the product.
- This manual provides detailed information on the product's features. It does not offer any guarantee concerning matters beyond the scope of this manual.
- This manual may not be edited or reproduced in either part or whole without permission.
- This manual is not provided as part of the product package. Please visit our home-page (www.autonics.com) to download a copy.
- The manual's content may vary depending on changes to the product's software and other unforeseen developments within Autonics, and is subject to change without prior notice. Upgrade notice is provided through our homepage.
- We contrived to describe this manual more easily and correctly. However, if there are any corrections or questions, please notify us these on our homepage.

Technical Support Manual Symbols

Symbol	Description
Note	Supplementary information for a particular feature.
Warning	Failure to follow instructions can result in serious injury or death.
Caution	Failure to follow instructions can lead to a minor injury or product damage.
Ex.	An example of the concerned feature's use.
※1	Annotation mark.

Safety Precautions

- Following these safety precautions will ensure the safe and proper use of the product and help prevent accidents, as well as minimizing possible hazards.
- Safety precautions are categorized as Warnings and Cautions, as defined below:

⚠️ **Warning**	**Warning**	Failure to follow the instructions may lead to a serious injury or accident.

⚠️ **Caution**	**Caution**	Failure to follow the instructions may lead to a minor injury or accident.

⚠️ Warning

- In case of using this unit with machinery (E.g.: nuclear power control, medical equipment, ship, vehicle, train, airplane, combustion apparatus, safety device, crime/disaster prevention equipment, etc) which may cause damages to human life or property, it is required to install fail-safe device.
  It may cause a fire, human injury or property loss.
- The unit must be installed on a device panel before use.
  Failure to follow this instruction may result in electric shock.
- Do not connect, repair, or inspect the unit while connected to a power source.
  Failure to follow this instruction may result in electric shock.
- Do not disassemble or modify the unit. Please contact us if necessary.
  Failure to follow this instruction may result in electric shock or fire.
- Check the terminal numbers before connecting the power source and measurement input.
  Failure to follow this instruction may result in fire.

⚠️ Caution

- Do not use the unit outdoors.
  Failure to follow this instruction may result in electric shock or shortening the life cycle of the unit.
- When connecting the power input or measuring input, make sure to tighten the terminal screw bolt above 0.74N•m to 0.90N•m.
  Contact failure may result in fire.
- Use the unit within the rated specifications.
  Failure to follow this instruction may result in electric shock or shortening the life cycle of the unit.
- Do not use loads beyond the rated switching capacity of the relay contact.
  Failure to follow this instruction may result in insulation failure, contact failure, contact bonding, relay damage, or fire.
- Do not use water or oil-based detergent when cleaning the unit. Use dry cloth to clean the unit.
  Failure to follow these instructions may result in electric shock or fire.
- Do not use the unit where flammable or explosive gas, humidity, direct sunlight, radiant heat, vibration, and impact may be present.
  Failure to follow this instruction may result in fire or explosion.
- Keep dust and wire residue from flowing into the unit.
  Failure may result in fire or product malfunction.

■ Check the polarity of the measurement input contact before wiring the unit.
   Failure to follow this instruction may result in fire or explosion.
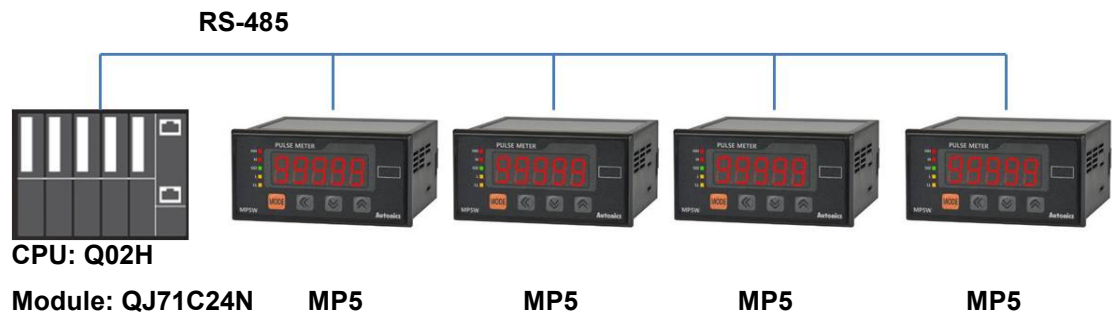
Table of Contents

1   System

1.1   Version

Software	Version	Note
Operations	Windows 7	—
GX Works2	1.545T	Release : 2016.03.29

1.2   Connections

RS-485

CPU: Q02H

Module: QJ71C24N   **MP5**   **MP5**   **MP5**   **MP5**

1.3   Communication cable connection

MP5 Series	Cable connection	PLC (QJ71C24N)
RS – 485 (-)		SDB
		SDA
RS – 485 (+)		RDB
		RDA

2   Communication Setting

2.1   MP5 Series Setting

1st   Supply power to the MP5 unit. Press the MODE key to enter parameter setting group.

