PENKO Engineering B.V.

Your Partner for Fully Engineered Factory Solutions



How to... Connect the SGM740 or SGM840 to an Omron PLC



Table of Contents

General information
GSD File
Niring 4
Setup the SGM740 or SGM840
CX-Programmer 1
CX-ConfiguratorFDT10
CX-Programmer 2 18
SSD file explanation 20
Inputs 20
Read weight register 21
Read status 23
Read commands
Read weight select register 25
Read inputs
Read outputs 27
Read Preset Tare
Read indicator gross x 10 29
Read indicator net x 10 30
Read indicator tare x 10 31
Read multirange weight
Outputs
Set commands
Set weight select register
Set preset tare
Set level 1
Set level 2
Set level 3
Set level 4 40



General information

When the SGM740 or SGM840 is powered by USB (not 24Vdc) the communication, load cell interface and the analog output will not work.



SGM740

Profibus connection





GSD File

The GSD File can be found at our website <u>www.penko.com</u>. The filename is PSGM0E28.GSD.

Wiring

To connect the SGM740 or SGM840 to a PLC, you only need to connect wire 3 (RxD/TxD-P) and 8 (RxD/TxD-N) of the connector as shown below. The first and last device on the chain need to have the bus termination.

If you use an original Profibus connector make sure that you use the bus termination on the Profibus connector and not on the SGM740 or SGM840 (the dipswitch next to the Profibus connector must be both in the "OFF" position), otherwise the Profibus communication will not work.

If you do not use an original Profibus connector with a termination. You must set the dipswitch next to the Profibus connector both in the "ON" position.





Setup the SGM740 or SGM840

Connect the SGM740 or SGM840 to a PC using an USB-cable and open Pi Mach II and double click on **SGM740** or **SGM840**, double click on **Enable Full Setup** then double click on **System Setup**, then double click on **Communication**, then double click on **Profibus**, set the **Address** and **Format** the same as picture below. Click on **Apply** to save settings.

m² SGM 700/800 series, Device Version: 01.04, Build: 01, Serial: 13270003, Module Version: 00.00, Build: 00, Project: C:\Pi test								
File Project Environment View Tools Help								
💕 On-Line 🛛 🗐 Eimmware Update Manager 🔁 Program Builder 🧠 Flex Builder 🔲 Watches 🛛 🧔 E <u>w</u> it								
📗 🖳 Display 📔 🍉 Control 🌰 Tasks 🛛 🏪 1/0 📪 Indigator & Registers 📼 Labels 🔠	Results 🛛 👯 Printer Layout 👛 Printer 1	Ticket 🕓 Glock 🗠 Scope 🎼 Manage						
□ - PENKO □ - Device root □ - SGM740 Profibus	Class: PENKO.Device root.Se Path: 1.1.1.3.3.8	GM740 Profibus.System Setup.Communication.	Profibus					
- 1.1.1.1 Name = - 1.1.1.2 Start Quick setup - 1.1.1.3 Enable Full setup	Address	2						
⊕ System ⊖ System Setup ⊕ Service	Format							
- Indicator - Communication - R5485 - Profibus								
I.1.1.3.3.8.1 Address = 2 I.1.1.3.3.8.2 Format = Integer Digital outputs Digital outputs Analog output								
⊕ Factory recall ⊕ Control _ Access								
	Discover Import Prope	erties (CSV)	Apply					
ACTIVE USB USB open			h					



CX-Programmer 1

Open CX-Programmer to set up the PLC. In the example we use an **Omron CJ2M-CPU31 PLC** with an **Omron CJ1W-PRM21 Profibus module**.

Click on New and set the Device Type and Network Type and click on OK.

Change PLC
Device Name
NewPLC1
Device Type
CJ2M Settings
Network Type
USB 🗨 Settings
🗖 Show all
Comment
A

OK Cancel Help

Double click on IO Table and Unit Setup.





Open the Main Rack, right click on the first empty slot and click on Add Unit.

PLC IO Table - NewPLC1		
File Edit View Options Help		
	🛪 🔊 🗈 🗗 🐜 🖌 🗸	
CJ2M-CPU31		
🗄 🍓 Built-in Port/Inner Board		
🖹 🛶 [0000] Main Rack		
00 [0000] Empty Sign	Add Unit	
02 [0000] Empty Slot	Change / Confirm Units	
👖 03 [0000] Empty Slot	Change Unit No	
🗊 04 [0000] Empty Slot	Unit Comment	
🗊 05 [0000] Empty Slot	SVSMAC BUS Master	
106 [0000] Empty Slot	STSWAC DOS Waster	
07 [0000] Empty Slot	Unit Setup	
08 [0000] Empty Slot	Save Parameters	
100001 Back 01	Load Parameters	
(0000) Rack 02		
🗊 👞 [0000] Rack 03	Start Special Application	· · · · · · · · · · · · · · · · · · ·
	Cut	Ctrl+X
	Сору	Ctrl+C
	Paste	Ctrl+V
	Delete	
	Unit Manufacturing information	
	Unit Error Log	
	Hot Swap	



PENKO How to...

Connect the SGM740 or SGM840 to an Omron PLC

Select the Profibus module and click on **OK**.



Set Unit to 1 and click on OK.

Change Unit	Number
Unit name:	PROFIBUS DP-V1 Master Unit
Unit type:	CJ1W-PRM21
Unit	1
	input range 0 - 15
Comment:	
	OK Cancel
	2



Click on the button **Work online**.



This pop-up will appear, click on Yes. The PLC will start in the Run Mode



Click on the button Transfer to PLC.

🛄 υ	ntitle	d - C	X-Pro	gramm	er - [(Runni	ng] - N	lewPL(1.New	rogra	am1.S	ection1 [Diagr	am]]																			
Ľ	File	Edit	Viev	v Ins	ert	PLC	Progra	m S	mulatio	n T	ools	Window	v H	elp																			
ם	2	R	ß	6	<u>ð</u> ,	ХĒ	8		2.0	M) #E	76 QG	1	8	N?		<u>*</u> *	<u>k</u> e	<u>k</u> i	5	 100		Ð	2	R	\$ 🖑			8 🖽	5	ų,	°2 d	2
]] Q	Ķ	Q	۹ [8) : =		3 F.	SMA		8 - 1	-1/1-	4 P 4 P	1 -		> -Ø	日日	er fi		¥		¢	8	S.	×	7	8	10:01	Z	XV				
		5 2 (58 6	- P	бб	R [7 🗐	001 002	10 10	16	1	} 题		8 1	19	9	-	► I	F]		봐ㅋ	Ľ ₩	\geq		n 📖	ф,	p Ŧ	$\frac{mps}{++}$ $\frac{+}{r}$	+ +	+	5		
€ E		1	g	16%	4 9	6 %6																											

Click on Transfer All and say yes to all the pop-ups.



122

The programs and settings will transfer to the PLC, when the downloading is completed say **Yes** to the pop-up, this will set the PLC back into RUN Mode.

Download	×
Program Download to PLC NewPLC1	
Transferring programs	
Byte 2280 of 2280	
Downloading	
	Cancel

The PLC is now configured.

CX-ConfiguratorFDT

Open **CX-ConfiguratorFDT** to setup the Profibus network. In the example we use an **Omron CJ2M-CPU31 PLC** with an **Omron CJ1W-PRM21 Profibus module**.

Add the **Omron CJ1W-PRM21 Profibus module** to "My Network". Right click on **My Network** and click on **Add**.

편 [Unnamed] -	CX-ConfiguratorFDT			n	_
File Edit View	w Device Tools	Window	Help		
D 🛩 🖬	. 💷 🖡 🚜 🚜	19 🖳	💵 📮 🛄	2 🧇 🔋	₽ HTML ₽
Network View				↓ 1	+ ×
······ 🛄 MyNetured	Add Load from device Store to device Import / Export Info	•			



Select the right Profibus module and click on **ok**. The Profibus module is now added to "My Network".

