

2301EN V1.0.0



# **ID-GRID** *C* EtherNet/IP Connection Operating Manual



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## 1. Example Remote I/O Module System Configuration List

Part No.	Specification	Remarks
GF2-C003T	EtherNet/IP Coupler	
GF2-DI01T	16-channel digital input module, Sink, 24VDC	
GF2-DQ01T	16-channel digital output module, Sink, 24VDC	
GF2-AI01T	4-channel analog input module (-10 10VDC, 010VDC · 05VDC)	
GF2-AQ01T	4-channel analog output module (-10 10VDC, 010VDC · 05VDC)	
GFPS-0202	Power 24V / 48W	

### **1.1 Product Description**

- I. The coupler is used externally to connect with the EtherNet/IP's communication port.
- II. The coupler is in charge of the management and dynamic configuration of I/O parameters and so on.
- III. The power module is standard for remote I/Os and users can choose the model or brand of power module they prefer.

### 2. Coupler Parameter Settings

This chapter explains how a coupler connects to EtherNet/IP. For detailed information on  $\Box$ -GRID  $\mathcal{C}$ , please refer to the <u>*i*-Designer User's Manual</u>

## 2.1 Preceding Operation of Software Setup

Connect with the coupler module using a Micro-USB cable Plug your Micro-USB cable to the Micro-USB port on your <u>coupler module</u>. Make sure the fieldbus is powered and then open the <u>i-Designer</u> setup program Coupler Module Parameters Setup

Coupler module connection illustration:



<u> $\times$ Before setting up the coupler module</u>, please confirm that the <u>I/O module</u>s are <u>lined up</u> closely on the <u>fieldbus</u>

Coupler module connection image:



## 2.2 Coupler Software Setup

I. Make sure that the module is powered and connected to the USB port



II. Click to launch the software





III. Select "C Series Module Configuration"

Designer of 0.20 r		- 0
C Series Module Configuration	M Series Module Configuration	
Setting Module Config		

IV. Click on the "Setting Module" icon

M Series Module Configuration	
	M Series Module Configuration



🚟 i-Designer v1	I.0.30.r			Setting Module			×	-	Ø	×
	Module List		Setting Module		Port Number	COM23				
Setting Module	Module	Slot	Module Option							
Config										
			System Log							
			DateTime	Description						
					Connect Disconnect					

#### V. Enter the "Setting Module" page for C-series

#### VI. Click on "Connect"

🚟 i-Designer v1										
C Series Modu				Se	tting Module					
1	Module List		Setting Mod	dule			Port Number	COM23		
Cotting	Module	Slot	Module O	ption						
Module										
Config										
			System Lo	9						
				DateTime	Description					
						Stop Connect	Disconnect			
, in the second s										



#### VII. "Please Stop the System" warning appears

i-Designer v												c)	×
C Series Modu													
1	Module List		Current Mo	dule:GF2-C0	002T			F	Port Number	COM23			
Cotting	Module	Slot	Module O	ption									
Module													
					Warning								
					Ph 📐	ease Stop the System!							
			C										
			System Lo	DataTima		OK							
			•	2023-01-11	14:03:20	Connect Successfu	h/l						
			⇒ ⊘	2023-01-11	14:03:20	Read Addressing S	uccessfull	ly!					
			Firmware U	pdate Auto	Addressing	System Running Syst	em Stop		Disconnect		Save Setting		

#### VIII. Click on "System Stop"

Module List					rent Mo	odule:GF2-C003T		Port Number	COM25					
	Mod	lule	Slot	Module Option										
$\rightarrow$	→ G	F2-C003T												
		GF2-DI01T												
		GF2-DQ01T												
		GF2-AI01T												
		GF2-AQ01T												
				Sve	stem l	00								
				- <b>J</b>	Jeen Le		Description							
					-	Daterime	Description							
					<b>Ø</b>	2023-01-16 09:14:31	Connect Successfully!							
					<b>S</b>	2023-01-16 09:14:32	Read Addressing Successfully!							
					•	2023-01-16 09:14:36	system kun successfully!							
							System Runnin System Stop	ct Disconnect						

## IX. Select the coupler module and click on "Auto Addressing"

M	odule List		Curre	ent Mo	dule:GF	2-C003T				Port Number	COM25	
	Module	Slot	Мо	dule O	ption							
	✓ GF2-C003T	0	Ge	nernal	Settings	Internet Set	tings	Module Information				
	GF2-DQ01T GF2-AI01T GF2-AQ01T	2 3 4										
			Svs	tem Lo	a							
					DateTi	me	D	escription				
				0	2023-0	)1-16 09:14:31	C	onnect Successfully!				
				0	2023-0	01-16 09:14:32	R	ead Addressing Successfu	lly!			
				0	2023-0	01-16 09:14:36	Sy	/stem Run Successfully!				
				0	2023-0	01-16 09:15:37	Sj	/stem Stop Successfully!				
			Firm	ware U	pdate A	Auto Addressir	j Syst	em Running System Stop		Disconnect	Export EDS File	Save Setting

#### X. Once addressing is completed, modules will appear on the "Module List" on the left

Module List		Current M	Module:GF2	2-C003T		Port Numbe	er COM25
Module	Slot	Module	e Option				
✓ GF2-C003T	0	Generr	nal Settings	Internet Settings	Module Information		
GF2-DIUTT							
GF2-DQ0TT	2						
GE2-A001T	3						
GIZ AQUIT	-						
		<u> </u>					
		System	Log				
			DateTim	ne E	Description		
		Ø	2023-01	I-16 09:15:37 S	ystem Stop Successfully!		
		Ø	2023-01	I-16 09:17:17 S	ystem Stop Successfully!		
		Ø	2023-01	I-16 09:17:17 C	onnect Successfully!		
		9	2023-01	I-16 09:17:17 R	ead Addressing Successfu	lly!	
		Ø	2023-01	I-16 09:17:17 S	ystem Stop Successfully!		
		→ 🔗	2023-01	I-16 09:17:17 A	ddressing Successfully!		
		Firmware		uto Addressing Sve	tom Running System Stor	Connact Disconna	ct Export EDS File Save Setting
		Timiwale	-opuate A	ato Addressing Sys	terri Kanning system stop	Disconnect	te export ebs the save setting



NA	dulo Lict		Curr	ont M	odule:GE2_C003T	Port Number	COM25							
IVIC			Curr				Fort Number	COMES						
	Module	Slot	Mc	odule (	Option									
$\rightarrow$	✓ GF2-C003T		Ge	enerna	Settings Internet Setting									
	012-01011	-												
	GF2-DQ01T													
	GF2-AI01T		Tin	neLock	neLock 0 ms									
	GF2-AQ01T	4												
			Sys	tem Lo	og									
					DateTime	Description								
				0	2023-01-16 09:15:37	System Stop Successfully!								
				9	2023-01-16 09:17:17	System Stop Successfully!								
				0	2023-01-16 09:17:17	Connect Successfully!								
				0	2023-01-16 09:17:17	Read Addressing Successfully!								
				0	2023-01-16 09:17:17	System Stop Successfully!								
				9	2023-01-16 09:17:17	Addressing Successfully!								
			Firm	ware L	Jpdate Auto Addressing S	ystem Running System Stop Conr	nect Disconnect I	Export EDS File Save Setting						
								لنصطا						