2nd Enter *PArA.3* and set the communication settings as below.

Parameter	Display	Setting	Note
Communication address	*Addr*	*01* to *04*	User setting
Communication speed	*bPS*	*38400*	Same as PLC
Communication parity bit	*PrtY*	*nonE*	Same as PLC
Communication stop bit	*StP*	*2*	Same as PLC
Communication response waiting time	*rSwt*	*20*	User setting
Communication write	*ComY*	*EnA*	Fixed

\<Parameter 3 group\>

\<Comm. address setting \>

\< Comm. speed setting\>

\< Comm. parity bit setting\>

\< Comm. stop bit setting\>

\< Comm. response waiting time\>

\< Comm. write setting\>

* Press the direction keys to select or set the desired value.
* Press the MODE key once after changing the setting value, to save the setting value and move to the next parameter.
* Hold the MODE key for 1.5 sec at any parameters to return to the select parameter group mode.
* Hold the MODE key for 3 sec to save the setting value and return to RUN mode after changing the setting value.
* Each parameter and corresponding setting value will flash alternately every 0.5 sec.

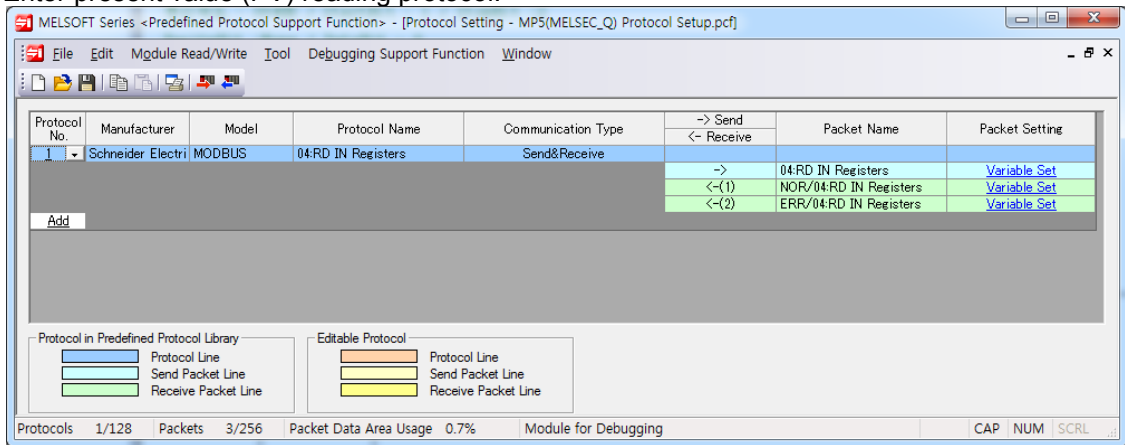## 2.2   GX-Works2 Setting (Network)