Add			×							
Device Type	Version	Vendor	FDT Version							
C200HW-PRM21	V1.04 (1998-10-01)	OMRON Corpora	1.2.0.0							
CJ1W-PNT21 PROFINE	1.2 (2013-07-05)	OMRON Corpora	1.2.1.0							
CJ1W-PRM21 PROFIBU CJ1W-PRM21 PROFIBU	V2.xx (2013-06-11) V1.xx (2013-06-11)	OMRON Corpora OMRON Corpora	1.2.0.0							
CS1W-CRM21	1.1 (2006-02-22)	OMRON Corpora	1.2.0.0							
CS1W-PRM21 PROFINE CS1W-PRM21 PROFIBU	V2.xx (2013-07-05)	OMRON Corpora OMRON Corpora	1.2.1.0							
CS1W-PRM21 PROFIBU Master Placebolder Module	V1.xx (2013-06-11) 1 1 (2006-02-24)	OMRON Corpora OMRON Corpora	1.2.0.0							
NSJW-PRM21 PROFIBU	V3.xx (2013-06-11)	OMRON Corpora	1.2.0.0							
Help	Help OK Cancel									

Click on Install Device Description Files and add the SGM740/SGM840 GSD file.

Device Types	DTM Name	Version	Date	Vendor	
	The second secon	Rev. 1.03	2013-07-01	Penko Engineering	
	1020 INDICATOR	Rev. 1.03	2013-07-01	Penko Engineering	
Not specified	3G3AX-MX2-CRT-A2037	1.02	2011-10-11	OMRON Corporation	
	3G3AX-MX2-CRT-A2055	1.02	2011-10-11	OMRON Corporation	
	3G3AX-MX2-CRT-A2075	1.02	2011-10-11	OMRON Corporation	=
	3G3AX-MX2-CRT-A2110	1.02	2011-10-11	OMRON Corporation	
	3G3AX-MX2-CRT-A2150	1.02	2011-10-11	OMRON Corporation	
	3G3AX-MX2-CRT-A4004	1.02	2011-10-11	OMRON Corporation	
	3G3AX-MX2-CRT-A4007	1.02	2011-10-11	OMRON Corporation	
	3G3AX-MX2-CRT-A4015	1.02	2011-10-11	OMRON Corporation	
	3G3AX-MX2-CRT-A4022	1.02	2011-10-11	OMRON Corporation	
	3G3AX-MX2-CRT-A4030	1.02	2011-10-11	OMRON Corporation	
	3G3AX-MX2-CRT-A4040	1.02	2011-10-11	OMRON Corporation	
	CRT1B-ID04JS	1.01	2009-07-28	OMRON Corporation	
	CRT1B-ID04JS-1	1.01	2009-07-28	OMRON Corporation	
	CRT1B-ID04SP	11	2006-02-22	OMBON Comporation	*
	•				•
Help	I	nstall Device Description F	iles	Jpdate Add Dev	ce



Install Device Description Files				×
🚱 🔍 🛡 📗 🕨 Download		▼ 4	Search Download	Q
Organize 🔻 New folder			: : :	• 🔟 🔞
🔶 Favorites	Name	Date modified	Туре	Size
📃 Desktop 🗉	PSGM0E28.GSD	11-3-2013 14:56	GSD File	7 KB
📕 Downloads 🚽				
Recent Places				
TRANSP				
🚍 Libraries				
Documents				
J Music				
Pictures				
Videos				
T				
File name:	PSGM0E28.GSD	•	Generic GSD DTM	Files (*.gs*) 💌
			Open	Cancel

Go to the folder where the GSD file is saved and open the GSD file.

Click on **Device Vendor** and click on **Penko Engineering B.V.** Select the SGM740 and click on **Add Device**. Make sure the Profibus module is selected, otherwise the "Add Device" button is not clickable.

[Unnamed] (*) - CX-ConfiguratorFDT	
File Edit View Device Tools Window Help	
D 🚅 🖬 📕 🎟 📕 🚑 🚑 🌱 😫 🖳 🚺 🔮 🤞) 2 📮 🚟 💂
Network View	▼ ₽ ×
MyNetwork MyNetwork State 1 - CJ1W-PRM21 PROFIBUS DP-V1 Master*	



Device Catalogue				- ₽ ×
Device Types	DTM Name	Version	Date	Vendor
OMRON Corporation	🖳 SGM 740	Rev. 1.00	2013-03-19	Penko Engineering B.V.
Penko Engineering				
YASKAWA ELECTRIC				
Yaskawa Eshed Technolog				
Device Classification Protocols				
4 III >	•			4
Help	In	stall Device Description File	s Up	date Add Device

The SGM740/SGM840 is added to "My Network".



Double click on CJ1W-PRM21 PROFIBUS DP-V1 Master to set up the Profibus module.





Set the **Unit Number** to 1.

Note: The hex-switch on the **Omron CJ1W-PRM21 Profibus module** must be set to the same **Unit Number** as in the setting.

<1> CJ1W-PRM21 PROFIBUS DP-V1 Master - Configuration	×
Device Setup Master Setup Bus Parameters Slave Area Advanced	ОК
OMRON	Cancel
Communication	Help
Configure Test	
- Settings	
Station Address: 1	
Unit Number:	
Device Information	
OMRON Corporation	
Description:	
Firmware Version:	
Ident. Number:	
	Save
	0000



Click on **Configure** and set the **Device Type** and **Network Type** (same settings as used in CX-Programmer).

Change PLC	
- Device Name	
PLC	
Device Type	
CJ2M Settings	
Network Type	
USB Settings	
🗖 Show all	
Comment-	
A	
	
OK Cancel Help	

Go to the tap **Slave Area**. In the tap **Output Allocation** the start and length of the output is shown. The start address is **CIO3200** and the length is **11 Words**. The start address and length are important to remember.

	Master	r Setup Bus Paramete	ers Slave Area	Advanced					ОК
put Alloc	ation	nput Allocation							Cancel
#Addr	Index	Device	Module		Size	Type	Addr		Help
2	1	SGM 740	11 words ou	tput (No con	11	Word	CI03200		
								-	
Output A	rea 1 —			-Output Area 2	2				
CIO	Module	a Nama			- Aodule N	lama			
UU.	Moduli	e Name	-		nouule in	ame		-	
3200	# 2	11 words output (No.o	oneie	3400					
3200 3201	# 2,	11 words output (No c	onsis	3400 3401					
3200 3201 3202	# 2,	11 words output (Noc 11 words output (Noc 11 words output (Noc	onsis	3400 3401 3402					
3200 3201 3202 3203	# 2,	11 words output (No c 11 words output (No c 11 words output (No c 11 words output (No c	onsis onsis onsis	3400 3401 3402 3403					
3200 3201 3202 3203 3204	# 2, 1	11 words output (No c 11 words output (No c 11 words output (No c 11 words output (No c 11 words output (No c	onsis onsis onsis onsis onsis	3400 3401 3402 3403 3404					
3200 3201 3202 3203 3204 3205	# 2, 1	11 words output (No c 11 words output (No c	onsis onsis onsis onsis onsis onsis	3400 3401 3402 3403 3404 3405					
3200 3201 3202 3203 3204 3205 3206	# 2,	11 words output (No c 11 words output (No c	onsis onsis onsis onsis onsis onsis	3400 3401 3402 3403 3404 3405 3406					
3200 3201 3202 3203 3204 3205 3206 3207	# 2, 1	11 words output (No c 11 words output (No c	onsis onsis onsis onsis onsis onsis onsis	3400 3401 3402 3403 3404 3405 3406 3407					
3200 3201 3202 3203 3204 3205 3206 3207 3208	# 2,	11 words output (No c 11 words output (No c	onsis onsis onsis onsis onsis onsis onsis onsis	3400 3401 3402 3403 3404 3405 3406 3407 3408					
3200 3201 3202 3203 3204 3205 3206 3207 3208 3209	# 2, 1	11 words output (No c 11 words output (No c	onsis onsis onsis onsis onsis onsis onsis onsis onsis	3400 3401 3402 3403 3404 3405 3406 3407 3408 3409					
3200 3201 3202 3203 3204 3205 3206 3207 3208 3209 Area:		11 words output (No c 11 words output (No c	onsis onsis onsis onsis onsis onsis onsis onsis vonsis	3400 3401 3402 3403 3404 3405 3406 3407 3408 3409 Area:	СЮ	Ţ	Occupied:000	D Words	
3200 3201 3202 3203 3204 3205 3206 3207 3208 3209 Area: Start Add	# 2,	11 words output (No c 11 words output (No c 0 Occupied: 00 Occupied:	onsis onsis onsis onsis onsis onsis onsis onsis vonsis onsis	3400 3401 3402 3403 3404 3405 3406 3406 3407 3408 3409 Area: Start Addres	CIO s: 3400	•	Occupied: 000	0 Words	