XI. Click on the coupler module to open the "Setting Module" page

XII. Type in the device name and if transmission should continue once connection is interrupted (Timelock at 0)

Module List	Current N	lodule:GF2-C003T	Port Number	COM25						
Module Slot	Module	Option								
→ v GF2-C003T 0	Genern	al Settings Internet Settir	ngs Module Information							
GE2-D001T 2										
GE2-AI01T 3	TimeLoc	k 0 ms								
GE2-A001T 4										
	System I	₋og								
		DateTime	Description							
	S	2023-01-16 09:15:37	System Stop Successfully!							
	<b>S</b>	2023-01-16 09:17:17	System Stop Successfully!							
	<b>S</b>	2023-01-16 09:17:17	Connect Successfully!							
	<b>S</b>	2023-01-16 09:17:17	Read Addressing Successfully!							
	<b>S</b>	2023-01-16 09:17:17	System Stop Successfully!							
	→ 📀	2023-01-16 09:17:17	Addressing Successfully!							
	Eirmutaro	Lindata Auto Addrossing	System Pupping System Stop	Connect Disconnect	Evport EDS Eilo					
Thinking System cuming System connect — Disconnect — Disconnect — Disconnect — Disconnect — Disconnect — Disconnect										

## XIII. Set the equipment's IP address (must be in the same domain as the controller equipment)

	equipme	iii)					
Mod	ule List		Current Modu	ule:GF2-C003T		Port Number	COM25
M	odule	Slot	Module Opt	tion			
	GF2-C003T GF2-D101T GF2-DQ01T GF2-AL01T GF2-AQ01T	0 1 2 3 4	Genernal Se IP Address Netmask Default Gate	ettings Internet Settin 192.168.1.20 255.255.255.0 www 0.0.0	gg Module Information		
			System Log				
			C	DateTime	Description		
			2	023-01-16 09:15:37	System Stop Successfully!		*
			🥝 2	023-01-16 09:17:17	System Stop Successfully!		
			🥥 2	023-01-16 09:17:17	Connect Successfully!		
			⊘ 2	.023-01-16 09:17:17	Read Addressing Successfully!		
			2	023-01-16 09:17:17	System Stop Successfully!		
			→ ⊘ 2	023-01-16 09:17:17	Addressing Successfully!		
			Firmware Upo	date Auto Addressing	System Running System Stop Conne	ct Disconnect	Export EDS File Save Setting

## 3. Beginner's Guide to Different Brands' Software

## 3.1 Beginner's guide to $\Box - \Box R \Box C$ using Codesys program

#### I. Install eds

Launch Codesys and select the device library under "Tools"



Click on "Install" and choose the path for the XML file. For document type, please select "EtherCAT XML Device Configuration" and click on "Open"

😰 设备存储库	×
位置(L) System Repository ~ (C:\ProgramData\CODESYS\Devices)	编辑位置(E)
安装的设备描述(v) 全文搜索的字符串 供应商: <全部供应商> ~	1 安装(I)
名称     供应商     版本     描述       ■一 ff     其他项       ■ - ff     →     →	卸载(U) 导出(E)
■- m PLC ■- 参 SoftMotion驱动器 ■- m 现场总线	更新设备管理 库
	详细信息(D) 关闭

If a message appears indicating that the device has been installed successfully, this means the XML has been installed successfully

● 安装设备描述	×
← → ~ ↑ GF2-C003T > 設定描述檔 ~ ○	
組合管理 ▼ 新増資料夾	::: - [] ?
☑ 本機 <sup>^</sup> 名稱 3	修改日期 類型
] 3D 物件 GF2-C003T_20220816_1.eds	2022/8/16 上午 09:01 EDS 檔
↓ 下載	
當 文件	
▶ 音樂	
三. 桌面	
■ 周片	
₩ 影片	
🏪 本機磁碟 (C:)	
新増磁碟區 (D:)	
SYS1 (\\192.168      ✓      <	>
檔案名稱(N): ~	EDS 和 DCF 文件 (*.eds, *.dcf) ~
	開啟(O) 取消
	4

#### II. Create a New Project Click on "New Project"





分类( <u>C</u> ):	程	棋板(丁): 工程 HMI	包含 Applicatio	(1) 空工程	标准工程
包含一个词	设备,一个应用,一个PL	.C_PRG程序的工程			
名称( <u>N</u> ):	未命名1				
位置 <mark>(L)</mark> :	D:\Youdo.Yu\Docum	ents\產測			×
				确定	取消
				确定	取消

Select "Standard Project", name the project and choose the file path

Choose the client's device and programming language

标准工程			×
	即将创建一- - 一个如下所 - 使用下面指 - 调用 PLC_PF	个新的标准工程. 该向导将在此工程中创建以下对象: 述的可编程设备 最定语言的程序 PLC_PRG RG的循环任务- 引用当前安装的最新版本的标准库.	
	设备 <b>(</b> D)	CODESYS Control Win V3 x64 (3S - Smart Software Solutions GmbH)	$\sim$
	PLC_PRG在	结构化文本(ST)	$\sim$
		确定取消	



#### Double-click on the device

设备	•	<b>ņ</b>	×
□ 🗿 未命名1			•
Device (CODESYS Control Win V3 x64)			
□ <mark>□</mark> PLC 逻辑			
E 😳 Application			
一會 库管理器			
PLC_PRG (PRG)			
白 🧱 任务配置			
🖻 🥸 MainTask (IEC-Tasks)			
PLC_PRG			

#### Select "Communication Settings" and then "Scan Networks"

通讯设置	扫描网络 网关 ▼ 设备 ▼		^
应用			J
备份与还原			
文件		•	
日志	网关 Catawaya1		_
PLC 设置	IP-Address:		-
PLC指令	Port:		1
用户和组	1217		
访问权限			
符号权限			~
<		>	

## Select the device and then click on "YES" ${}_{\&F \wr \& B}$

 $\times$ 选择控制器的网络路径: 节点名: □ 💑 Gateway-1(扫描...) ^ 扫描网络 HQN1518 [0301.A042] HQN1518 闪烁(W) 1 节点地址: 0301.A042 加密通信: TLS支持 目标ID:: 0000 0004 目标名称: CODESYS Control Win V3 x64 目标供应商: 3S - Smart Software Solutions 2 确定(0) 取消(C)



III. Add EtherNet/IP equipment Right-click on "Device" and select "Add Device"

设备			•	<b>џ</b>	×
□ 🗿 <i>未命名1</i>					•
Device (CODESYS Cor	Ж	剪切			
■ 副 PLC 逻辑		复制			
1 库管理器	Ē	粘贴			
PLC_PRG	×	刪除			
🖹 👹 任务配置		重构 🕨			
Main I	Ē.	属性			
_	*	添加对象    ▶			
	<b></b>	添加文件夹			
		添加设备			
		更新设备			
	<u>í</u>	编辑对象			
		编辑对象使用			

From the "Add Device" window, select "Ethernet/IP", then "Ethernet Interface", and then "Ethernet" before clicking on it to add ad device





#### Right-click on Ethernet, select "Add Device" to add EtherNet/IP Scanner

TEST2.project* - CODESYS		
文件 编辑 视图 工程 编译 在线 调试 工具	∭ 添加设备	×
🋍 📽 🖬 🕌 🗠 여 🐰 🖻 🛍 🗙 🖊 🌿	名称 EtherNet_IP_Scanner	
	动作	
设备	●附加设备(A) ○插入设备(I) ○ 拔出设备(P) ○更新设备(U)	
TEST2	◆文搜索的字符串 供应商 <全部供应商 >	~
■ III Device (CODESTS Control Win V3 X64)		
	名称 供应简 版本 道道	<u>π</u>
▲ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓		
PLC_PRG (PRG)		
🖃 🌃 任务配置	Chemenery Commence and Smart Software Solutions Combil 2 5 16 40 Eth	arNat/ID Scr
🖹 👹 MainTask (IEC-Tasks)	田 Calence Protein and Solution Soluti	anvegar occ
PLC_PRG		
Emerner (Emerner)	🗷 🛲 Profinet IO	
	٢	>
	☑ 按类别分组 □ 显示所有版本(仅限专家) □ 显示过期版本	
	一」 名称: EtherNet/JP Scanner 但应商・ 3S - Smart Software Solutions GmbH	
	组: EthernetIP扫描器	a l
	版本: 3.5.16.40	
	模块数:1	*
	「 EtherNet/IP Scanner	
	<b>将被选设备作为最后一个子设备添加</b>	
	Ethernet	
	(在此窗口打开时,您可以在导航器中选择另一个目标节点。)	
	添加设备	关闭