1st   Add I/F Module as "QJ71C24N" and set communication setting at "Switch setting".
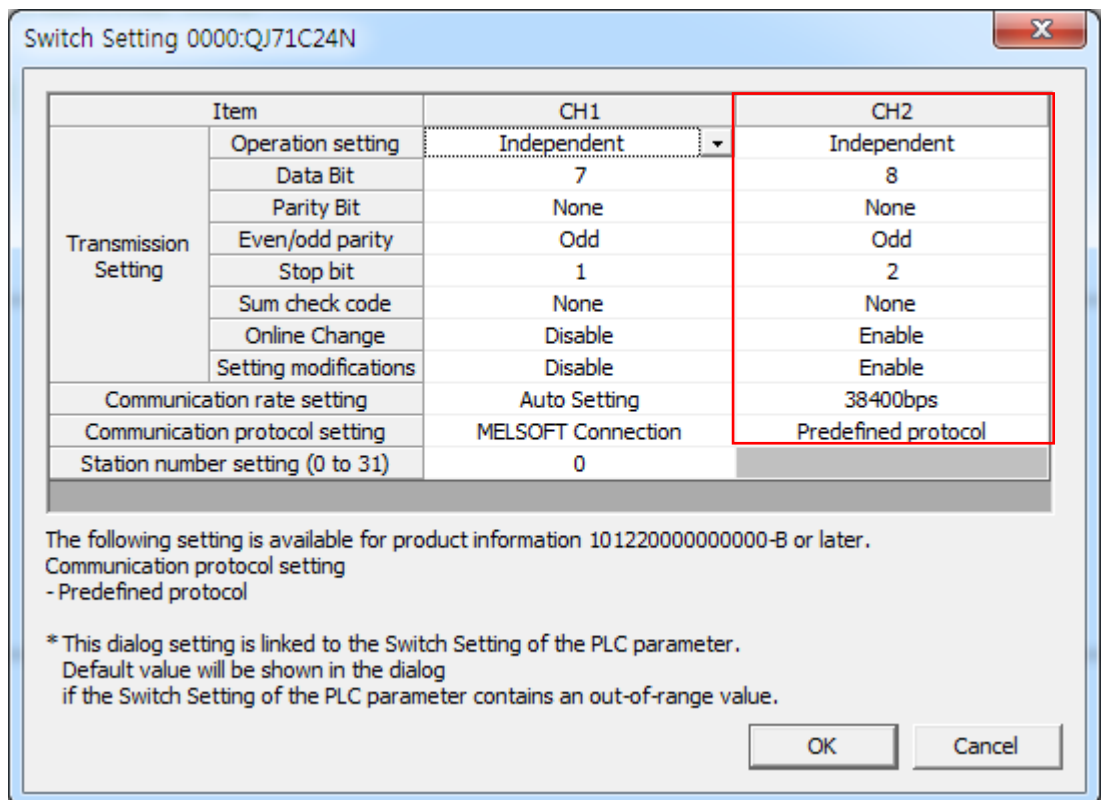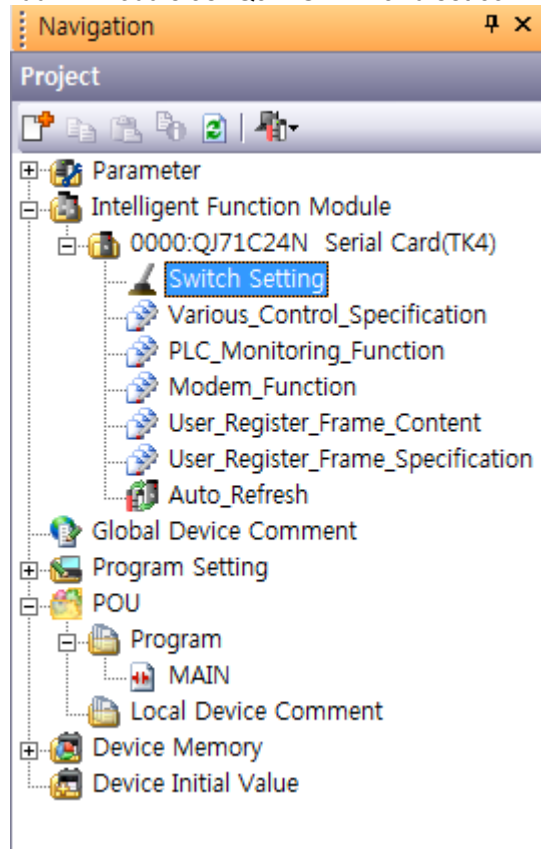
2nd Run [Tool - intelligent Function Module Tool – Serial Communication Module – Predefined Protocol Support Function] on menu.
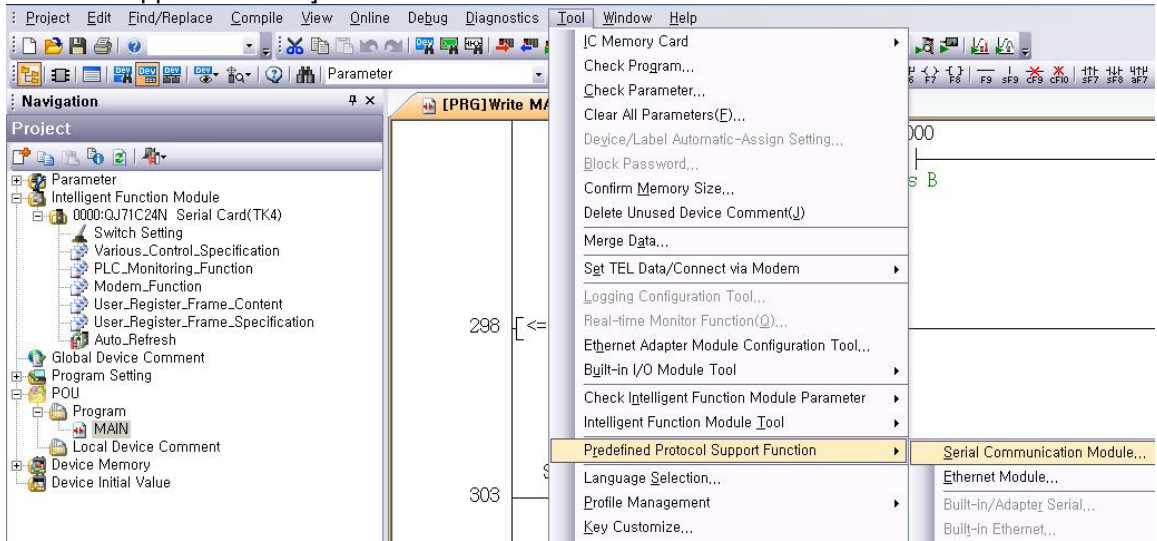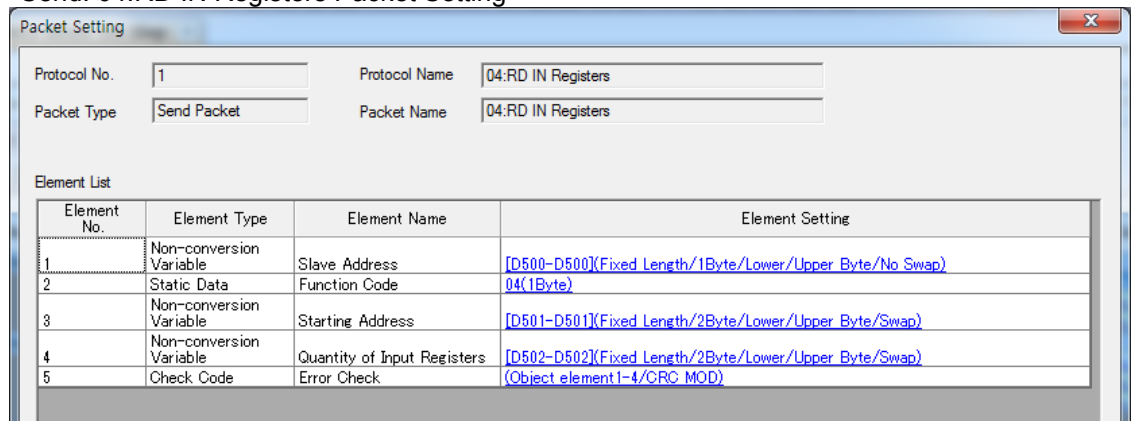