In the tap **Input Allocation** the start and length of the input is shown. The start address is **CIO3300** and the length is **16 Words**. The start address and length are important to remember.

e Setup	Maste	r Setup Bus Parameter	s Slave Area	Advanced					<u>ОК</u>
tput Alloo	cation I	nput Allocation							Cancel
#Addr	Index	Device	Module		Size	Type	Addr		Help
2	1	SGM 740	16 words in	nput (No consi	16	Word	C103300		
Ioput Are	a 1			⊢lnout Area 2				•	
CIO:	Modul	e Name	^	CIO: 1	Module N	lame			
3300	# 2,	16 words input (No con	sist	3500					
3301		16 words input (No cons	sist	3501					
3302		16 words input (No con:	sist	3502					
3303		16 words input (No con:	sist	3503					
3304		16 words input (No con:	sist	3504					
3305		16 words input (No con:	sist	3505					
3306		16 words input (No con:	sist	3506				_	
3307		16 words input (No con:	SISL	3007				_	
3309		16 words input (No con:	sist 🔻	3509				-	
Area:	CI	0 • Occupied:0	016 Words	Area:	CIO	•	Occupied:0000	Words	
Start Add	tress: 33	300		Start Addres	s: 3500				

Click on Save to save the settings.

	Maste	r Setup Bus Parameters	Slave Area A	dvanced					OK
utput Alloc	cation I	nput Allocation							Cancel
#Addr	Index	Device	Module		Size	Type	Addr		Help
2	1	SGM 740	16 words inpu	t (No consi	16	Word	CIO3300		
I								-	
- Input Are	ea 1 —			-Input Area 2					
CIO:	Modul	e Name	*	CIO:	Module N	lame		<u> </u>	
3300	# 2.	16 words input (No cons	ist	3500					
3301		16 words input (No cons	st	3501					
3302		16 words input (No cons	st	3502					
3303		16 words input (No cons	st	3503					
3304		16 words input (No cons	st	3504					
3305		16 words input (No cons	st	3505					
3306		16 words input (No cons	st	3506					
3307		16 words input (No cons	st	3507					
3308		16 words input (No cons	st	3508					
3309		16 words input (No cons	st 🔻	3509				-	
	CI	0 Occupied:00	16 Words	Area:	CIO	-	Occupied:000	0 Words	
Area:		00		Start Addres	ss: 3500				
Area: Start Add	less. Joe								



Click to select the CJ1W-PRM21 Profibus DP-V1 Master and click on the button Store parameters set to device.



Say Yes to the pop-up and the downloading will start.

Downloading Parameters
Downloading Parameters for CJ1W-PRM21 PROFIBUS DP-V1 Master
Cancel

When the downloading is completed, say **Yes** to the pop-up and the PLC will switch back to RUN Mode.



CX-Programmer 2

an ETC Company

Go back to CX-Programmer, set the PLC into Monitor Mode by clicking on and double click on **Memory**.



Double click on CIO, set Start Address to 3300 and click on the Monitor button.

				51						
	<u>4</u> <u>2₩4₩</u>	<u> </u>	<u> </u>	<u>*</u>						
CJ2M - CPU31	CIO	oo:	3300	On	1 Off	1 5	etValue	1		
	ChangeOrd	ier		ForceOn	ForceOf	Fo	rceCanc			
G G G G G G G G G G G G G G	CiO0000 CiO0010 CiO0020 CiO0030 CiO0040 CiO0050 CiO0060 CiO0070 CiO0090 CiO0090 CiO0100 CiO0110 CiO0120 CiO0130 CiO0140 CiO0150 CiO0160 CiO0150 CiO0160		+1		3 +4	+5	+6	+7	+8	+9
	CIO0180 CIO0180 J: On/Off, Ctrl+J: For	. T: Chai ceOn, C	ngeOrd trl+K: F	er forceOff, Ct	I+L: ForceCa	ancel				

PENKO How to...

Connect the SGM740 or SGM840 to an Omron PLC

Click on **Monitor**.

1	Monitor Memory Areas	×
	▼ CIO	Monitor
		Cancel

The live data is shown from the SGM740 or SGM840.

IO 🥋											
Start Addre	ess:	3300	Or		Off		SetValue				
ChangeOrder			ForceOn		ForceOff		ForceCanc				
	+0	+1	+2	+3	+4	-	+5	+6	+7	+8	+9
CIO3300	0	5000	8332	0	8	78	3	0	0	0	49996
CIO3310	0	49996	0	0	0	50	00	0	0	0	0
CIO3320	0	0	0	0	0	0		0	0	0	0
CIO3330	0	0	0	0	0	0		0	0	0	0
CIO3340	0	0	0	0	0	0		0	0	0	0
CIO3350	0	0	0	0	0	0		0	0	0	0
CIO3360	0	0	0	0	0	0		0	0	0	0
CIO3370	0	0	0	0	0	0		0	0	0	0
CIO3380	0	0	0	0	0	0		0	0	0	0
CIO3390	0	0	0	0	0	0		0	0	0	0



GSD file explanation

To make sense of the data, open the GSD file in **Notepad** or use the program **CX-ConfiguratorFDT**. Double click on **CommDTMCOM:2> SGM 740**.



Click on **GSD** and scroll down to **Module Definitions**. The inputs and outputs are explained in the GSD file.

Inputs

Note: the Start addresses are explained on page 16.

Note: In the examples below the start address of the SGM740 or SGM840 inputs is CIO3300.

```
Module = "SGM740" 0x6A, 0x5F
Inputs : double word, 32 bit signed integer/float, weight register
word, 16 bit status
byte, 8 bit command (if addressed as word high byte is command, low byte is select register)
byte, 8 bit weight select register
word, 16 inputs 1..16, iputs 4-16 are virtual inputs generated by software
word, 16 outputs 201..216, outputs 5-16 are virtual outputs generated by software
double word, 32 bit signed integer, preset tare
double word, 32 bit signed integer/float, indicator gross x10(same as weight select register 10)
double word, 32 bit signed integer/float, indicator tare x10(same as weight select register 13)
double word, 32 bit signed integer/float, multirange weight(same as weight select register 0)
```

Omron PLC's input addresses have a length of 1 word (2 byte), for example the weight register (double word) has a length of 2 words, so if the start address is CIO3300, so the next data which is the status (word) will start at CIO3302 (2 words further). The table below will show the addresses of all the inputs of the SGM740 or SGM840.

Address	Description
CIO3300	Double word, Weight register
CIO3302	Word, Status
CIO3303.08 – CIO3303.15	Byte, Command
CIO3303.00 – CIO3303.07	Byte, Weight select register
CIO3304	Word, Inputs
CIO3305	Word, Outputs
CIO3306	Double word, Preset tare
CIO3308	Double word, Indicator gross x10
CIO3310	Double word, Indicator net x10
CIO3312	Double word, Indicator tare x10
CIO3314	Double word, Indicator multirange weight



Read weight register

The first 2 words of the inputs are the weight register, the weight register will show at address CIO3300 and CIO3301.

.

1092 N	1odule = "SGM740" 0x6A, 0x5F
)093 ;	Inputs : double word, 32 bit signed integer/float, weight register
)094 ;	word, 16 bit status
)095 ;	byte, 8 bit command (if addressed as word high byte is command, low byte is select register)
)096 ;	byte, 8 bit weight select register
)097 ;	word, 16 inputs 116, iputs 4-16 are virtual inputs generated by software
)098 ;	word, 16 outputs 201216, outputs 5-16 are virtual outputs generated by software
)099 ;	
)100 ;	double word, 32 bit signed integer, preset tare
)101 ;	
)102 ;	double word, 32 bit signed integer/float, indicator gross x10(same as weight select register 9)
)103 ;	double word, 32 bit signed integer/float, indicator net x10(same as weight select register 10)
)104 ;	double word, 32 bit signed integer/float, indicator tare x10(same as weight select register 13)
)105 ;	double word, 32 bit signed integer/float, multirange weight(same as weight select register 0)
-	

Note: it's possible to choose any of the weight registers listed below, the chosen weight register will show at address CIO3300 and CIO3301 (weight register).