Right-click on "EtherNet\_IP\_Scanner", select "Add Device" or "Scan Device" for device configuration



IV. How to Add a Module Manually After clicking on "Add Device", select the needed ID-GRID  $\mathcal{C}$  module in the window and then click on "Add Device"





#### V. How to Scan and Add a Module Double-click on Ethernet and click on "Browse" on the right

G옵 <del>▼</del> 무 ×	EtherNet_IP_Scanner	Device 🛉 Etl	hernet X -
FEST2     FEST2	通用 日志 状态 Ethernet DeviceI/O映射 Ethernet DeviceIEC対象 信息	Network interface IP地址 子网掩码 默认 Gateway网关 □ 适配操作系统配	乙太網路:1         192.168.1.2         255.255.255.0         0.0.0.0
	·		· · · · · · · · · · · · · · · · · · ·

Select the network interface card to connect

#### 网络适配器

接口				
名称	描述		IP地址	~
藍牙網路連線	Bluet	ooth Device (Personal Area Network)	0.0.0.0	
乙太網路	Intel(	R) Ethernet Connection (10) I219-V	169.254.76.122	
乙太網路:1	Intel(	R) Ethernet Connection (10) I219-V	192.168.1.2	
Wi-Fi	Intel(	R) Wi-Fi 6 AX201 160MHz	192.168.3.166	
<b>區</b> 域蓮線*1	Miem	soft Wi-Fi Direct Virtual Adapter	0000	1
IP地址		192 . 168 . 1 . 2		
子网掩码		255 . 255 . 255 . 0		
默认Gateway网	烪	0.0.0.0		
MAC 地址		F0:2F:74:A3:5E:2B		
			峭认 取;向	

 $\times$ 

Click on "Register to (Alt+F8)" on the toolbar above





〇〇日 Application [Device: PLC 逻辑]	• 0\$ 0 <b>\$ • •</b> • • • • • • • • • • • • • • • • •
evice 🕤 Ethernet 🗙	启动 (F5)

Right-click on "EtherNet\_IP\_Scanner" and then click on "Scan Device"

设备	•	<b>д х</b>	EtherNet_IP_Scanner		
E TEST2		•			
🖃 😳 🕤 Device [连接的] (CODESYS C	ontrol	Win V3 x6	迪用		
		日志			
			状态		
🗐 😏 📽 ENIPScanner	IOTas	k (IEC-Tas	Ethernet DeviceI/O映射		
EtherNet_IP	_Scan	ner.IOCyc	Ethernet DeviceIEC对象		
🖃 😏 齡 ENIPScanner	v				
EtherNet_IP	00	55 1/3			
🖹 😏 🌺 MainTask (IE		复利			
		行力			
Ethernet (Ethernet)	~	司际			
		重构	•		
	G	属性			
	10.00	添加对象			
	0	添加文件:	夹		
		扫描设备.			
		Acknowle	edge Diagnosis		
		Acknowle	edge Diagnosis Subtree		
	D°	编辑对象			
<		编辑对象	使用		
😪 设备 🗋 POUs		编辑IO映	射		
■ 消息 -总计0个错误,0警告,5条消息		从CSV导。	入映射		
设备用户:匿名		导出映射	到CSV		



Confirm all the scanned devices and then click on "Copy All Devices to Project"

 $\times$ 

扫描设备

设备名	设备类型	IP地址	序列号	
Coupler_GF2_C003T	Coupler[GF2-C003T](Major Revision=16#1, Minor Revision = 16#1)	192.168.1.20	1 (16#1)	
				程区别

#### V. Simple I/O Mapping

Click on "PLC\_PRG" to open the program editing page

· · · · · · · · · · · · · · · · · · ·					
<i>□</i> - <sup>1</sup> / <sub>1</sub> <i>TEST2</i>					
Device (CODESYS Control Win V3 x64)					
□ 🗐 PLC 逻辑					
Application					
· 11 库管理器					
PLC_PRG (PRG)					
三 📴 任穷毗置					
🗟 🍪 ENIPScannerIOTask (IEC-Tasks)					
EtherNet_IP_Scanner.IOCycle					
🖃 🍪 ENIPScannerServiceTask (IEC-Tasks)					
EtherNet_IP_Scanner.ServiceCycle					
🖹 🍪 MainTask (IEC-Tasks)					
PLC_PRG					
🖹 🎬 Ethernet (Ethernet)					
EtherNet_IP_Scanner (EtherNet/IP Scanner)					
Coupler_GF2_C003T (Coupler[GF2-C003T])					



Create variables and simple codes

/	De	vice 👔 EtherCAT_Master
	1	PROGRAM PLC_PRG
	2	VAR
	з	Intput1 : BOOL;
	4	Output1 : BOOL;
	5	END_VAR
	1	Outputl := Intputl;

Click on "編譯程序" on the toolbar above

窗		帮	助				_									
	눼	*1	M		***	• 🖸	-	Applic	ation [De	evice: PLC 逻辑]	•	<b>OŞ</b>	Cộ	•		10
				•	ą	×		Device		EtherCAT_Mast	er		1	PLC.	PR	G X

Double-click on the corresponding I/O module on the left and select "EtherCAT I/O Mapping" page

· 산备 → 무 ×	EtherNet_IP_Scanner	Device 🔐 Ethernet	) 👔 Coi	ipler_GF2_C003T 🗙		-
TEST2     Test2     Device (CODESYS Control Win V3 x64)	通用	查找		过滤 显示所有		
□ 副 PLC 逻辑 □ ② Application	连接	变量 □ ◯ Exclusive Owner	映射	通道	地址	类型
── ── ●	组件	i		Input Assembly_Param0	%IB0	BYTE
		± 1		Input Assembly_Param1	%IB1	BYTE
	用户参数	🖷 - 🦘		Input Assembly_Param2	%IB2	BYTE
ENIPScannerIOTask (IEC-Tasks)		🖷 🐪		Input Assembly_Param3	%IB3	BYTE
EtherNet_IP_Scanner.IOCycle	日志	🕸 - 🏘		Input Assembly_Param4	%IB4	BYTE
ENIPScannerServiceTask (IEC-Tasks)	EtherNet/IPI/0映射	😟 🍾		Input Assembly_Param5	%IB5	BYTE
EtherNet_IP_Scanner.ServiceCycle		🛞 - 🍅		Input Assembly_Param6	%IB6	BYTE
MainTask (IEC-Tasks)	EtherNet/IPIEC对象 状态	÷ 🐪		Input Assembly_Param7	%IB7	BYTE
		🕸 - 🏘		Input Assembly_Param8	%IB8	BYTE
Ethernet (Ethernet)		🗎 🏘		Input Assembly_Param9	%IB9	BYTE
therNet IP Scanner (EtherNet/IP Scanner)	VOG	🗐 – 🍫		Input Assembly_Param10	%IB10	BYTE
- []] Coupler_GF2_C003T (Coupler[GF2-C003T])	信息			复位映射	一直更新变量	<u>ł:</u>
		*∕》 =创建新变量	~ <b>*</b>	-映射到现有变量		
	<	L				>