3rd Enter present value (PV) reading protocol.

4th   Packet setting

▶ PV reading transmiting/receiving protocol: 04. RD IN Registers Setting

<Send. 04:RD IN Registers Packet Setting>

Packet Setting				
Protocol No.	1	Protocol Name	04:RD IN Registers	
Packet Type	Send Packet	Packet Name	04:RD IN Registers	

Element List

Element No.	Element Type	Element Name	Element Setting
1	Non-conversion Variable	Slave Address	[D500-D500](Fixed Length/1Byte/Lower/Upper Byte/No Swap)
2	Static Data	Function Code	04(1Byte)
3	Non-conversion Variable	Starting Address	[D501-D501](Fixed Length/2Byte/Lower/Upper Byte/Swap)
4	Non-conversion Variable	Quantity of Input Registers	[D502-D502](Fixed Length/2Byte/Lower/Upper Byte/Swap)
5	Check Code	Error Check	(Object element1-4/CRC MOD)

Element No.	Element Name	Setting	Note
1	Slave Address	D500	Target address (device)
2	Function Code	04(HE.g.)	Function Code
3	Starting Address	D501	Start address (memory)
4	Quantity of Input Registers	D502	No. of requested readings
5	Error Check	Fixed	CRC16

E.g.) When reading 2 values within Input Register 301002(03E9 H) to 301003(03EA H) of Slave(address 1) at Master,

Slave Address	Function	Starting Address		No. of Points		Error Check(CRC16)	
		High	Low	High	Low	Low	High
01H	04H	03H	E9H	00H	02H	A0 H	7B H