-	
)154 ;	general:
)155 ;	weight selection register definition
)156 ;	0x00 = display weight includes multi range/interval step
)157 :	0x01 = fast gross
D158 :	0x02 = fast net
)159 ;	0x03 = display gross
)160 ;	0x04 = display net
)161 ;	0x05 = tare
)162 ;	0x06 = peak
)163 ;	0x07 = Valley
)164 ;	0x08 = display weight x10
)165 ;	0x09 = fast gross x10
)166 ;	0x0A = fast net x10
)167 ;	0x0B = display gross x10
)168 ;	0x0C = display net x10
)169 ;	0x0D = tare x10
)170 ;	0x0E = peak x10
)171 ;	0x0F = Valley x10
)172 ;	0x10 = ADC Sample
)173 ;	0x11 - 0x75 = indicator register 1-100
)174 ;	0x76 - 0xFF = reserved

To read the selected weight register, please go to Read weight select register.

To select a weight register, please see <u>Set weight register</u>.

If the start address of the outputs is CIO3200, the 8 bit weight select register is located at CIO3200.00 to CIO3200.07. In the example below the weight register "Display Net" is chosen. The Display Net value will be shown at address CIO3300 and CIO3301.





IO 🥋																	
Start Addre	ess:		32	00		On			(Dff		S	eťVa	lue			
ChangeOr	F	ForceOff ForceCa				anc											
	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	Hex
CIO3200	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0004
CIO3201	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000
CIO3202	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0014
CIO3203	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000
CIO3204	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	000A
CIO3205	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000
CIO3206	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0014
CIO3207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000
CIO3208	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	001E
CIO3209	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000
CIO3210	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0028
CIO3211	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000
CI03212	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000
CIO3213	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000
CIO3214	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000
CIO3215	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000
CIO3216	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000
CIO3217	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000
CIO3218	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000
002240														0	0	0000	
J: On/Off Ctrl+J: Fo	f, T prceD	: Cł In,	nang Ctrl+	eOrc -K: F	ler Force	eOff,	Ct	rl+L:	For	ceC	ance	1					



Read status

The status will show at address CIO3302, the following statuses can be read from the SGM740 or SGM840.

0092	2 Module = "SGM740" 0x6A, 0x5F	
0093	3 ; Inputs ; double word, 32 bit signed integer/float, weight register	
0094	4 word, 16 bit status	
0095	5: byte. 8 bit command (if addressed as word high byte is command, low byte is select register)	
0096	5: byte, 8 bit weight select register	
0097	7 word 16 inputs 1 16 inputs 4-16 are virtual inputs generated by software	
0098	word 16 outputs 201 216 outputs 5-16 are virtual outputs generated by software	
1099		
0100	, double word 32 bit signed integer, preset tare	
010		
b102	, 2 double word, 32 bit signed integer/float, indicator gross x10(same as weight select register 9)	
b103	double word, 32 bit signed integer/float, indicator get x10(same as weight select register 5)	
110	double word 32 bit signed integer/float, indicator tare v10(sine as weight select register 10)	
110	a double word, 32 bit signed integer/float, indicator tare x folgame as weight eafect register 10/ 5 double word, 32 bit signed integer/float, multicance weight (same as weight eafect register 0).	
1100	 double word, sz bit agned integer/rioat, mutitange weigittgaine as weight select register by 	
110	, . . Outpute: byte 8 bit command (if addressed as word bids byte is command, low byte is select register)	
1109	, outputs. Druc, on command in addressed as wording royce is command, for byte is select registery but a grind indicate a select register.	
1100	2.	
6110	/, 1. double word 22 bit signed integer, preset tare. Sature this register and at rising edge of command bit 5 preset tare is activated	
6111		
hii	,	
hiii	2. double word, 32 bit signed integer, level 1	
611	double word, 22 bit signed integer level 2	
6112	+, double word, 22 bit spined integer, level 3	
6110	2. double word, 32 bit signed integer, rever 4	
611	2, . Zietatus hit definition	
6119	, status bit deministri	
6110	2 - 0 - nativale overlaad detected	
1120		
112		
112		
1123	- S - center of ann	
112		
1128		
1120	2. O - zero udching possible	
112		
1129		
1120		
1120	112 - califation invalid	=
1121		
112		
1123		
112	, <u>10 - Ieserveu</u>	
11.34	*,	

In the example below the "Stable Signal", In Stable Range", Zero Tracking Possible" and "User Certified operation" are on.

-																		
	IO 🥋																	
	Start Addre	ess:		33	00		On			0	Dff		S	etVa	lue			
	ChangeOr	der				F	orce	On		For	ceOf	f	Fo	rceC	anc			
		15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	Hex
	CIO3300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000
	CIO3301	0	0	0	1	0	0	1	1	1	0	0	0	1	0	0	1	1389
	CIO3302	0	0	1	0	0	0	0	0	1	0	0	0	1	1	0	0	208C
	CIO3303	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0004
	CIO3304	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0008
	CIO3305	0	0	0	0	0	0	1	1	0	0	0	0	1	1	1	1	030F
	CIO3306	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000
	CIO3307	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000
	003308	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000



Read commands

The commands will show at address CIO3303.08 to CIO3303.15 (high byte).

)092 Module = "SGM740" 0x6A, 0x5F
)093 ; Inputs : double word, 32 bit signed integer/float, weight register
)094 ; word, 16 bit status
J095 ; byte, 8 bit command (if addressed as word high byte is command, low byte is select register)
J096 ; byte, 8 bit weight select register
1097; word, 16 inputs 116, iputs 4-16 are virtual inputs generated by software
J098 ; word, 16 outputs 201216, outputs 5-16 are virtual outputs generated by software
1099 ;
0100 ; double word, 32 bit signed integer, preset tare
0101 :
J102 ; double word, 32 bit signed integer/float, indicator gross x10(same as weight select register 9)
103 ; double word, 32 bit signed integer/float, indicator net x10(same as weight select register 10)
104 ; double word, 32 bit signed integer/float, indicator tare x10(same as weight select register 13)
105 ; double word, 32 bit signed integer/float, multirange weight(same as weight select register 0)
0106 ;
107; Outputs: byte, 8 bit command (if addressed as word high byte is command, low byte is select register)
)108 ; byte, 8 bit weight select register
)109 ;
1110; double word, 32 bit signed integer, preset tare. Setup this register and at rising edge of command bit 5 preset tare is activated.
0111 :
J112 ; double word, 32 bit signed integer, level 1
J113 ; double word, 32 bit signed integer, level 2
0114; double word, 32 bit signed integer, level 3
1)115 ; double word, 32 bit signed integer, level 4

The following commands can be read from the SGM740 or SGM840.



In the example below the "Tare on" is on.

IO 🥋																	
Start Addre	ess:		33	00		On			(Dff		S	eťVa	lue			
ChangeOr	der				F	orce	On		For	ceOf	f	Fo	rceC	anc			
	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	Hex
CIO3300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000
CIO3301	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000
CIO3302	0	0	1	0	0	0	0	1	1	1	0	0	1	1	0	0	21CC
CIO3303	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0800
CIO3304	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	8000
CIO3305	0	0	0	0	0	0	1	1	0	0	0	0	1	1	1	1	030F
CIO3306	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000
CIO3307	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000
CIO3308	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000

To set the commands, please see <u>Set commands</u> for instructions.



Read weight select register

The weight select register will show at address CIO3303.00 to CIO3303.07 (low byte).



The following weight select registers can be read from the SGM740 or SGM840.

)154 ;	general:
)155 ;	weight selection register definition
)156 ;	0x00 = display weight includes multi range/interval step
)157 ;	0x01 = fast gross
)158 ;	0x02 = fast net
)159 ;	0x03 = display gross
)160 ;	0x04 = display net
)161 ;	0x05 = tare
)162 ;	0x06 = peak
)163 ;	0x07 = Valley
)164 ;	0x08 = display weight x10
)165 ;	0x09 = fast gross x10
)166 ;	0x0A = fast net x10
)167 ;	0x0B = display gross x10
)168 ;	0x0C = display net x10
)169 ;	0x0D = tare x10
)170 ;	0x0E = peak x10
)171 ;	0x0F = Valley x10
)172 ;	0x10 = ADC Sample
)173 ;	0x11 - 0x75 = indicator register 1-100
)174 ;	0x76 - 0xFF = reserved

In the example below weight register "Display Net" is chosen.