#### Click on the channel you want to map ...

<b>₽</b>	映射	通道	地址	类型
Exclusive Owner				
🚔 - 🧤	-	Input Assembly_Param0	%IB0	BYTE
<b>*</b>		Bit0	%IX0.0	BOOL
🍫	-	Bit1	%IX0.1	BOOL
<b>*</b>		Bit2	%IX0.2	BOOL
🍫		Bit3	%IX0.3	BOOL
🍫		Bit4	%IX0.4	BOOL
🍫		Bit5	%IX0.5	BOOL
<b>*</b>		Bit6	%IX0.6	BOOL
		Bit7	%IX0.7	BOOL
🚊 🦄		Input Assembly_Param1	%IB1	BYTE
🖶 🏘		Input Assembly_Param2	%IB2	BYTE

#### Select corresponding variables

输入助手 文本搜索 类别 变量 名称 类型 地址 初始 ۰ Application 应用 PLC\_PRG PROGRAM 🖗 Intput1 BOOL Output1 BOOL 🗉 🎒 IoConfig\_Globals VAR\_GLOBAL . {} IoDrvEthercatLib 廊 IODrvEtherCAT, 3.5.... 过滤器(F) 无 ☑ 结构视图(S) ~ ☑ 插入变量(w) 」以命名空间前缀插入(n) 文档(D) Intput1: BOOL; (VAR) ~ 确定 取消



Once mapping is complete, click on the toolbar above to register the PLC



Now you can view all the I/O mappings when online



## 3.2 Beginner's guide to $\Box - \Box R \Box C$ using Sysmac Studio program

I. Launch Sysmac Studio and set up the Ethernet/IP ports: Left-click to launch Sysmac Studio:



Left-click on "New Project" to create a new project and enter the project name, information, PLC model and version. Once you are done, click on "Create":





Select and double-click on "Built-in Ethernet/IP Port Settings" to open the editor:

Enter PLC's IP address in the "IP Address" field and enter Class C( 255.255.255.0 ) in the "Mask" field:





II. Create Data Types (self-defined data types) and Global Variables: Regarding Ethernet/IP data formats, please refer to the image below:

Coupler[GF2-C003] Property	2		×
General I/O Information			
Name	Out/In	Size	
Cutput_150	Out	252Byte	
Contraction March 100	In	260Byte	
			_
		Close	

Select and double-click on "Data Types" to open the editor:





5

Create two data types: Transfer_Input and Transfer_Output in the fields:							
Name	Base Type	Name	Base Type				
Transfer_Input	Union	Transfer_Output	Union				
Data_To_Byte	ARRAY[0259] of Byte	Data_To_Byte	ARRAY[0252] of Byte				
Data_To_Word	ARRAY[0129] of Word	Data_To_Word	ARRAY[0125] of Word				
Data_To_Bit	ARRAY[02079] of BOOL	Data_To_Bit	ARRAY[02015] of BOOL				

-		
▼	Transfer_Input	UNION
	Data_To_Byte	ARRAY[0259] OF Byte
	Data_To_Word	ARRAY[0129] OF Word
	Data_To_Bit	ARRAY[02079] OF BOOL
▼	Transfer_Output	UNION
	Data_To_Byte	ARRAY[0251] OF Byte
	Data_To_Word	ARRAY[0125] OF Word
	Data_To_Bit	ARRAY[02015] OF BOOL

Select and double-click on "Global Variables" to open the editor:

The test test tright conclusion was and the provident to be the pr	
Multiview Explorer months 9 (1) Data Types Global Variables x	+ Toolbox + 4
White is form     Image: Construction       Model form	• Tooks
H Hier (C) Output Book	

ø ×

#### Create two global varaibles in the fields:

<u> </u>		
Name	Data Type	Network Publish
Input_100	Transfer_Input	Input
Output_150	Transfer_Output	Output

Name	Data Type	Initial Value	I AT	Retain	Constant	Network Publish	Comment
Input_100	Transfer_Input					Input	
Output_150	Transfer_Output					Output	



.

III. Ethernet/IP Connection Setup: Left-click on Tool → Ethernet/IP Connection Settings to open the editor:

File Edit View Insert Project	t Controller S	imulation Tools Window Help		
នេយាធេយ១៤៨	1 きくら	د الله Troubleshooting	- O 2 2 I Q Q R	
Multiview Evoluter - B	25 Builtain Dharf	Backup		Toolbox - B
Notice Explore     Image: Construction of Automatics of Automatica of Auto	Culput Roman Impal. 100 Culput Roman			Tooloor • •
	Information	Build finished: Program0.Section0 Build finished: Program0		dows
				J 敏用 Windows・
🚹 Filter 💽 🗹	Output Build			

Double-click on "Device" to open the editor:

		A Let A Let Let Let	
File Edit View Insert Projec	ct Controller	simulation loois Window Ap	
នេយាធំយំ១៤៩	2 8 4	※ 両 司 金 A ② R ▲ ※ お や 5 m O 입 2 □ Ц Q Q 型	
	_		
Multiview Explorer • 9	E Built-in Ethe	nNet/IP Port SN2 Data TorsetN2 Data TorsetN	Toolbox - 4
new_Controller_0 💌		guieres Device Description	🔍 🖂 🔁 🔁
	192.10	8.1.10 Built-in therNet/IP Vort Settings RX1V2	
Configurations and Setup			
di Ethercal			
Isi CPO/Expansion Nacks			
ar (O Map			
Be Controller Setup			
<ul> <li>C Tre Operation Sectings</li> <li>C Ruck in Enhancements</li> </ul>			
E Built-in I/O Settion			
L Contine Board Setting			
L M Manoor Sattings			
<ul> <li>Motion Control Setup</li> </ul>			
e/ Cam Data Settions			
Event Setting			
In Task Settings			
ER Data Trace Settions			
Programming			
V II POUs			
V 2 Programs			
V El Program0			
L @ Section0			
L 🕷 Functions			
L 測 Function Blocks			
V III Data			
L 🖂 Data Types			
Global Variables			
► 🖿 Tasks			
	Output	- 7 ×	
	Information	Build finished: Data Types	
	Information	Build finished: Global Variables	
	Information	Build finished: Cam Data Settings	
	Information	Build Enrichtet Program@.Variables	
	Information	Build Innshed: ProgramUVanables	
	Information	Build Initiate ProgramUsection/U	
	Hormation	ado Market Hogano 赵用 Wir	dows
		移至[限定]	以版用 Windows •
1 Filter	Output Build		



Left-click on "Registration All" to import global variables:

File Edit View Insert Project	Controller	r Simulation Tools Window Help	
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Multiview Explorer 🗸 🕴	😸 Bult-in Eth	uterker/P Port S. 😽 Data Sypes - Mer Global Variables - Emerhet/P Device List - Built-in EtherNet/P.extion Se - x	Toolbox + 4
new_Controller_0	0.	Tag Set	Target Device
De Hencki     Construction     Con	Real Control of the control of the c	le here kolmenden Teng Sans Teng Sans Ten	No 🔹 👘
		Team All to Select Team All to S	
	Information Information Information Information Information Information	Buld Knockst Dida Types Buld Knockst Dida Wankto Buld Knockst Dida Wankto Buld Knockst Disgram Diakets Buld Knocks Disgram Diakets Buld Knock	dows
Filter 🕑	Output Build	(注)(注) (注)(注)	No TRE AND IN 1997 IN TREE INTERIOR INTERIORING INTERIOR INTERIORINO. INTERIOR INTERIOR IN

The import window appears. Confirm that the tags to be imported are correct and then click on "Register":





Confirm tag import under both "Input" and "Output" tabs. Once confirmed, left-click on the "Connection" icon:



Open the "Connection" window and right-click on "Target Device" on the top-right corner and select "Display EDS Library" from the menu:



When the EDS Library window appears, click on "Install":

File Edit View Insert Proje	te Controller	Simulation Tools Window Help			
រុមាធិយ៍១៤។	1 <i>8</i> 4	当応売金本(B) (R) (A) (A) (A) (A) (A) (A) (A) (A) (A) (A			
Multiview Explorer 🗸 🕫	👩 Built-in Et	nerNet/IP Port S 📆 Data Types 🖬 Global Variables EtherNet/IP Dev	ice List Built-in EtherNet/IPection Se x	•	Toolbox 🚽 🔻
new_Controller_0  Configurations and Setup	<b>D</b> •	Connection			Target Device
證 EtherCAT		▼ Connection			
CPU/Expansion Racks	n.CB	Connections/Max: 0 / 32		10 <sup>44</sup> - 110	
e* I/O Map	- 40	larget bevice roomecoon witcomecoon o'o imporcoutri larget	🖬 EDS Library - 🗆 🗙	sjitemeout va	
▼ B Controller Setup			- Vendor	1	
L # Built-in EtherNet/IP			OMRON Corporation		
L 🖩 Built-in I/O Settings			Omron Adept Technologies, Inc.     Vendor name not found		
L E Option Board Setting					
L III Memory Settings					
6' Cam Data Settings					P2 + 0
Event Settings					Variable Name I Cite (D.do)
Task Settings					variable rearrie in Side (byte)
⊡ Data Trace Settings					
Programming					
V M Programs					
V El Program0					
L @ Section0					
L 😹 Functions					
L (2) Function Blocks					
L 52 Data Types					
Global Variables		<b>T</b>			
► 🗄 Tasks					
		Restart		Return All to Default	
				Transform Controller Transform Controller	
			Circa	inamiser to controller inamiser from controller Compare	
	Output			- 1×	
	Information	Build finished: Data Types			
	Information	Build finished: Global Variables			
	Information	Build finished: Cam Data Settings			
	Information	Build finished: Programu variables			
	Information	Build finished: Program0.Section0			
	Information				dows
< >				移至 [設定]	NIT Windows
1 Filter	Output Build	1			Import-lagiset

Select the EDS file (with ".eds" in filename extension) we have provided in the file path and click on "Open":





From the EDS Library menu, you will see the newly-added Coupler [GF2-C003T], which means that the file has been added successfully. Click on "Close" to close the window:



Left-click on "Add a target device":





In the toolbox, enter the coupler IP (192.168.1.20 by default), model name (Coupler [GF2-C003T]), revision (1) and then left-click on "Add":

工具箱 🔤		
節點位址	192.168120	
型號名稱	Coupler[GF2-C003T]	▼
修訂版 🔪		
	新增	取消

Select the equipment in the toolbox and drag them to the "Connection" window by holding down the left-hand button on the mouse:

🖶 Section0 -	Program0 🛛 🖸 數據類	型 EtherNet/IP設備	列表 內置EtherNet/II	P通訊埠設定 連… 👌	×	-	工具箱 🗸 🗸
0-	<mark>⊶</mark> · · · · · · · · · · · · ·					•	目標的供 192.168.1.20 Coupler[GF2-C003T] 版本1
∎ŧa	★ 連線 連線/最大: 2 / 32 目標設備 192,168.1.20 Coupler[GF	Ⅰ 連線名稱 I 連 2-√ default_001  Exclu	泉)/O類型 1輸入/輸出I sive Owner 輸入	目標變數	大小[位元約  趙	B始 <sub>要数</sub>	
	+ 🖮						≝ <u>朝</u> 名   ∧小[位元組]
	設備帶寬					-	
	重啟				全部返回到	預設值	
			傳送到控制器	從控制器傳送	比較		
編譯							
	<u>!∖0 警告</u> 說明	Ⅰ   程式	Ⅰ    位置			1	
输出編譯							匯入標鏡組



Add all the global variables to the Originator Variables' drop-down menu and enter 100 in the "Input" field under "Target Variables" and 150 in the "Output" field:

File Edit View Insert Projec	t Controller	Simulation Tools Window Help	
X 🖲 🕅 🖄 🌣 🕯	1 3 4		
Multiview Explorer 🚽 🖗	🔐 Built-in Eth	er/Net/IP Port S 🏦 Data Types 🛯 Mid Global Variables EtherNet/IP Device List Built-in EtherNet/IPextion Se 🗴	Toolbox 🔹 🕴
rew_Controller_0 ▼	Π.	Connection	Target Device 192168.1.20 Coupler[GF2-C003] Rev1
In Controller     In CPU/Expansion Racks	nfa	Controllion/Mark 2 / 20           Toget Device         Controllion/Microsofta (Controllion (C) Regul/Cut: Target Winkler: Scie (Brig) (Controllion (Brig) (Sciences (V) (Brig)) (Science	
L ﷺ Built-in EtherNet/IP I L Ⅲ Built-in I/O Settings L Ⅲ Option Board Setting L ₩ Merrory Settings			
<ul> <li>If Model Canada Settings</li> <li>IF Event Settings</li> <li>IF Task Settings</li> <li>IF Task Settings</li> <li>IF Data Trace Settings</li> </ul>			Variable Name I Size (Byte) I
V Programming     V II POUs     V II Programs     V III Programs     V III Program0			
L SectionD     L S Functions     L S Functions     L S Function Blocks     ▼ m Data     L S Data Types			
∟teri Global Variables ► III Tasks			
		Device Bandwidth	
		Restert Restert	
		Torester to Controller Torester to a Controller Compare	
	Output	+ * * *	
	Information	Build finished: Data Types	
	Information	Build finished: Global Vanables T	
	Information	Build finished: Program Quarkables	
	Information	Build finished: ProgramUVariables	
	Information	Build Finished: Program().Section()	
	Information	suid ninitedi rogramu Build ninitedi Glabil Visibles	啟用 Windows
🖬 Filter 🖉	Output Buik		te gr (non)以股用 Windows

IV. Set up the IO address and establish a simple testing program: Regarding iD-GRID Coupler register address:





Expand "Programming" and double-click to select Section0 to open the editor for the ladder diagram (LD)



Enter the testing program in the image below, which verifies Remote I/O's proper connection:



DO: Use the "Start" register to trigger.

DI: DI is placed on connector a. When a signal is transmitted back from the cables, it will trigger the "MOVE" command.

AO: Use the "MOVE" command to move the 12,000 value to AO.

AI: Use the "MOVE" command to move the AI value to the Valeu\_1 register. The AI value can come from the signal producer or AO.