←——————————— CRC16 ———————————→

<Receive(1). NOR / 04:RD IN Registers Packet Setting >

Element No.	Element Name	Setting	Note
1	Slave Address	D510	Target address (device)
2	Function Code	04(HE.g.)	Function Code
3	Byte Count	Fixed	No. of received byte
4	Input Registers	D999	Data length
		D1000 to	Received data
5	Error Check	Fixed	CRC16

E.g.) When 301002(03E9 H) value of Slave (address 1) is "10" and 301003(03EA H) value is "20",

Slave Address	Function	Byte Count	Data		Data		Error Check(CRC16)	
			High	Low	High	Low	Low	High
01 H	04 H	04 H	00 H	0A H	00 H	14 H	DB H	89 H

CRC16

<Receive(2). ERR / 04:RD IN Registers Packet Setting >
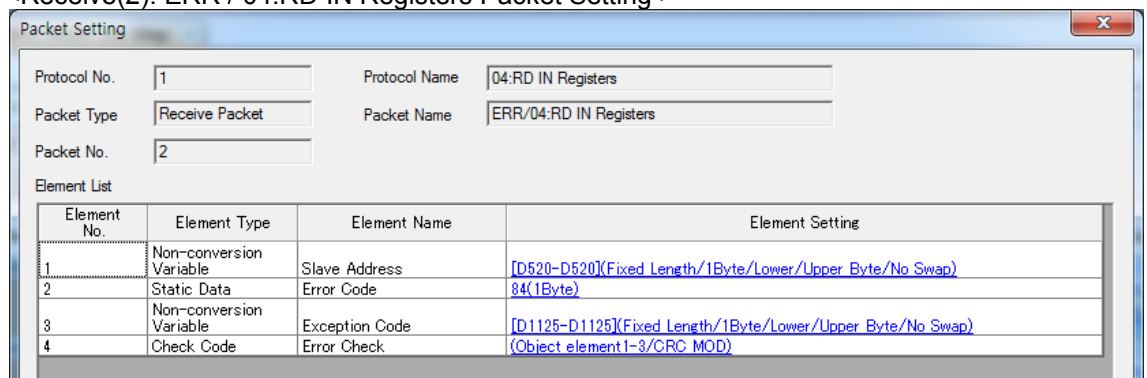
Element No.	Element Name	Setting	Note
1	Slave Address	D520	Target address (device)
2	Error Code	84(HEX)	Error Code
3	Exception Code	D1125	Error content
4	Error Check	Fixed	CRC16

* Exception Response - Error code

Code number	Error	Description
01 H	ILLEGAL FUNCTION	Not supported command.
02 H	ILLEGAL DATA ADDRESS	Starting Address of the queried data is inconsistent with transmittable address from the device.
03 H	ILLEGAL DATA VALUE	Numbers of queried data are inconsistent with the numbers of transferable data from device.
04 H	SLAVE DEVICE FAILURE	Not properly complete the queried command.

E.g.) Output status response of the not-exist coil 01001(03E8 H) about address 1

Slave Address	Function +80 H	Exception Code	Error Check(CRC16)	
			Low	High
01 H	81 H	02 H	C1	91

← CRC16 →

As the above table, the response of Exception Code is 02H.

5th   Download the set protocol setting on [Module Read/Write – write to Module].
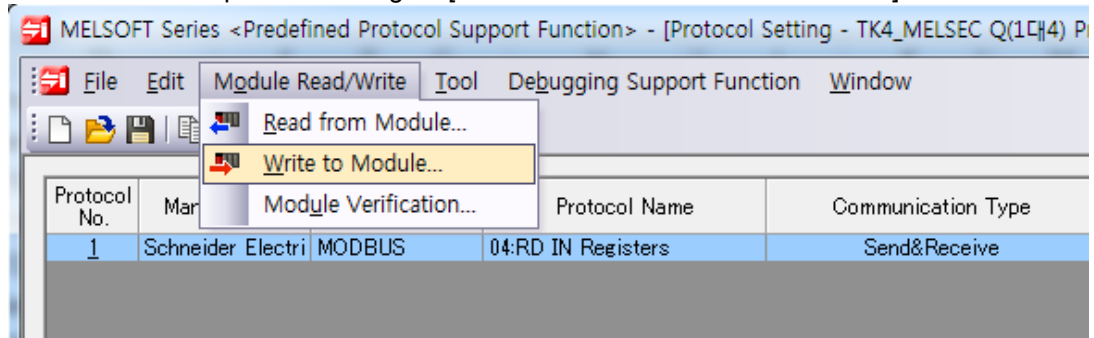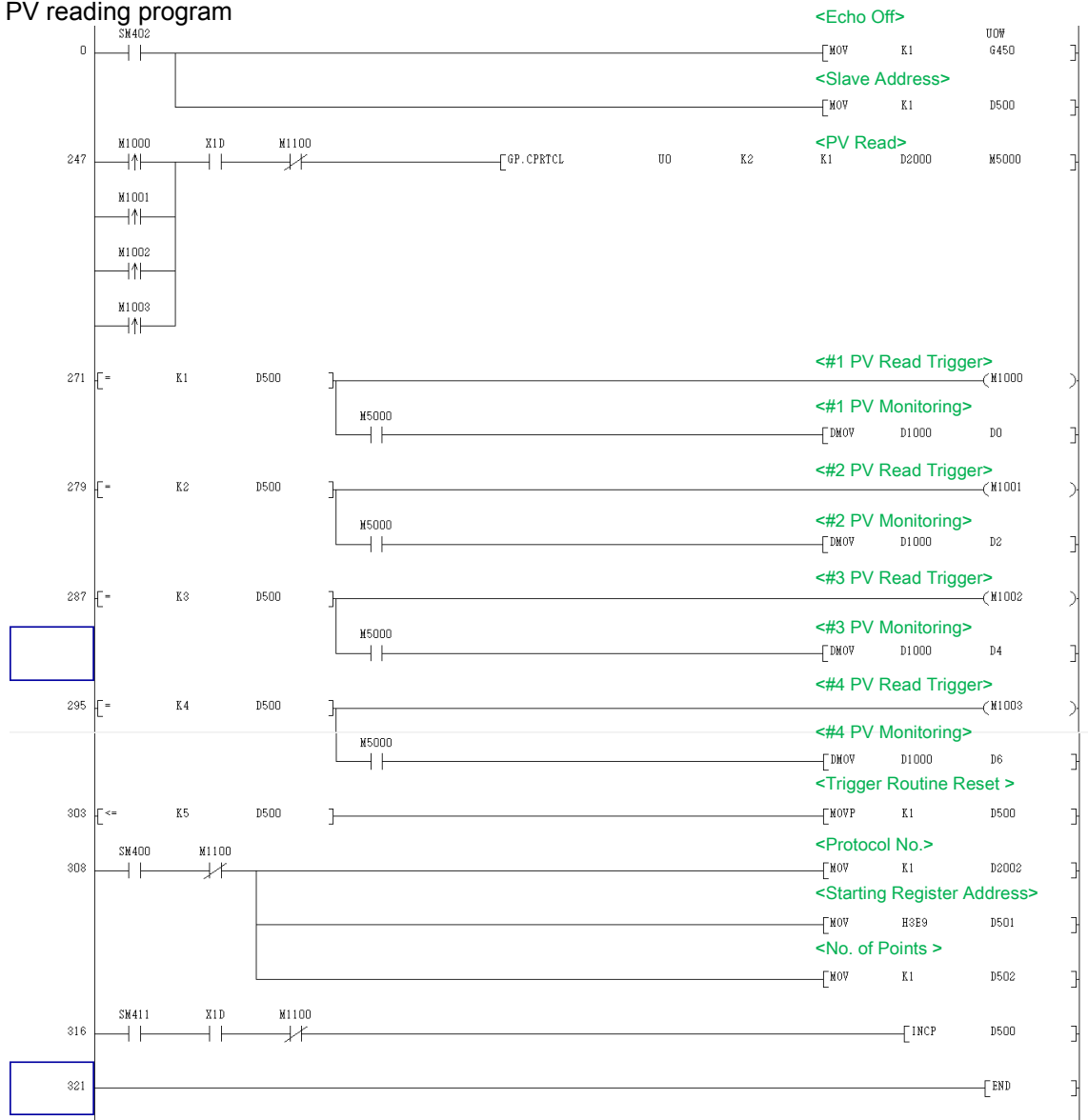
2.3   GX-Works2 Program

1st The order of communication program is as below.

[Requests reading address 1 PV]→[Receiving address 1 PV]→[Requests reading address 2 PV]→ ••• →[Requests reading address 4 PV]→[Receiving address 4PV]→[Requests reading address 1 PV]→[Receiving address 1PV]→ ••• (repeat continously)

2nd PV reading program

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■ Any proposal for a product improvement and development: Product@autonics.com

**Dimensions or specifications on this manual are subject to change and
some models may be discontinued without notice.**