🛹 CIO																	
Start Addre	ess:		33	00		On			(Dff		S	etVa	lue			
ChangeOr	der				F	orce	On		For	ceOf	f	Fo	rceC	anc			
	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	Hex
CIO3300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000
CIO3301	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000
CIO3302	0	0	1	0	0	0	0	1	1	1	0	0	1	1	0	0	21CC
CIO3303	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0004
CIO3304	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	8000
CIO3305	0	0	0	0	0	0	1	1	0	0	0	0	1	1	1	1	030F
CIO3306	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000
CIO3307	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000
CIO3308	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000

To set the weight select register, please see Set weight select register for instructions.



Read inputs

The 3 inputs of the SGM740 or SGM840 will show at address CIO3304.00 to CIO3304.02.

)092 Module = "SGM	1740'' 0x6A, 0x5F	
0093 ; Inputs : double	e word, 32 bit signed integer/float, weight register	
)094 ; word	d, 16 bit status	
)095; byte	, 8 bit command (if addressed as word high byte is command, low byte is select register)	
)096; byte	, 8 bit weight select register	
)097 ; word	1, 16 inputs 116, iputs 4-16 are virtual inputs generated by software	
)098 ; word	d, 16 outputs 201216, outputs 5-16 are virtual outputs generated by software	
)099 ;		
)100; double w	vord, 32 bit signed integer, preset tare	
0101 ;		
)102 ; double w	/ord, 32 bit signed integer/float, indicator gross x10(same as weight select register 9)	
)103 ; double w	/ord, 32 bit signed integer/float, indicator net x10(same as weight select register 10)	
)104 ; double w	/ord, 32 bit signed integer/float, indicator tare x10(same as weight select register 13)	
)105 ; double w	/ord, 32 bit signed integer/float, multirange weight(same as weight select register 0)	
)106 ;		
)107 ; Outputs: b	yte, 8 bit command (if addressed as word high byte is command, low byte is select register)	
)108; byte	, 8 bit weight select register	
0109 ;		
)110 ; double w	vord, 32 bit signed integer, preset tare. Setup this register and at rising edge of command bit 5 preset tare is activated.	
0111;		
)112; double w	vord, 32 bit signed integer, level 1	
)113; double w	vord, 32 bit signed integer, level 2	
)114 ; double w	vord, 32 bit signed integer, level 3	
)115; double w	vord, 32 bit signed integer, level 4	
0116;		

In the Example below input 1 is on.

IO 🥋																	
Start Addre	ess:		33	00		On			0	Dff		S	eťVa	lue			
ChangeOr	der				F	orce	On		For	ceOf	f	Fo	rceC	anc			
	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	Hex
CIO3300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000
CIO3301	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0028
CIO3302	0	0	1	0	0	1	0	0	1	1	0	0	1	1	0	0	24CC
CIO3303	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0004
CIO3304	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0009
CIO3305	0	0	0	0	0	0	1	1	0	0	0	0	1	1	1	1	030F
CIO3306	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000
CIO3307	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000
CIO3308	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000



Read outputs

The 4 outputs of the SGM740 or SGM840 will show at address CIO3305.00 to CIO3305.03.

0092 N	1odule = "SGM740" 0x6A, 0x5F	
)093 ;	Inputs : double word, 32 bit signed integer/float, weight register	
)094 ;	word, 16 bit status	
)095 ;	byte, 8 bit command (if addressed as word high byte is command, low byte is select register)	
)096 ;	byte, 8 bit weight select register	
)097 ;	word, 16 inputs 116, iputs 4-16 are virtual inputs generated by software	
)098 ;	word, 16 outputs 201216, outputs 5-16 are virtual outputs generated by software	
)099 ;		
)100 ;	double word, 32 bit signed integer, preset tare	
)101 ;		
)102 ;	double word, 32 bit signed integer/float, indicator gross x10(same as weight select register 9)	
)103 ;	double word, 32 bit signed integer/float, indicator net x10(same as weight select register 10)	
)104 ;	double word, 32 bit signed integer/float, indicator tare x10(same as weight select register 13)	
)105 ;	double word, 32 bit signed integer/float, multirange weight(same as weight select register 0)	
)106 ;		
)107 ;	Outputs: byte, 8 bit command (if addressed as word high byte is command, low byte is select register)	
)108 ;	byte, 8 bit weight select register	
)109 ;		
)110 ;	double word, 32 bit signed integer, preset tare. Setup this register and at rising edge of command bit 5 preset tare is activated.	
)111;		
)112 ;	double word, 32 bit signed integer, level 1	
)113 ;	double word, 32 bit signed integer, level 2	
)114 ;	double word, 32 bit signed integer, level 3	
)115 ;	double word, 32 bit signed integer, level 4	
)116 ;		

In the example below output 1 is on.

IO 🥋																	
Start Addre	ess:		33	00		On			(Dff		S	etVa	lue			
ChangeOr	der				F	orce	On		For	ceOf	f	Fo	rceC	anc			
	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	Hex
CIO3300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000
CIO3301	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0001
CIO3302	0	0	1	0	0	0	0	0	1	1	0	1	1	1	0	0	20DC
CIO3303	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0004
CIO3304	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	8000
CIO3305	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0301
CIO3306	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000
CIO3307	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000
0000000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000



Read Preset Tare

The Preset Tare value will show at address CIO3306 to CIO3307.

_
,

In the example below the Preset Tare value is 10.

IO 🥋											
Start Addre	ess:	3300	On		Off			etValue			
ChangeOr	der		Force	On	ForceOff			rceCanc			
	+0	+1	+2	+3	+4		+5	+6	+7	+8	+9
CIO3300	0 0 201		10204	4	8	783		0	10	0	2111
CIO3310	0	2011	0	100	0 20		201 0	0	0	0	0
CIO3320	0	0	0	0				0	0	0	0
CIO3330	0	0	0	0	0	0		0	0	0	0
CIO3340	0	0	0	0	0	0		0	0	0	0
CIO3350	0	0	0	0	0	0		0	0	0	0
CIO3360	0	0	0	0	0	0		0	0	0	0

To set the preset tare, please see <u>Set preset tare</u> for instructions.



Read indicator gross x 10

The indicator gross x 10 value will show at address CIO3308 to CIO3309.

0092	Module = "SGM740" 0x6A, 0x5F	1
0093	; Inputs : double word, 32 bit signed integer/float, weight register	
0094	; word, 16 bit status	
0095	byte, 8 bit command (if addressed as word high byte is command, low byte is select register)	
0096	; byte, 8 bit weight select register	
0097	': word, 16 inputs 116, iputs 4-16 are virtual inputs generated by software	
0098	word, 16 outputs 201216, outputs 5-16 are virtual outputs generated by software	
0099		
0100	couble word, 32 bit signed integer, preset tare	
)101		
p102	double word, 32 bit signed integer/float, indicator gross x10(same as weight select register 9)	
0103	; double word, 32 bit signed integer/float, indicator net x10(same as weight select register 10)	
0104	; double word, 32 bit signed integer/float, indicator tare x10(same as weight select register 13)	
D105	; double word, 32 bit signed integer/float, multirange weight(same as weight select register 0)	
D106		
p107	; Outputs: byte, 8 bit command (if addressed as word high byte is command, low byte is select register)	
0108	; byte, 8 bit weight select register	
0109		
P110	double word, 32 bit signed integer, preset tare. Setup this register and at nsing edge of command bit 5 preset tare is activated.	
111		
P112	c; double word, 32 bit signed integer, level 1	
113	c; double word, 32 bit signed integer, level 2	
114	double word, 32 bit signed integer, level 3	
1115	; double word, 32 bit signed integer, level 4	
1116		

In the example below the gross x 10 value is 2509.