V. Download the program to PLC and test it online: Use the mouse's left button to select "Controller" then "Online" to confirm connection to PLC:

Omron_NX1P2_Ethernet_IP_Con	ecen_Test - new_Controller_0 - Sysmac Studio		- ø ×
File Edit View Insert Project	t Controller Simulation Tools Window Help		
X L B B D C D	Communications Setup	<b>发生物中毒の</b> 認時間のの点	
Multiview Explorer 🗾 🗸 🖗	Online Ctrl+W	nables EtherNet/IP Device List Built-in EtherNet/IPection Se 📶 Section - Program 🛛 🗙	Toolbox 🗸 🕴
new Controller 0 🔻	Offline Ctrl+Shift+M		<search></search>
Configurations and Sature	Synchronize	Output,150.Data_To_BL	Analog Conversion
20 EtherCAT	Transfer •		BCD Conversion
► St CPU/Expansion Racks	Mode +	MOVE FNO FNO FNO	Bit String Processing
e* (/O Map ▼ III. Controller Setup	Monitor	Out-Output 150,Data To	Communications
L Coperation Settings	Stop Monitoring		Comparison
L 🖉 Built-in EtherNet/IP I	Forced Refreshing		Conversion
L III Built-in I/O Settings	MC Test Bun		Counter
L M Memory Settings	MC Monitor Table		Data Movement
► ⊕ Motion Control Setup	CNC Coordinate System Monitor Table		Data Type Conversion
6' Cam Data Settings	SD Memory Card		► FCS
Task Settings	Controller Clock		Ladder Tools
☑ Data Trace Settings	Update CPU Unit Name		► Math
Programming     A poly	Security		<ul> <li>Motion Control</li> </ul>
▼ 3€ Programs	Clear All Memory		Differ
V 🖂 Program0	Reset Controller		Breastant Constral
Section0			COMmerce Cod
L 22 Function Blocks			> So Memory Card
▼ III Data			Selection
L 🖂 Data Types			sequence Control
El Tasks			Sequence Input
			Sequence Output
			> Shift
			Simulation
			Stack and Table
			<ul> <li>Structured Text Tools</li> </ul>
	Output	- 0 × 0	<ul> <li>System Control</li> </ul>
	Information Build finished: Data Types		► Text String
	Information Build finished: Global Variables Information Build finished: Cam Data Settings		Time and Time of Day
	Information Build finished: Program0.Variables		Time Stamp
	Information Build finished: Program0.Variables		
	Information Build finished: Program0		歌田 Windows
<	Information Build finished: Global Variables		移至 [設定] 以啟用 Windows。
👔 Filter 💽 🗹	Output Build		

Use mouse's left button to select "Controller", then "Transfer" and then "To Controller":





The "Transfer To Controller" window appears. Uncheck all boxes under "Options" and then click on "Execute":



A warning window appears to remind you that the transfer will put PLC on the Program Mode. Please click on "Yes" (Note: At this time, PLC will stop the program's operation. Please do not carry out this procedure to PLC operating online):



A warning window appears asking if you want to switch to the Run Mode. Please click "Yes":





Once the setup is complete, click on "OK' in the "Successfully Completed" window:



Please use the online monitor mode for testing:



## 3.3 Beginner's guide to $\Box$ -GRID C using KV Studio

I. Launch KV Studio and set up the Ethernet/IP ports: Left-click to launch KV Studio:



Left-click on "File" and then "New Project".





Create a new project and enter the project name, information, PLC model and version. Once you are done, click on "OK":

	New project X
1.	Project name(N) PLC model(K)
$\bigcirc$	Keyence_Ethernet_IP_Connection_Test KV-7500
	Position(P)
	C:\Users\User\Documents\KEYENCE\KVS11G\KVS\PROJE Refer(S)
	Comment(C)
	~
	AW display comments(W)
	KVS PROJECT 2
	Register special device cmnts(M). OK Cancel

When the Unit Editor's window appears, click on "YES":

500										
Iguratio	1	2	3	4	5	6	7	8	9	10
etting ence_Ett 000001 e module dule										
co modu s vyno za rk macro lt r settir ratd			Cont	firm unit setting information		×				
00003			Setu - Dre - Dre - Dre	thinit setting info now?	No(N) Read unit s	ieting(U)				
00004										
00005										

Enter PLC's IP address in the "IP Address" field (192.168.1.10) and enter Class C(255.255.255.0) in the "Mask" field:

ditE) View(V) Program(V) Script(S) Convert(A) Monitor/Simulator(N) Debug(D) Too(f) Window(V) Help(H) 금요[[[]]][]]][]]][]]][]]][]]][]]][]]][]]]	<u>n</u> <u>m</u>	
Unit Editor - Edit mode	- 🗆 X	
File(F) Edit(E) Convert(P) View(V) Option(O) Window(W) Help(H)		
10] XV-7500 🚽 🚽 🛃 🔐 🕹 🛍 🖄 🖬 🕼 🗹 🖩 🦚 🛫 🛠 🗞 県 🖹 🐘 📩 🔠 🥄 🍇 🥹		10
Unit configuratio	Unit a	10
pice comment Vidth:55mm KV-7500	Select unit(1) Setup unit(2)	
J system setting Depth:Som Depth:Som	한 🎬 🖸 🖓 🐏 🖬 🚮 🖣 👔 (01 KV-7600	
ogram: Keyence_Ett OO( Curr. Cons.:200mA	E Function	
Every-scan execut	Socket function Not used(*)	
Biologo Biolog	- Bare	
Standby module	Leading DN No. DM10000	
Fixed-period modu	Number of LNS in Use 230	
tetion Block	Number of velavs in use 640	
E0	Baud rate 100/10Mbps automatic(*)	
Subroutine macro 000	Descring method of 14 wodress _ Dixed 14 wodress(*)	
Self-NDIG Madro	IP address 192 . 168 . 0 . 10	
e register settir	Submet mask 255.255.0	
Differenzy card	Default gateway 0.0.0.0	
r document	DNS server 0.0.0.0	
	Receive timeoutisi 10	
000	Inter-unit Synchronization Function	
	Inter-unit Synchronization Func Not used(*)	
	530.0	
	Cycle Setting Unit us(*)	
IP address	192 . 168 . 1 . 10	
Subnet mask	255.255.255.0	
Default gateway	0.0.0.0	
DNS server	0.0.0.0	
	10	
Receive timeout[s]		
Receive timeout[s] Keep Alive[s]	600	S Windows •
Receive timeout[s] Keep Alive[s]	600	S Windows •

When finished, click on "Apply" and then "OK" to close the window:

🔋 🧱 Unit Editor - Edit mode		– 🗆 ×
File(F) Edit(E) Convert(P) View(V) Option(O) Window(W) Help(H)		
- 29 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
	Unit	ņ.
V dtb-:56m VT5500	Select unit(1) Setup unit(2)	
Reight: 90mm		[0] KV-7500
Depth:Stam Ourr. Cons: 200mA	- Function	^
t Weight:270g	Socket function	Not used(*)
R30000	Base	
-33915	Leading DM No.	DM10000
	Number of DMs in use	230
	Leading relay No. (ch unit sett	R30000
	Number of relays in use	640
	Baud rate	100/10Mbps automatic(*)
	Setting method of IP address	Fixed IP address(*)
	IP address	192 . 168 . 1 . 10
	Subnet mask	255.255.255.0
	Default gateway	0.0.0.0
	DNS server	0.0.0.0
	Receive timeout(s)	10
c in the second se	Keep Alive[s]	600
	Inter-unit Synchronization Functi	on
	Inter-unit Synchronization Func	Not used(*)
	Cycle Setting Value	500.0
	Cycle Setting Unit	us(*)
	Port No.	
	Port No. (KVS, KV COM+, DB)	8500
	Port No. (host link)	8501 .
	IP address To set up IP address. (setting rang	ge: 0 to 255 for each network segment)
Message		a.
Process Row No. Code Message		
		2, 1.
K ↔ H \message/	Editor Line:	1, Col OK Cancel Apy



#### II. Ethernet/IP Connection Setup (Slave) and EDS file Registration:

Right-click on "[0] KV7500" and left-click on Ethernet/IP Setting on the menu to open the editor:



#### When the dialogue window appears, left-click on "Manual":

🛍 🚟 Unit Editor - Edit mo		antoyamaatariy acaagay rootty amaaantay haptiy			
-	de				×
File(F) Edit(E) Conv	vert(P) View(V) Option(C	Window(W) Help(H)			
📲 📲 🔛 🕷 👘 🛯	D   E' EI   🚳 🖬 🗑	張 照 陰 励 問   🔧 🐂   🥝			
			Unit		*
Widsh:55mm	XV-7500	EtherNet/IP settings		- 0	9 10
c Height: 50mm		THE SHEET SHEET AND ADDRESS STOLEN.	weath Tealm Halan		2
Carr. Cons.:200mA		nie(r) Edit(E) settings(s) view(v) Convent(C) EDis nie(D) Communic	(tion(iv) Tool(T) Help(H)		
Weight:270g		*******************************			
	R30000	KV-7500(0) : 152.168.1.10	le l	therNet/IP unit	4
8				Unit list(1) Unit setting(2) Search unit(3)	
4				副 副 ( 辞 計 ) 20	
				Unit name Rev. EDS fil.	•• •
				Keyence Corporation	
				NV-3500 1.1 KV-3500.	<u>.</u>
			1 A 1	RV-8000 1.1 KV-8000.	
				E KV-EP02 1.1 EtherNe.	
				RV-N16ER 1.1 16-poin.	
		EtherNet/IP settings	×	KV-N16ET* 1.1 16-poin.	
0				RV-N16EX 1.1 16-poin.	
		The EtherNetIP setting has not been set. Please set "Thanual"Set the configuration from the equipment	ct the setting method. It list.	KV-N3AM 1.1 2*1ch a.	
		* "Auto Configuration"Search the connected equip	ment to be set automatically	WV-NSER 1.1 S-point.	
				KV-NSEX 1.1 S-point.	
		Manua(M) Auto Configure	lion(A)	(	>
			-		
					-
		•			
		Output			a.
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		Cutput So the SP 120 120 120 120 120 120 120 120 120 120	ction RPI(IN) RFI(OUT)	out Refresh	a
Message		Oveput ≥ 10 [20 25 [25 25] [25 H Node name 19 address Conne	ction RFI[IN] SFI[OUT] (R#) (R#) (D)	e out Refresh priority	
Message Proce	ess Row No	Curput Color (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	ction (EPI(IN) SPI(OUT) (ED) (ED) (Time	out Refreeh priority	
Message Proce	ess Row No	Comput     Comput     No. [10] 25 [10] [20]     No.	ction RFI(IN) FI(OUT) Time	out Sefresh priority	
Message Proce	ess Row No	Curput Conference of the first of the conference of the conferenc	ction RFI(IN) RFI(OUT) Time (na) (na)	out Refresh priority	
Message Proce	ess Row No	Control Network Net	ction RF2(133) RF2(007) Time (ms) (ms) (ms) (dto)	out Bafrenh priority OK Cancel Appl	• •
Message Proce	ess Row No	Curped Curped N Node name IP address Conne r + + + Marsage/Welfy, bries he/	ction RFT(IN) RFT(OVT) Time (ma) (ma) (ma) (duor	out Befresh priority OX Cancel Appl	• •
Message Proce	ess Row No	Control Weight N Node name IP address Control N Node name IP address Control N Node name IP address Control N	otion set (19) set (19) (10) (20) (20) (20) (20) (20) (20) (20) (20) (20) (20)	out Bafreeb priority OK Cancel Apply	
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🛼 EtherNet/IP settings						-	- 🗆	×
File(F) Edit(E) Settings(S) View(V) Pnvert(C) E	)S file(D) Communication(N)	Tool(T) Help(H)						
	Reg(I)							
	Delete(D)			EtherNet/IP unit				ą
KV-/S00[0] : 192.168.1.10	Search(S)			Unit list(1) Ur	it setting(2)   Sea	rch un	it(3)	
	Edit comments(E)				l 🐜			
	Add to scan list(A)				ALL			
	Display all EDS files(V)			Unit	name I	Rev.	EDS fil	···· ^
				Ryence		1 1	WW-5500	
	Property(P)			RV 350	, 1	1.1	KV-7500	
				<b>KV</b> -800	2	1.1	KV-8000	
				E KV-EPO	2	1.1	EtherNe	
				KV-N]	6ER	1.1	16-poin.	
				m KV-N]	6ET*	1.1	16-poin.	
				🚾 KV-NI	6EX	1.1	16-poin.	
				📷 KV-N3	AM	1.1	2+1ch a	
				m KV-NS	ER	1.1	8-point.	
				KV-N8	ET*	1.1	8-point.	
				m KV-NS	EX	1.1	8-point.	· · · V
				<				>
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N Node name TP address	Connection	RPI[IN	] RPI[OUT]	F	efresh			
in inde name in address	connection	(ms)	(ms)	pi pi	iority			
ł								
Message Verity Setup list		<						>
Read EDS file, and register to the unit list.			Edito	or	OK (	Cancel	App	y 🛛

Left-click on "EDS File" then "Reg" to open the registration window:

Select the EDS file (with ".eds" in filename extension) we have provided in the file path and click on "Open" (the current version is: GF2-C003T\_20220816\_1):

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搜尋位置(I):	: 📙 EthernetIP_EDS 🛛 🗸 🎯 🎓 📴 🕶	5
↓ 快速存取	名稱	0 上午 10:06  P -1
桌面		-1 -1 -1
媒體櫃		-P -P -P
本機		Ē
<b>学</b> 網路		
_	< 2.	>
	檔案名稱(N): 005A000332420100-1100409 ✓ 檔案類型(T): EDS file(*eds; *ez1) ✓	開啟(Q) 取消



In the popup window, select "Use Default Icon", then left-click on "OK":

EtherNet/IP settings	×	
The icon specified for EDS file could not be found.		
005A000332420100-1100409.EDS		
◯ Select icon file(S)		
Use default icon(D) 2. OK Cancel		

From the EDS Library menu, we will see the newly-added Coupler[ GF2-C003T ]. Double-click on it to add Coupler[ GF2-C003T ] to the connection list:

📕 EtherNet/IP se	ttings							-	- 🗆	х
File(F) Edit(E)	Settings(S) View(V)	Convert(C) EDS	file(D) Communication(N) Tool(T)	Help(H)						
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						EtherNet/IP unit				ą
KV-7500[0	1 : 192.168.1.10					Unit list(1) Uni	t setting(2)   Se	arch un	it(3)	
14							****			
							ALL <sup>B</sup>	-		
						Unit r	name	Rev.	EDS fi	···· ^
						SR-D100	Series	1.1	SR-DIO	
						SR-LRI		1.1	SK-LKI	
							Carias	1.1	32-V 30	
						WI-5000	/7000	1.1	WI-3000	
							0 Series	1.2	xc-x100	
							0 Series	1 1	XG-X200	····
						Generic	Device	1.1	Generic	
						Generic	Interface	1.1	Generic	
					4	Gener	ia Combu	1.1	Generio	
						Vendor na	ame not			
						Doupler	[GF2-C003]	1.1	Couples	
									43	
						Complex (CF2	C002111 11			
						Coupler[GF2-C0	003]			
Output										ņ
🗈 💼   🗰 🍠   1	2 💀   🏨									
N	Node name	TP address	Connection	RPI[IN] R	PI [OUT]	ime out	efresh			
	nous nume	11 uuurcoo	connection	(ms)	(ms) 11	pr:	iority			
a										
	he to chart		Π.							
	age_verity_Setup list		( <							>
					Editor	or	OK	Cance	Ар	oly



In the popup window, enter the coupler's IP address (192.168.1.20 by default), Node Address(1) and then click on "OK":