🕋 CIO	🖨 CIO														
Start Addre	ess:	3300	Or		Off			etValue							
ChangeOr	ChangeOrder		ForceOn		ForceOff		Fo	rceCanc							
	+0 +1		+2	+3	+4	+5		+6	+7	+8	+9				
CIO3300	0	40	8668	4	8	78	3	0	10	0	2509				
CIO3310	0	403	0	2106	0	40		0	0	0	0				
CI03320	0	0	0	0	0	0		0	0	0	0				
CIO3330	0	0	0 0		0	0		0	0	0	0				
CIO3340	0	0	0	0	0	0		0	0	0	0				



Read indicator net x 10

The indicator net x 10 value will show at address CIO3310 to CIO3311.

)092	Module = "SGM740" 0x6A, 0x5F	
0093	; Inputs : double word, 32 bit signed integer/float, weight register	
)094 ;	; word, 16 bit status	
)095 ;	; byte, 8 bit command (if addressed as word high byte is command, low byte is select register)	
0096	; byte, 8 bit weight select register	
0097 ;	; word, 16 inputs 116, iputs 4-16 are virtual inputs generated by software	
0098	; word, 16 outputs 201216, outputs 5-16 are virtual outputs generated by software	
0099 ;		
)100 ;	; double word, 32 bit signed integer, preset tare	
)101		
)102 ;	; double word, 32 bit signed integer/float, indicator gross x10(same as weight select register 9)	
0103 ;	; double word, 32 bit signed integer/float, indicator net x10(same as weight select register 10)	
)104 ;	; double word, 32 bit signed integer/float, indicator tare x10(same as weight select register 13)	
)105	; double word, 32 bit signed integer/float, multirange weight(same as weight select register 0)	
D106		
p107	; Outputs: byte, 8 bit command (if addressed as word high byte is command, low byte is select register)	
p108;	; byte, 8 bit weight select register	
0109		
p110 ;	; double word, 32 bit signed integer, preset tare. Setup this register and at rising edge of command bit 5 preset tare is activated.	
p111;		
0112	; double word, 32 bit signed integer, level 1	
0113	; double word, 32 bit signed integer, level 2	
114	; double word, 32 bit signed integer, level 3	
115	; double word, 32 bit signed integer, level 4	
D116		

In the example below the net x 10 value is 403.

CIO														
Start Address: 3300			Or		Off			etValue						
ChangeOrder		ForceOn		ForceOff		Fo	rceCanc							
	+0	+1	+2 +3		+4		+5 +6		+7	+8	+9			
CIO3300	0	40	8668	4	8	78	3	0	10	0	2509			
CIO3310	0	403	0	2106	0	40		0	0	0	0			
CIO3320	0	0	0 0		0	0		0	0	0	0			
CIO3330	0	0	0 0		0	0		0	0	0	0			
CIO3340	0	0	0	0	0	0		0	0	0	0			



Read indicator tare x 10

The indicator tare x 10 value will show at address CIO3312 to CIO3313.

		_
)092	Module = "SGM740" 0x6A, 0x5F	1
0093	; Inputs : double word, 32 bit signed integer/float, weight register	
0094	; word, 16 bit status	
0095	; byte, 8 bit command (if addressed as word high byte is command, low byte is select register)	
0096	; byte, 8 bit weight select register	
0097	; word, 16 inputs 116, iputs 4-16 are virtual inputs generated by software	
0098	; word, 16 outputs 201216, outputs 5-16 are virtual outputs generated by software	
0099	:	
0100	; double word, 32 bit signed integer, preset tare	
0101	:	
)102	; double word, 32 bit signed integer/float, indicator gross x10(same as weight select register 9)	
)103	; double word, 32 bit signed integer/float, indicator net x10(same as weight select register 10)	
)104	; double word, 32 bit signed integer/float, indicator tare x10(same as weight select register 13)	
)105	 double word, 32 bit signed integer/float, multirange weight (same as weight select register 0) 	
0106		
p107	; Outputs: byte, 8 bit command (if addressed as word high byte is command, low byte is select register)	
0108	; byte, 8 bit weight select register	
0109		
p110	; double word, 32 bit signed integer, preset tare. Setup this register and at rising edge of command bit 5 preset tare is activated.	
p111		
p112	; double word, 32 bit signed integer, level 1	
0113	; double word, 32 bit signed integer, level 2	
114	; double word, 32 bit signed integer, level 3	
115	; double word, 32 bit signed integer, level 4	
D116		

In the example below the tare x 10 value is 2106.

🕋 CIO	CIO														
Start Addre	ess:	3300	Or		Off			etValue							
ChangeOr	ChangeOrder		ForceOn		ForceOff		Fo	rceCanc							
	+0	+1	+2	+3	+4		+5	+6	+7	+8	+9				
CIO3300	0	40	8668	4	8	78	3	0	10	0	2509				
CIO3310	0	403	0	2106	0	40		0	0	0	0				
CIO3320	0	0	0 0		0	0		0	0	0	0				
CIO3330	0	0	0	0	0	0		0	0	0	0				
CIO3340	0	0	0	0	0	0		0	0	0	0				



Read multirange weight

The indicator multirange weight value will show at address CIO3314 to CIO3315.

)092 Module = "SGM740" 0x6A, 0x5F	
)093 ; Inputs : double word, 32 bit signed integer/float, weight register	
)094 ; word, 16 bit status	
1095 ; byte, 8 bit command (if addressed as word high byte is command, low byte is select register)	
1096 ; byte, 8 bit weight select register	
1097; word, 16 inputs 116, iputs 4-16 are virtual inputs generated by software	
)098 ; word, 16 outputs 201216, outputs 5-16 are virtual outputs generated by software	
1099 ;	
)100 ; double word, 32 bit signed integer, preset tare	
0101 :	
102 double word, 32 bit signed integer/float, indicator gross x10(same as weight select register 9)	
103 double word, 32 bit signed integer/float, indicator net x10(same as weight select register 10)	
104 double word, 32 bit signed integer/float, indicator tare x10(same as weight select register 13)	
1005 double word, 32 bit signed integer/float, multirange weight (same as weight select register 0)	
0106 ;	
107; Outputs: byte, 8 bit command (if addressed as word high byte is command, low byte is select register)	
1008; byte, 8 bit weight select register	
0109 ;	
D110; double word, 32 bit signed integer, preset tare. Setup this register and at rising edge of command bit 5 preset tare is activated.	
p111 :	
0112 ; double word, 32 bit signed integer, level 1	
0113 ; double word, 32 bit signed integer, level 2	
1114 ; double word, 32 bit signed integer, level 3	
1115; double word, 32 bit signed integer, level 4	
0116 ;	

In the example below the multirange weight value is 40.

IO 🥋											
Start Addre	ess:	3300	On		Off			etValue			
ChangeOrder		ForceOn		ForceOff		Fo	rceCanc				
	+0 +1		+2	+3	+4		+5	+6	+7	+8	+9
CIO3300	0	40	8668	4	8	78	3	0	10	0	2509
CIO3310	0	403	0	2106	0	40		0	0	0	0
CIO3320	0	0	0	0	0	0		0	0	0	0
CIO3330	0	0	0	0	0	0		0	0	0	0
CIO3340	0	0	0	0	0	0	0		0	0	0



Outputs

Note: the Start addresses are explained on page 15.

Note: In the examples below the start address of the SGM740 or SGM840 outputs is CIO3200.

Outputs: byte, 8 bit command (if addressed as word high byte is command, low byte is select register) byte, 8 bit weight select register double word, 32 bit signed integer, preset tare. Setup this register and at rising edge of command bit 5 preset tare is activated. double word, 32 bit signed integer, level 1 double word, 32 bit signed integer, level 2 double word, 32 bit signed integer, level 3 double word, 32 bit signed integer, level 4

Omron PLC's output addresses have a length of 1 word (2 bytes), for example the command (high byte) has a length of 1 byte, so if the start address is CIO3200.08 – CIO3200.15, the next data which is the Weight select register (low byte) will start at CIO3200.00 – CIO3200.07. The table below will show the addresses of all the outputs of the SGM740 or SGM840.

Address	Description
CIO3200.08 – CIO3200.15	Byte, Command
CIO3200.00 – CIO3200.07	Byte, Weight select register
CIO3201	Double word, Preset tare
CIO3203	Double word, Level 1
CIO3205	Double word, Level 2
CIO3207	Double word, Level 3
CIO3209	Double word, Level 4



Set commands

The commands will start at address CIO3200.08 to CIO3200.15 (high byte).



The following commands can be used.



In the example below the command "Tare On" is given to the SGM740 or SGM840.

IO 🥋																	
Start Address: 3200				00	On				Off				SetValue				
ChangeOrder					F	orce	On		ForceOff				ForceCanc				
	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	Hex
CIO3200	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0800
CIO3201	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0001
CIO3202	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0002
CIO3203	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000
CIO3204	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0004
CIO3205	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000
CIO3206	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0006

To check if the SGM740 or SGM840 has executed the command, it's possible to read out the commands. Please see <u>Read commands</u> for instructions.



Set weight select register

The weight select register will start at address CIO3200.00 to CIO3200.07 (low byte).

)092 Module = "SGM740" 0x6A, 0x5F	
)093 ; Inputs : double word, 32 bit signed integer/float, weight register	
1094 ; word, 16 bit status	
1095 ; byte, 8 bit command (if addressed as word high byte is command, low byte is select register)	
1096 ; byte, 8 bit weight select register	
1097; word, 16 inputs 116, iputs 4-16 are virtual inputs generated by software	
1098 ; word, 16 outputs 201216, outputs 5-16 are virtual outputs generated by software	
0099 ;	
100; double word, 32 bit signed integer, preset tare	
p101 :	
[102; double word, 32 bit signed integer/float, indicator gross x10(same as weight select register 9)	
[103; double word, 32 bit signed integer/float, indicator net x10(same as weight select register 10)	
U104; double word, 32 bit signed integer/float, indicator tare x10(same as weight select register 13)	
U105 double word, 32 bit signed integer/float, multirange weight(same as weight select register 0)	
1107 ; Outputs: byte, 8 bit command (if addressed as word high byte is command, low byte is select register)	
1103; Dyte, o bit weight select register	
17107; 1110 - dauble ward 22 bit signed integer asset tars. Satur this positive and at rising odds of command bit Express tars is activate	
1/10, double word, 32 bit signed integer, preset tare. Setup this register and at hising edge of command bit 5 preset tare is activated	1.
1112 double word 22 bit eigend integer level 1	
1112 double word 20 bit signed integer, even 1	
1114 double word, 32 bit signed integer, level 3	
1115 - double word 32 bit signed integer, level 4	

er

The following weight registers can be selected.

the second second	
)154 ;	general:
)155 ;	weight selection register definition
)156 ;	0x00 = display weight includes multi range/interval st
)157 ;	0x01 = fast gross
)158 ;	0x02 = fast net
)159 ;	0x03 = display gross
)160 ;	0x04 = display net
)161 ;	0x05 = tare
)162 ;	0x06 = peak
)163 ;	0x07 = Valley
)164 ;	0x08 = display weight x10
)165 ;	0x09 = fast gross x10
)166 ;	0x0A = fast net x10
)167 ;	0x0B = display gross x10
)168 ;	0x0C = display net x10
)169 ;	0x0D = tare x10
)170 ;	0x0E = peak x10
)171 ;	0x0F = Valley x10
)172 ;	0x10 = ADC Sample
)173 ;	0x11 - 0x75 = indicator register 1-100
)174 ;	0x76 - 0xFF = reserved

In the example below the weight register "Display Net" is selected.

IO 🥋																	
Start Address:			32	00	On			Off			SetValue						
ChangeOrder					ForceOn				ForceOff			ForceCanc					
	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	Hex
CIO3200	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0004
CIO3201	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0001
CIO3202	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0002

To check if the SGM740 or SGM840 has executed the weight select register, it's possible to read out the weight select register. Please see <u>Read weight select register</u> for instructions.



Set preset tare

The preset tare can be set at address CIO3201 to CIO3202.

Note: to change the value of the preset tare, command bit 5 (preset tare command) must be set. The address will be CIO3200.12.

092 Module = "SGM740" 0x6A, 0x5F	
1093 ; Inputs : double word, 32 bit signed integer/float, weight register	
1094 ; word, 16 bit status	
)095 ; byte, 8 bit command (if addressed as word high byte is command, low byte is select register)	
1096 ; byte, 8 bit weight select register	
1097 ; word, 16 inputs 116, iputs 4-16 are virtual inputs generated by software	
[2098 ; word, 16 outputs 201216, outputs 5-16 are virtual outputs generated by software	
2099 ;	
()100; double word, 32 bit signed integer, preset tare	
p101 ;	
(1)102; double word, 32 bit signed integer/float, indicator gross x10(same as weight select register 9)	
(1)103; double word, 32 bit signed integer/float, indicator net x 10(same as weight select register 10)	
(1)104: double word, 32 bit signed integer/float, indicator tare x10(same as weight select register 13)	
(1)105; double word, 32 bit signed integer/float, multirange weight(same as weight select register 0) 1000;	
1100 ; 1107 : October 1 : Data - October 1 : O	
(107) Outputs: Dyte, 8 bit command (if addressed as word high byte is command, low byte is select register)	
1100, byte, o bit weight select register	
100 , 0110 double word 32 bit signed integer, preset tare. Sature this register and at rising edge of command bit 5 preset tare is activated	
1112 double word 32 bit signed integer level 1	
1113 double word 32 bit signed integer level 2	
0114 double word, 32 bit signed integer, level 3	
0115 double word, 32 bit signed integer, level 4	
b116 :	
-	

In the example below the preset tare is set to 20.

🥋 CIO											
Start Addre	Start Address: 3210		On		Off		S	etValue			
ChangeOrder		ForceOn		ForceOff		Fo	rceCanc				
	+0	+1	+2	+3	+4		+5	+6	+7	+8	+9
CIO3200	4100	0	20	0	10	0		20	0	30	0
CIO3210	40	0	0	0	0	0		0	0	0	0
CIO3220	0	0	0	0	0	0		0	0	0	0
CIO3230	0	0	0	0	0	0		0	0	0	0
CIO3240	0	0	0	0	0	0		0	0	0	0

To check if the SGM740 or SGM840 has executed the preset tare value, it's possible to read out the preset tare. Please see <u>Read preset tare</u> for instructions.



Set level 1

The Setpoint for level 1 can be set at address CIO3203 to CIO3204.

Note: to change the value of level 1, command bit 7 and 8 (indicator channel 2,0 and 2,1) must be set. The addresses will be CIO3200.14 and CIO3200.15.

)092	Module = "SGM740" 0x6A, 0x5F	
0093	; Inputs : double word, 32 bit signed integer/float, weight register	
)094	; word, 16 bit status	
)095	; byte, 8 bit command (if addressed as word high byte is command, low byte is select register)	
)096	; byte, 8 bit weight select register	
097	; word, 16 inputs 116, iputs 4-16 are virtual inputs generated by software	
0098	; word, 16 outputs 201216, outputs 5-16 are virtual outputs generated by software	
0099		
)100	; double word, 32 bit signed integer, preset tare	
)101		
)102	; double word, 32 bit signed integer/float, indicator gross x10(same as weight select register 9)	
)103	; double word, 32 bit signed integer/float, indicator net x10(same as weight select register 10)	
)104	; double word, 32 bit signed integer/float, indicator tare x10(same as weight select register 13)	
)105	; double word, 32 bit signed integer/float, multirange weight(same as weight select register 0)	
)106		
)107	; Outputs: byte, 8 bit command (if addressed as word high byte is command, low byte is select register)	
)108	; byte, 8 bit weight select register	
)109		
)110	; double word, 32 bit signed integer, preset tare. Setup this register and at rising edge of command bit 5 preset tare is activated.	
D111		
0112	double word, 32 bit signed integer, level 1	
)113	; double word, 32 bit signed integer, level 2	
D114	; double word, 32 bit signed integer, level 3	
0115	; double word, 32 bit signed integer, level 4	
0116		

In the example below the setpoint for level 1 is set to 10.

🖨 CIO											
Start Address: 3210		On		Off		S	etValue				
ChangeOrder		ForceOn		ForceOff		ForceCanc					
	+0	+1	+2	+3	+4		+5	+6	+7	+8	+9
CIO3200	4100	0	20	0	10	0		20	0	30	0
CIO3210	40	0	0	0	0	0		0	0	0	0
CIO3220	0	0	0	0	0	0		0	0	0	0
CIO3230	0	0	0	0	0	0		0	0	0	0
CIO3240	0	0	0	0	0	0		0	0	0	0



Set level 2

The Setpoint for level 2 can be set at address CIO3205 to CIO3206.

Note: to change the value of level 2, command bit 7 and 8 (indicator channel 2,0 and 2,1) must be set. The addresses will be CIO3200.14 and CIO3200.15.

0092	Module = "SGM740" 0x6A, 0x5F	
0093	; Inputs : double word, 32 bit signed integer/float, weight register	
)094	word, 16 bit status	
0095	; byte, 8 bit command (if addressed as word high byte is command, low byte is select register)	
0096	; byte, 8 bit weight select register	
0097	word, 16 inputs 116, iputs 4-16 are virtual inputs generated by software	
0098	word, 16 outputs 201216, outputs 5-16 are virtual outputs generated by software	
0099		
)100	; double word, 32 bit signed integer, preset tare	
)101		
)102	; double word, 32 bit signed integer/float, indicator gross x10(same as weight select register 9)	
)103	; double word, 32 bit signed integer/float, indicator net x10(same as weight select register 10)	
)104	; double word, 32 bit signed integer/float, indicator tare x10(same as weight select register 13)	
)105	; double word, 32 bit signed integer/float, multirange weight(same as weight select register 0)	
)106		
)107	Outputs: byte, 8 bit command (if addressed as word high byte is command, low byte is select register)	
)108	; byte, 8 bit weight select register	
)109		
0110	double word, 32 bit signed integer, preset tare. Setup this register and at rising edge of command bit 5 preset tare is activated.	
0111		
0112	double word, 32 bit signed integer, level 1	
)113	double word, 32 bit signed integer, level 2	
)114	; double word, 32 bit signed integer, level 3	
)115	; double word, 32 bit signed integer, level 4	
)116		

In the example below the setpoint for level 2 is set to 20.

🛹 CIO											
Start Address: 3210		On		Off		S	etValue				
ChangeOrder		ForceOn		ForceOff		ForceCanc					
	+0	+1	+2	+3	+4		+5	+6	+7	+8	+9
CIO3200	4100	0	20	0	10	0		20	0	30	0
CIO3210	40	0	0	0	0	0		0	0	0	0
CIO3220	0	0	0	0	0	0		0	0	0	0
CIO3230	0	0	0	0	0	0		0	0	0	0
CIO3240	0	0	0	0	0	0		0	0	0	0



Set level 3

The Setpoint for level 3 can be set at address CIO3207 to CIO3208.

Note: to change the value of level 3, command bit 7 and 8 (indicator channel 2,0 and 2,1) must be set. The addresses will be CIO3200.14 and CIO3200.15.

)092	Module = "SGM740" 0x6A, 0x5F	
0093	; Inputs : double word, 32 bit signed integer/float, weight register	
)094	; word, 16 bit status	
)095	; byte, 8 bit command (if addressed as word high byte is command, low byte is select register)	
)096	; byte, 8 bit weight select register	
097	; word, 16 inputs 116, iputs 4-16 are virtual inputs generated by software	
0098	; word, 16 outputs 201216, outputs 5-16 are virtual outputs generated by software	
)099		
)100	; double word, 32 bit signed integer, preset tare	
)101		
)102	; double word, 32 bit signed integer/float, indicator gross x10(same as weight select register 9)	
)103	; double word, 32 bit signed integer/float, indicator net x10(same as weight select register 10)	
)104	; double word, 32 bit signed integer/float, indicator tare x10(same as weight select register 13)	
)105	; double word, 32 bit signed integer/float, multirange weight(same as weight select register 0)	
)106		
)107	; Outputs: byte, 8 bit command (if addressed as word high byte is command, low byte is select register)	
)108	; byte, 8 bit weight select register	
)109		
p110	; double word, 32 bit signed integer, preset tare. Setup this register and at rising edge of command bit 5 preset tare is activated.	
D111		
)112	; double word, 32 bit signed integer, level 1	
)113	; double word, 32 bit signed integer, level 2	
)114	; double word, 32 bit signed integer, level 3	
0115	; double word, 32 bit signed integer, level 4	
0116		

In the example below the setpoint for level 3 is set to 30.

4	🕋 CIO											
	Start Address: 3210		On		Off		S	etValue				
	ChangeOrder		ForceOn		ForceOf	Fo	rceCanc					
Γ		+0	+1	+2	+3	+4		+5	+6	+7	+8	+9
	CIO3200	4100	0	20	0	10	0		20	0	30	0
	CIO3210	40	0	0	0	0	0		0	0	0	0
	CIO3220	0	0	0	0	0	0		0	0	0	0
	CIO3230	0	0	0	0	0	0		0	0	0	0
	CIO3240	0	0	0	0	0	0		0	0	0	0



Set level 4

The Setpoint for level 4 can be set at address CIO3209 to CIO3210.

Note: to change the value of level 4, command bit 7 and 8 (indicator channel 2,0 and 2,1) must be set. The addresses will be CIO3200.14 and CIO3200.15.

0092	Module = "SGM740" 0x6A, 0x5F	
)093 ;	; Inputs : double word, 32 bit signed integer/float, weight register	
)094 ;	word, 16 bit status	
095	; byte, 8 bit command (if addressed as word high byte is command, low byte is select register)	
0096	: byte, 8 bit weight select register	
097 ;	word, 16 inputs 116, iputs 4-16 are virtual inputs generated by software	
098	word, 16 outputs 201216, outputs 5-16 are virtual outputs generated by software	
)099 ;		
)100 ;	; double word, 32 bit signed integer, preset tare	
)101 ;		
)102 ;	; double word, 32 bit signed integer/float, indicator gross x10(same as weight select register 9)	
)103 ;	; double word, 32 bit signed integer/float, indicator net x10(same as weight select register 10)	
)104 ;	; double word, 32 bit signed integer/float, indicator tare x10(same as weight select register 13)	
)105 ;	; double word, 32 bit signed integer/float, multirange weight(same as weight select register 0)	
)106 ;		
)107	; Outputs: byte, 8 bit command (if addressed as word high byte is command, low byte is select register)	
D108	: byte, 8 bit weight select register	
p109 ;		
p110 ;	; double word, 32 bit signed integer, preset tare. Setup this register and at rising edge of command bit 5 preset tare is activated.	
p111 ;		
)112	double word, 32 bit signed integer, level 1	
)113 ;	; double word, 32 bit signed integer, level 2	
0114	double word, 32 bit signed integer, level 3	
)115	double word, 32 bit signed integer, level 4	
D116 ;		

In the example below the setpoint for level 4 is set to 40.

🖨 CIO												
Start Addre	Start Address: 3210		On		Off		SetValue					
ChangeOr	ChangeOrder		ForceOn		ForceOff		ForceCanc					
	+0	+1	+2	+3	+4	+5		+6	+7	+8	+9	
CIO3200	4100	0	20	0	10	0		20	0	30	0	
CIO3210	40	0	0	0	0	0		0	0	0	0	
CIO3220	0	0	0	0	0	0		0	0	0	0	
CIO3230	0	0	0	0	0	0		0	0	0	0	
CIO3240	0	0	0	0	0	0		0	0	0	0	





About PENKO

Our design expertise include systems for manufacturing plants, bulk weighing, check weighing, force measuring and process control. For over 35 years, PENKO Engineering B.V. has been at the forefront of development and production of high-accuracy, high-speed weighing systems and our solutions continue to help cut costs, increase ROI and drive profits for some of the largest global brands, such as Cargill, Sara Lee, Heinz, Kraft Foods and Unilever to name but a few.

Whether you are looking for a simple stand-alone weighing system or a high-speed weighing and dosing controller for a complex automated production line, PENKO has a comprehensive range of standard solutions you can rely on.

Certifications

PENKO sets high standards for its products and product performance which are tested, certified and approved by independent expert and government organizations to ensure they meet – and even – exceed metrology industry guidelines. A library of testing certificates is available for reference on:

http://penko.com/nl/publications_certificates.html

PENKO Professional Services

PENKO is committed to ensuring every system is installed, tested, programmed, commissioned and operational to client specifications. Our engineers, at our weighing center in Ede, Netherlands, as well as our distributors around the world, strive to solve most weighing-system issues within the same day. On a monthly basis PENKO offers free training classes to anyone interested in exploring modern, high-speed weighing instruments and solutions. A schedule of training sessions is found on: www.penko.com/training

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