EtherNet/IP settings					_	- 0		×
File(F) Edit(E) Settings(S) View(V) Convert(C) ED	S file(D) Communication(N) Tool(T) I	Help(H)						
📲 🛈 🚔 🖧 🖿 🖿 🔚 📑 🥙 🚳 🚳 🚳								
			EtherNet/IP	unit				ņ
KV-7500[0] : 192.168.1.10			Unit list(1)	Unit setting(2)   Se	arch ur	nit(3)		
LK .								_
				it name	Rev.	EDS fi	1	^
1: Coupler(Gr2=C003) : 192.168.1.1			SR-	D100 Series	1.1	SR-D10	0	-
			sR-	LR1	1.1	SR-LR1		
			5Z-	v	1.1	sz-v s	e	
Initial advector states	1 ~		wi-	5000 Series	1.1	WI-500	0	
Initial adapter settings	· · · ·		🚾 XG-	8000/7000	1.2	XG-800	0	
Node address(A)	1		🚾 XG-	X1000 Series	1.1	XG-X10	0	
			📷 XG-	X2000 Series	1.1	<b>XG-X</b> 20	0	
IP address(I)	2 . 168 . 1 . 20		🚾 Gen	eric Device	1.1	Generi	c	
	110	N	🗆 🔤 Gen	eric Interface	1.1	Generi	c	
Exclusive owner		14	III G	eneric Contr	1.1	Generi	c	
			🗉 📙 Vendo	or name not				
	2		🚾 Cou	pler[GF2-C003]	1.1	Couple	r	~
4	OK Cancel		<				>	
	On Californ		Coupler[	GF2-C003][1.1]				
			Coupler[G	F2-C003]				
								_
Output								, p
<u>₽ Ê   # ₽   8 ₽   </u>								
N Node name TD address	Connection	RPI[IN] RPI[OUT]	Time out	Refresh				
In node name IF address	connection	(ms) (ms)	TTHE OUT	priority				
	14							
H + + H Message Verify Setup list	<						>	
		Ec	ditor	OK	Cance	I Ap	oply	11

III. Confirm the IO address and establish a simple testing program: Regarding iD-GRID Coupler register address:





Once equipment addresses have been confirmed, click on "Apply" and then "OK" to close the window:

EtherNet/IP setting	s							-	- 0	×
File(F) Edit(E) Set	tings(S) View(V)	Convert(C) EDS	file(D) Communication(N) Tool(T) H	Help(H)						
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KV-7500[0] :	192.168.1.10					EtherNet	t/IP unit			ą
						Unit list(	1) Unit setting(2)   Se	earch ur	nit( <u>3)</u>	
coup	ler[GF2-C003] :	192.168.1.29					Unit name	Rev.	EDS fi	L ^
Exc.	lusive owner					E05	SR-D100 Series	1.1	SR-D100	
	W 00-081	W 082-0FF				<u>=</u>	SR-LR1	1.1	SR-LR1	
						E05	52-V	1.1	SZ-V Se	
						E05	WI-5000 Series	1.1	WI-5000	••••
							KG-8000/7000	1.2	XG-8000	
						EDS	XG-X1000 Series	1.1	XG-X100	••••
							KG-X2000 Series	1.1	XG-X200	
							Seneric Device	1.1	Conorio	
							Generic Interface	1.1	Generic	
						U.S. Ve	ndor name not	1.1	Generic	
							Coupler[GE2-C003]	1 1	Coupler	
							oodbacaforn ooool		ooupier	```
			R							
						Couple	er[GF2-C003][1.1]			
						coupre				
Output										ņ
🖻 💼 🛤 ङ 🛚 😢 E	₩   <b>#</b>									
N Nod	e name	IP address	Connection	RPI[IN] (ms)	RPI[OUT] (ms)	Time out	Refresh priority			
1 Coupler[	GF2-C003]	192.168	Exclusive owner [IN_100	10.0	10.0	RPI*16	Normal			
			_				0		•	
H + + H Message/	Verify Setup list /		<				<b>J</b> .	- 4		>
			u		F	litor	OK	Canco		aby a
								cance	Ар	17

Enter the testing program in the image below, which verifies Remote I/O's proper connection:



DO: Use DI to trigger.

DI: DI is placed on connector a. When a signal is transmitted back from the cables, it will trigger the "MOVE" command and DO.

AO: Use the "MOVE" command to move the 1000 value to AO.

AI: Use the "MOVE" command to move the AI value to the MR010 register. The AI value can come from the signal producer or AO.



#### IV. Download the program to PLC and test it online:

Use mouse's left button to select "Monitor/Simulator", then "(Transfer TO PLC  $\rightarrow$  Monitor Mode) to download the program to PLC:

📓 KV STUDIO -[Editor: KV-8000] - [	Keyence_Ethernet_IP_Co	innection_Ter	st *]									- 1	a ×
File(F) Edit(E) View(V) Program	m(M) Script(S) Conv	vert(A) Mo	nitor/Simulator(N) Debug(D)	Operation recorde	r/Replay(R)	Tool(T) Window(W) H	lelp(H)						
1 D 📷 🖽 📾 🖄 🗮 🗑 🛛	à 🕜 i 🛐 Usa	l.	Return to Editor(X)	Ctrl+F1	444	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1							
1.2 日日港南部職工員			Sature energy in the second			Comments Co	mment 1 •						
Project a x M	in 1		Monitor mode(B)	Ctrl+Shift+F3									
= 👬 Unit configuration	1. (	Ð	Transfer to PLC 5> Monitor more	de(C) Ctrl+F8									
[0] KV-8000			Read from PLC	de(M) Celle		4	5	6	7	8	9	10	÷
EtherNet/IP 1			Transfer to PLCOVI				,		,			10	1 ^
a Unit configuratio		W 🗈	Read from PLC(R)	Ctrl+F5								W082 0	
The Device comment	-	w a	Verify with PLC/synchronize(V).									w082.0	
- T Variable	00001		Start Monitor(S)	F4								-0	
Operation recorder a		ě	Stop Monitor(E)	Shift+F4									
CFO system setting			Start online edit(O)	F10									
m 🔐 Program: Keyence_Eth			Transfer online edit(F)	F11									
B Bain			Setup online edit(J)								101		
Initialize module		m	Simulator(L)	Ctrl+F2							_ MOV		
Standby module	00000		Start simulator edit(Q)	Ctrl+Shift+F2							#1000	W083	
Inter-unit sync m	00002		Transfer simulator edit(Z)	F11							# 1000		
- Punction Block		Ó	Setup simulator(A)								-	101000101	
E 2 Macro			VT simulator start()									Coupler[6	
Suproutine macro		····· 88	Real time chart monitor(H)									. coupier [d	
Device default			Registration monitor window(G								_ MOV		
🚍 🚱 File register settin			Batch monitor window(K)										
1:CPU memory	00003	12	Device value batch modify/rear	d window(D)							WOI	MR010	1
🖬 🔷 User document		60	Display/hide watch window(N)	Alt+3									
			Unit Monitor(U)								KV-8000[0]		
			Built-in function monitor(P)								.Coupler[G		
			Command monitor(Y)	,									
		_			_								
	00004												
	00004												
	00005												
													1
													1
< >													
Project Library													· ·
Convert ladder													🕂 USB

#### Click on "Execute":

Transfer program [Communication destination: KV-8000, route: USB]	×
Transfer items(I)	
Item	
✓ Unit setting info	
Global device comments	
Global variable	
Structure	
CPU system setting	
Program	
✓ Operation recorder setting	
Device default info	
✓ Logging/trace setting info	
Ethernet/serial function setting info	
File Register setting	
User document	1
Positioning unit parameter	
Camera setting	
Select all(S) Cancel all(D)	
Clear program in PLC(Q)	
Transfer in PROGRAM mode(P) Transfer in RUN mode(R) Execting(E) Cancel(C)	



A warning window appears to remind you that the transfer will put PLC on the Program Mode. Please click on "Yes" (Note: At this time, PLC will stop the program's operation. Please do not carry out this procedure to PLC operating online):



A warning window appears asking if you want to switch to the Run Mode. Please click """



Please use the online monitor mode for testing:

