PENKO Engineering B.V.

Your Partner for Fully Engineered Factory Solutions



How to... Connect a 1020 to a Siemens PLC



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GSD File

The GSD File can be found at our website <u>www.penko.com</u>. There are 2 GSD files, the indicator is only used for the 1020 indicator and the controller is used for the 1020 Mono Filler, Check Weigher or Belt Weigher.

Wiring

To connect the 1020 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 1020 (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 1020

Connect the 1020 to a PC using an USB-cable and open Pi Mach II and double click on **1020**, double click on **Enable Full Setup** then double click on **System Setup**, double click on **Communication**, and double click on **Profibus**, set the **Address** and **Format** the same as picture below. Click on **Apply** to save settings.

🖓 Indicator 1020, Device Version: 01.03, Build: 04, Serial: 14010001, Module Version: 00.00, Build: 00, Project: C:\Pi test\					
File Project Environment View Tools Help					
📔 💕 On-Line 🛛 🛞 Eirmware Update Manager 🛚 💺 Program Builder 🍓 Flex Builder 🔲 👿	tches 🛃 E <u>x</u> it				
📃 💻 Display 🗼 Control 🌰 T_asks 🛛 🏪 1/0 🚎 Indigator & Registers 👄 Labels 블	Results 🛛 🏭 Printer Layout 进 Printer Tic	ket 🕓 <u>C</u> lock 🗠 <u>S</u> cope			
PENKO ^	Class: PENKO.PENKO 1020.Sv:	stem Setup.Communication.Profibus	1		
E PENKO 1020	Path: 1.1.3.3.7				
- 1.1.1 Name =					
1.1.3 Enable Full setup	Address	3			
. Live	Address				
⊡ System	Format	Integer 🗨			
⊞- Indicator					
E-Communication					
Ethernet					
⊕ RS232					
E- CAN					
-1.1.3.3.7.1 Address = 3					
1.1.3.3.7.2 Format = Integer					
Digital inputs					
Digital outputs Analog output					
Passwords					
Screen 👻	Discover Import Properti	ies (CSV)	Apply		
ACTIVE Ethernet Address: 192.168.151.111 UDP open	Alive: Min: 9 - Time-up: N	Vin: 9 - Resets: 0	li		



Simatic Manager (1)

In the example below we use a Siemens Simatic S7-300 CPU315-2-DP PLC.

Create a project

Open Simatic Manager and follow the STEP 7 Wizard. Click on **Next** to begin the Wizard.

STEP 7 Wizard: "New Project"		_ XX
K Introduction		1(4)
BanDir Ba	STEP 7 Wizard: "New Project" You can create STEP 7 projects quickly and easily us STEP 7 Wizard. You can then start programming immediately. Click one of the following options: "Next" to create your project step-by-step 'Finish' to create your project according to the previo	ing the ew.
☑ Display Wizard on starting	the SIMATIC Manager Preview	<u>.</u> >>
< <u>B</u> ack <u>N</u> ext >	Finish Cancel He	lp

Select your PLC and click on Next.

STEP 7 Wizard: "New Project"			×
Which CPU are you usi	ng in your project	?	2(4)
CPU:	CPU Type	Order No	^
	CPU314 C-2 PtP CPU315 CPU315-2 DP CPU315-2 PN/DP	6ES7 314-6BG03-0AB0 6ES7 315-1AF03-0AB0 6ES7 315-2AH14-0AB0 6ES7 315-2EH14-0AB0	
	CPU316-2 DP CPU317-2	6ES7 316-2AG00-0AB0 6ES7 317-2AJ10-0AB0	-
<u>C</u> PU name:	CPU315-2 DP		
MPI <u>a</u> ddress:	2 Vork me instructi master of	emory 256KB; 0.05ms/1000 ons; MPI+ DP connection (DP or DP slave); multi-tier configura	ation 👻
		Previe	<u>v</u> >>
< <u>B</u> ack <u>N</u> ext >	Finish	Cancel H	elp



Select the blocks you want to add. In the example below we select all the blocks. When the blocks are selected, click on **Next**.

STEP 7 Wizard: "New Project"	"		×
🕀 Which blocks do you v	want to add?		3(4)
Bloc <u>k</u> s:	Block Name OB1 OB10 OB11 OB12 OB13 Select All Language for Se	Symbolic Name Cycle Execution Time of Day Interru Time of Day Interru Time of Day Interru Time of Day Interru	pt 0 pt 1 pt 2 pt 3
	⊙ s <u>ti</u> l	⊂ <u>L</u> AD	C <u>E</u> BD
Create with source files			Previe <u>w</u> >>
< Back Next >	Finish	Cancel	Help

Give the project a name and click on **Finish**.

STEP 7 Wizard: "New P	'roject"					
What do you want to call your project?						
Project name:	1020					
Existing projects:						
	Check your new project in the preview. Click "Finish" to create the project with the displayed structure.					
	Previe <u>w</u> >>					
< <u>B</u> ack	lext > Finish Cancel Help					



The project is being created.

STEP 7 Wizard: "New Project"	
🟐 What do you want to c	call your project? 4(4)
Project name:	1020
Existing projects:	S7_Pro1 S7_Pro2 SGM740
	Your project is being created. Please wait
	Previe <u>w</u> >>
< <u>B</u> ack <u>N</u> ext >	Finish Cancel Help

The project is shown below.

SIMATIC Manager - 1020					
File Edit Insert PLC View	Options Windo	w Help			
D 🛩 🖁 🐖 🐰 🖻 💼	🔬 🔍 🗣	≞_ 😳 🚟 🎹 🚺	< No Filter >	- 🏹 🔡	🛎 🖷 🖿 🕅 😢 👘
🞒 1020 C:\Program Files\Siem	nens\Step7\s7proj	\1020			
🖃 🖶 🔁 1020	₩ 0B1	🕞 OB10	🕞 OB11	🕞 OB12	🕞 OB13
🗄 🔠 SIMATIC 300 Station	🕞 OB14	🕞 OB15	🖽 OB16	🖽 OB17	🗗 OB20
📥 🖷 💹 CPU315-2 DP(1)	🗗 OB21	🕞 OB22	🖪 OB23	🖽 OB30	🖽 OB31
⊡ ன S7 Program(1)	🕞 0B32	🕞 OB33	🖽 OB34	🖽 OB35	🖽 OB36
	🕞 OB37	🕞 OB38	🖽 OB40	🖽 OB41	🖽 OB42
Elocks	🕞 OB43	🕞 OB44	🖽 OB45	🖽 OB46	🖽 OB47
	🗗 OB60	🕞 OB80	🖽 OB81	🖽 OB82	🗗 OB83
	🕞 OB84	🖽 OB85	🖽 OB86	🖽 OB87	🖽 OB90
	🕞 OB100	🖽 OB101	🔁 OB102	🕞 OB121	🗗 OB122



Setting up the Profibus network

Click on your CPU name.



Double click on **Connections**.



The program **NetPro** will open.





Double click on SIMATIC 300 Station.

📲 NetPro -	[1020 (N	etwork) -	- C:\Prog	gram Files\	\Step7\s7	/proj\1020]]	
Network	c Edit	Insert	PLC V	'iew Opti	ons Wind	dow Hel	р	
🖻 🛱 🛱	6	r (ன் ல்	8	Ø 🗈	a !	\?	
MPI(1)								1
MPI								
	SIMA CPU 315-2 DP	ATIC 3	00 Stat	ion				
	2	2						

The program **HW Config** will open. Double click on the line **DP**.

🖳 HW Config - SIMATIC 300 Station	
Station Edit Insert PLC View Options Window Help	
] 🗅 🚁 🗣 📲 🙀 🖶 💼 🏜 🏜 🚯 📼 🎇 🗠	
SIMATIC 300 Station (Configuration) SGM740	- • •
(0) UR	E
$\begin{array}{c c} 2 \\ \hline X2 \\ \hline 3 \\ \hline \end{array} \\ \hline \blacksquare \\ \hline \blacksquare \\ \hline \blacksquare \\ \hline \blacksquare \\ \blacksquare \\ \blacksquare \\ \blacksquare \\ \blacksquare$	



Click on **Properties**.

Properties - DP - (R0/S	52.1)	×
General Addresses	Operating Mode Configuration Clock	
Short Description:	DP	
		*
Name:	DP	
- Interface		
Type: F	PROFIBUS	
Address: 2	2	
Networked:)	res Properties	
Comment:	-0	
		*
		Ŧ
ОК	Cancel	lelp

Set the Profibus address for the PLC and click on **New** to set up a Subnet.

Properties - PROFIBUS interface DP (R0/S2.1)		23
General Parameters Address:		
Subnet: not networked	New Properties Delete	2
ОК	ncel H	elp



Give the subnet a name and go to the tap **Network Settings**.

Properties - New subn	et PROFIBUS	x
General Network Se	ttings	
Name:	1020	
Project path:	1020	_
of the project:	C:\Program Files\Siemens\Step7\s7proj\1020	
Author:		
Date created: Last modified:	10/28/2014 09:03:28 AM 10/28/2014 09:03:28 AM	
Comment:		*
		Ŧ
ОК	Cancel He	elp

Set the Transmission Rate and Profile and click on OK.

Properties - PROFIBUS				×
General Network Settings				
Highest PROFIBUS Address:	126 💌	Change	Option	ns
Transmission Rate:	45.45 (31.25) Kbps 93.75 Kbps 187.5 Kbps 500 Kbps 1.5 Mbps 3 Mbps	A III		
Profile:	DP Standard Universal (DP/FMS) User-Defined		Bus Parar	neters
ОК			Cancel	Help



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Click on **OK** to complete the Subnet setup.

Properties - PROFIBUS interface DP (R0/S2.1)	
General Parameters	
Address: 2 🔽	If a subnet is selected, the next available address is suggested.
Transmission rate: 1.5 Mbps	
Subnet:	
not networked 1020 1.5 Mb	New
	Properties
	Delete
<u>к</u>	Cancel Help

Go to the tab **Operating Mode** and make sure **DP master** is chosen. Click on **OK**.

eneral Addresse	Operating Mode Configuration C	ock		
C No DP				
OP master				
O DP slave				
🔲 Test, c	ommissioning, routing			
Master:	Station Module Rack (R) / slot (S) Receptacle for interface module			
Diagnostic	address:			
Address for	"slot" 2:			
ок			Cancel	Help



The SGM740: DP master system line will appear.

🖳 HW Config - SIMATIC 300 Station	
Station Edit Insert PLC View Options Win	dow Help
D 🛩 🖫 🗣 🗣 🚳 🛍 🛍 🖥) 🗖 📲 💦
SIMATIC 300 Station (Configuration) 1020	
1 • 2 • 2 • 2 • 2 • 3 • 4 • 5 • 6 •	1020: DP master system (1)



Install the GSD file

Click on **Options** and **Install GSD File...**.

🖳 HW Config - SIMATIC 300(1)				
Station Edit Insert PLC View	Options Window Help			
D 🚅 🔓 📱 🗣 🖨 🖡	Customize Ctrl+Alt+E			
SIMATIC 300(1) (Configuration)	Specify Module Configure Network			
(0) UR	Symbol Table Ctrl+Alt+T			
1 2 (M) CPU 315-2 DP	Report System Error			
X2 DP	Edit Catalog Profile			
3	Update Catalog			
5	Install HW Updates			
6	Install GSD File			
	Find in Service & Support			
Create GSD file for I-Device				

Click on **Browse** to set the location folder where the GSD file is stored.

Install GSD Files	×
Install GSD Files: from the directory	
C:\Users\mrossum\Desktop\1020 GSD File\Indicator	Browse
File Release Version Languages PTEN0E02 INDICATOR.GSD Default	
Install Show Log Select All Deselect All	
Close	Help



Select the GSD file and click on Install.

Install GSD Files		×
Install GSD Files:	from the directory	•
C:\Users\mrossum\Desktop\102	0 GSD File\Indicator	Browse
File	Release Version Languages	
	CODAN	
The file 'PTEN0E02 INDICATOR	.GSD' cannot be interpreted.	
Install Show	Log Select All De:	select All
Close		Help

The following pop-up will appear, click on **Yes**.

Confirm instal	lation of GSD files	×
CAUTION: In continue the	stallation OF GSD files c action?	annot be undone. Do you still want to
	Yes	No

When the installation is completed the following pop-up will appear. Click on **OK**.

ſ	Install GSD File (13:4986)	×
	Installation w.	as completed successfully.
	ОК	

Click on **Close** to close the Install GSD Files window.



Add the 1020 to the Profibus network

The 1020 can now be found under **Profibus DP** \rightarrow **Additional Field Devices** \rightarrow **Drivers**. Drag the 1020 to the DP master system.

But HW Config - SIMATIC 300 Station		
Station Edit Insert PLC View Options Window Help		
D 😂 😫 📓 📾 📾 🛍 🏙 💼 🗒 🖽 🍁		
Bin SIMATIC 300 Station (Configuration) 1020		= _
	Eind:	n† ni
20) UR	Profile:	Standard 🗸
1 1 CPU 315-2 DP(1) 3 DP 1020. DP master system (1) 4 - - 5 - -	E	ROFIBUS DP Additional Field Devices General General Trives Trives PLEX Controller FLEX Indicator FLEX RATEAD MiniMATE OMA OMA OMM E OMM E SGM #65 SGM 740
		SMART .

Set the Profibus address of the 1020 (the same address as used in Pi Mach II) and click on **OK**. See <u>Setup</u> the 1020.

Properties - PROFIBUS interface 1020 INDICATOR		×
General Parameters		
Address:		
Transmission rate: 1.5 Mbps		
Subnet:		
not networked 1020 1.5 Mbps	New	
	Properties	
	Delete	
Са	Incel H	elp

The 1020 is now connected to the : DP master system (1).



Note: when the 1020 is selected, the Input and Output address of the 1020 is shown. These addresses are important to remember and are needed later to read the data from the 1020 or set data to the 1020.

HW Config - [SIMATIC 3	00 Station (Configuration) 102 PLC View Options Windo	20] ow Help		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		1020: 1	DP master syste	em (1)
(3) 1020 INDICA	TOR			
Slot 🚺 DP ID	Order Number / Designation	I Address	Q Address	Comment
1 11AO	IND 1020		256277	
2 164/	IND 1020	256287		

1020	Start address	End address
Input address	256	287
Output address	256	277

Click on **Save** to save the configuration.

ſ	🖳 HW C	Config	g - S	IMAT	IC 300	Station				
	Station	Edit	I	nsert	PLC	View	Options	Window	Help	
] 🗅 😅	:		F 10	s	Þ 6	📩 🗳	I 🕞 🗖		\?

Click on **Download to Module** to load the settings into the PLC.





Select the PLC and click on **OK**.

Select Target Module		×
Target modules:		
Module	Racks	Slot
CPU315-2 DP	0	2
Select All		
OK Cancel	н	lelp

Select the node address and click on **OK**.

Select Node Add	ress				×	
Over which static	n address is the	programming devi	ce connected to t	he module CPU315	-2 DP?	
Rack: Slot:						
Target Station:	ⓒ Local € Can be	reached by mean	s of gateway			
Enter connection	on to target statio	n:				
MPI address	Module type	Station name	Module name	Plant designation	n	
2	CPU 315-2	SIMATIC 30	CPU 315-2			
I						
Accessible Node	s					
Van						
		View				
ОК			Ca	incel H	elp	

The downloading will start.



Download	×
Station: SIMATIC 300(1) Module: [0/2/0] CPU 315-2 DP	
	Cancel

A pop-up will appear, click on **OK**.

Stop Tar	get Modules			×
The fol data.	owing modules will be	e stopped for loading	g of the sys	tem
Modu	le		Racks	Slot
CPU 3	315-2 DP		0	2
	к	Cancel	ŀ	lelp

The downloading will resume. When the downloading is completed, a pop-up will appear to restart the module. Click **Yes**.

Download	(13:4363)
<u>^</u>	The module CPU 315-2 DP [R 0/S 2] is in the STOP mode. Do you want to start the module now (complete restart)?
Yes	No

Close the HW Config program.



The Profibus configuration is shown in **NetPro**. Click on **Save** and close **NetPro**.





SIMATIC Manager (2)

Go back to SIMATIC Manager and click on Blocks.



Double click on block **OB1**.





🗱 LAD/STL/FBD - [OB1 -- "Cycle Execution" -- SGM740\SIMATIC 300 Station\CPU 315-2 DP\...\OB1] File Edit Insert PLC Debug View Options Window Help □ 🖆 🔐 🔲 🎒 👗 🛍 🛍 🗠 ♀ (대 🎪 🔽 🗣 🔐 !< >! 🔲 🛄 📖 🗰 ++++-() @ ∟ 그 ⊢ №? - **x** Contents Of: 'Environment\Interface' 🖃 🕀 Interface Name New network = TEMP 🕀 💼 FB blocks ы 🗄 💼 FC blocks E SFB blocks 🕀 💼 SFC blocks --- 📶 Multiple instances 🕀 👭 Libraries OB1 : "Main Program Sweep (Cycle)" Comment: Network 1: Title: Comment:

The program LAD/STL/FBD-Programming S7 Blocks will open.

Click on the white surface below Comment to write a program.

OB1	: "Main Program Sweep (Cycle)"	
Comm	ment:	
Netw	vork 1: Title:	
Comm	nent:	
Τ		



GSD file explanation

To make sense of the data, open the GSD file in **Notepad**. The start addresses of the 1020 in- and outputs are needed to read or write the correct data from the 1020.

Inputs

Note: the Start addresses are explained on page 19.

Note: In the examples below the start address of the 1020 inputs is PI 256.

Siemens PLC's input addresses have a length of 1 byte, for example the weight register (double word) has a length of 4 bytes, so if the start address is PI 256, so the next data which is the status (word) will start at PI 260 (4 bytes further). The table below will show the addresses of all the inputs of the 1020.

1 word equals 2 bytes.

1 Double word equals 4 bytes.

Address	Description
PID 256	Double word, Weight register
PIW 260	Word, Status
PIB 262	Byte, Command
PIB 263	Byte, Weight select register
PIW 264	Word, Inputs
PIW 266	Word, Outputs
PID 268	Double word, Preset tare
PID 272	Double word, Indicator gross x10
PID 276	Double word, Indicator net x10
PID 280	Double word, Indicator tare x10
PID 284	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 PID 256

Module =	"IND1020"	0x6A,	F	
; Inputs	: double w	word, 3	it signed integer/float, weight register	
;		word, 1	it status	
		byte,	it command (if addressed as word high byte is command, lo	w byte is select register)
		byte,	it weight select register	have a set of the second
;	1	word, 1	nputs 116, inputs 4-16 are virtual inputs generated	by sortware
;	١	word, 1	utputs 201216, outputs 205-216 are virtual outputs gene	rated by software
;				
;	double	word, 3	it signed integer, preset tare	
;				
;	double	word, 3	it signed integer/tloat, indicator gross x10(same as weig	ht select register 9)
;	double	word, 3	it signed integer/float, indicator net x10(same as weight	select register 10)
;	double (word, 3	it signed integer/float, indicator tare x10(same as weigh	it select register 13)
;	double (word, 3	it signed integer/float, multirange weight(same as weight	select register 0)

To read out the weight register, write the following lines:

L PID 256 T "Read Weight register" MD100

The first line will load the weight output (double word) from the 1020. The second line will copy the weight value (double word) in MD 100.

Click on **Download** to load the program into the PLC.

To view the live data, click on **PLC** and **Monitor/Modify Variables**.





Enter the address **MD 100** and click on **Monitor Variable**. The live weight data is now shown.

Var - [1020 @	01020\SIMATIC 300 Station\CPU 315-2	DP(1)\S7 Progr	am(1) ONLINE]	_ 🗆 🗙				
👪 Table Edit I	Insert PLC Variable View Optic	ons Window	Help	_ 8 ×				
-20 2 2								
	₽ <u>*</u> #. 64. 47		Ŭ					
Address	Symbol	Display format	Status value	Modify value				
1 MD 100	"Read Weight register"	DEC	L#5000					
2								

Note: It's possible to choose any of the weight registers listed below, the chosen weight register will show at address PID 256 (weight register).



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

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

In the example below "Display net" is chosen.

To choose "Display net", set 04 in MB 133 (weight select register). In MB 107 the chosen weight select register is shown. The Chosen value is shown in MD 100.

K	👪 Var - [1020 @1020\SIMATIC 300 Station\CPU 315-2 DP(1)\S7 Program(1) ONLINE]									
N.	Table Edit Insert PLC Variable View Options Window Help									
E										
I.	1		I1.0	₽ # 64 ₽						
		A	ddress	Symbol	Display format	Status value	Modify value			
1 MD 100 "Read Weight register" DEC L#5000										
2	2 MB 107 "Read Weight select reg" HEX B#16#04									
3		Μ	B 133	"Set weight select reg"	HEX	B#16#04	B#16#04			



Read status

The status will show at address PIW 260, the following statuses can be read from the 1020.

```
Module = "TND1020" 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 outputs 20.-216, outputs 205-216 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 9)

double word, 32 bit signed integer/float, indicator net x10(same as weight select register 13)

double word, 32 bit signed integer/float, indicator fare x10(same as weight select register 13)

double word, 32 bit signed integer/float, indicator fare x10(same as weight select register 0)

double word, 32 bit signed integer/float, indicator fare x10(same as weight select register 0)

double word, 32 bit signed integer/float, indicator fare x10(same as weight select register 0)

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 3

double word, 32 bit signed integer, level 4

status bit definition

1 = hardware overload detected

2 = overload detected

3 = table signal

4 = table signal

5 = trace active

10 = preset tare active

10 = preset tare active

11 = tare xample available

13 = calibration manied

14 = user certified operation

15 = reserved

16 = reserved

16 = reserved

17 = nared

18 = table signal

19 = tare served

19 = tare served

10 = preset tare active

10 = preset tare active

10 = preserved

11 = tare xample available

13 = calibration manied

14 = user certified operation

15 = reserved

15 = reserved

16 = reserved

17 = nared

18 = table signal

19 = tare xample available

19 = tare xample available

10 = reserved

10 = ta
```

I

To read out the status, write the following lines:

L	PIW 260	//Load Status	
т	"Read Status bits"	//Store Status	MW104

The first line will load the status (word) from the 1020. The second line will copy the status (word) in MW 104.



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

	Var - [1020 @1020\SIMATIC 300 Station\CPU 315-2 DP(1)\S7 Program(1) ONLINE]									
S.	Ta	able	Edit 1	Insert PLC Variable View Optic	ons Window	Н	elp	_ 8	×	
H										
E										
	1	Add	ress	Symbol	Display format	St	atus value	Modify value	^	
3		ΜW	104	"Read Status bits"	BIN		2#0010_0000_1001_1100			
4		М	105.0	"Hardware overload"	BOOL		false			
5		М	105.1	"Overload detected"	BOOL		false			
6		М	105.2	"Stable signal"	BOOL		true			
7		М	105.3	"In stable range"	BOOL		true			
8		М	105.4	"Zero corrected"	BOOL		true			
9		М	105.5	"Center of zero"	BOOL		false			
10		М	105.6	"In zero range"	BOOL		false			
11	L	М	105.7	"Zero tracking possible"	BOOL		true			
12	2	М	104.0	"Tare active"	BOOL		false		=	
13	3	М	104.1	"Preset tare active"	BOOL		false			
14	ł	М	104.2	"New sample available"	BOOL		false			
15	5	М	104.3	"Calibration invalid"	BOOL		false			
16	5	М	104.4	"Calibration enabled"	BOOL		false			
17	7	М	104.5	"User certified operation"	BOOL		true			
18	3	М	104.6	"Reserved 1"	BOOL		false			
19		М	104.7	"Reserved 2"	BOOL		false			

Note: The low byte and high byte are switched.



Read commands

The commands will show at address PIB 262(high byte).

Module =	"IND1020	" 0x6A	, 0;	x5F	
Inputs	: double	word,	32	bit	signed integer/float, weight register status
;		byte,	8	bit	command (if addressed as word high byte is command, low byte is select register)
		byte, word	8 16	bit	weight select register uts 1 16 inputs 4-16 are virtual inputs generated by software
;		word,	16	outp	puts 201216, outputs 205-216 are virtual outputs generated by software
;	double	word,	32	bit	signed integer, preset tare
,	double double double double	word, word, word, word,	32 32 32 32 32	bit bit bit bit	signed integer/float, indicator gross x10(same as weight select register 9) signed integer/float, indicator net x10(same as weight select register 10) signed integer/float, indicator tare x10(same as weight select register 13) signed integer/float, multirange weight(same as weight select register 0)
Output	5:	byte, byte,	8 8	bit bit	command (if addressed as word high byte is command, low byte is select register) 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 double double double	word, word, word, word,	32 32 32 32 32	bit bit bit bit	signed integer, level 1 signed integer, level 2 signed integer, level 3 signed integer, level 4

The following commands can be read from the 1020.



To read out the commands, write the following lines:

L	PIB 262	//Load Command bits and weight select register	
т	"Read Command bits"	//Store Command bits and weight select register	MB106

The first line will load the commands (high byte) from the 1020. The second line will copy the commands (byte) in MB 106.



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

	👪 Var - [1020 @1020\SIMATIC 300 Station\CPU 315-2 DP(1)\S7 Program(1) ONLINE]									
S.	Table Edit Insert PLC Variable View Options Window Help									
÷										
	1	Add	ress	Symbol	Display format	Status value	Modify value			
21		MB	106	"Read Command bits"	BIN	2#0000_1000		I		
22	2	М	106.0	"Read Zero reset command"	BOOL	false		I		
23		М	106.1	"Read Zero set command"	BOOL	false		I		
24	ł	М	106.2	"Read Tare off"	BOOL	📕 false		I		
25		М	106.3	"Read Tare on"	BOOL	📘 true		I		
26		М	106.4	"Read Preset tare command"	BOOL	📕 false		1		
27	1	М	106.5	"Read Freeze bit"	BOOL	false		1		
28		М	106.6	"Read Ind channel 2, 0"	BOOL	📕 false		I		
29		М	106.7	"Read Ind channel 2, 1"	BOOL	📕 false				

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



Read weight select register

The weight select register will show at address PIB 263 (low byte).

Module = "IND1020" 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, inputs 4-16 are virtual inputs generated by software word, 16 outputs 201..216, outputs 205-216 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 9) double word, 32 bit signed integer/float, indicator net 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) 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 4

The following weight select registers can be read from the 1020.

)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

To read out the weight select register, write the following lines:

L PIB 263 //Load Weight select register T "Read Weight select reg" //Store Weight select register MB107

The first line will load the weight select register (Low byte) from the 1020. The second line will copy the weight select register (byte) in MB 107.

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

👪 Var - [1020 @3	1020\SIMATIC 300 Station\CPU 315-2	DP(1)\S7 Progra	am(1) ONLINE	1	_ 🗆	×
Table Edit I	insert PLC Variable View Option	ons Window	Help		_ 8	×
		° <u> </u>		9 66 av 66	Man Iken	
Address	Symbol	Display format	Status value		Modify value	
31 MB 107	"Read Weight select reg"	HEX	B#16#04			

To set the weight select register, please see <u>Set weight select register</u> for instructions.



Read inputs

The 3 inputs of the 1020 will show at address PIW 264.

Module = "IND1020" 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, inputs 4-16 are virtual inputs generated by software word, 16 outputs 201..216, outputs 205-216 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 9) double word, 32 bit signed integer/float, indicator tare 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, indicator tare x10(same as weight select register 0) double word, 32 bit signed integer/float, indicator tare x10(same as weight select register 0) byte, 8 bit command (if addressed as word high byte is command, low byte is select register) 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

I.

To read out the inputs, write the following lines:

г	PIW 264	//Load inputs	
т	"Read Inputs"	//Store inputs MW1	80

The first line will load the inputs (word) from the 1020. The second line will copy the inputs (word) in MW 108.

In the Example below input 1 is on.

👪 Var - [1020 @1020\SIMATIC 300 Station\CPU 315-2 DP(1)\S7 Program(1) ONLINE]								
	Table Edit Insert PLC Variable View Options Window Help							
	1	Address	Symbol	Display format	Status value	Modify value		
33								
		MW 108	"Read Inputs"	BIN	2#0000_0000_0000_1001			
34		MW 108 M 109.0	"Read Inputs" "Input 1"	BIN BOOL	2#0000_0000_0000_1001			
34 35		MW 108 M 109.0 M 109.1	"Read Inputs" "Input 1" "Input 2"	BIN BOOL BOOL	2#0000_0000_0000_1001 true false			



Read outputs

The 4 outputs of the 1020 will show at address PIW 266.

Module = Inputs	"IND1020 : double	0x6A, word, word, byte, byte, word, word,	, 0) 32 16 8 16 16 16	(5F bit bit bit inpu outp	signed integer/float, weight register status command (if addressed as word high byte is command, low byte is select register) weight select register uts 116, inputs 4-16 are virtual inputs generated by software puts 201216, outputs 205-216 are virtual outputs generated by software
	double	word,	32	bit	signed integer, preset tare
, , ,	double double double double	word, word, word, word,	32 32 32 32 32	bit bit bit bit	signed integer/float, indicator gross x10(same as weight select register 9) signed integer/float, indicator net x10(same as weight select register 10) signed integer/float, indicator tare x10(same as weight select register 13) signed integer/float, multirange weight(same as weight select register 0)
Outputs	:	byte, byte,	8 8	bit bit	command (if addressed as word high byte is command, low byte is select register) 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.
9 9 9	double double double double	word, word, word, word,	32 32 32 32 32	bit bit bit bit	signed integer, level 1 signed integer, level 2 signed integer, level 3 signed integer, level 4

To read out the outputs, write the following lines:

г	PIW 266	//Load outputs	
т	"Read Outputs"	//Store outputs	MW110

The first line will load the outputs (word) from the 1020. The second line will copy the outputs (word) in MW 110.

In the example below output 1 is on.

豁	Var	- [1020 -	- @	1020\SIMATIC 300 Station\CPU 315	5-2 DP(1)\S7 Progr	am(1) ONLINE]	_ 🗆	×
	Ta	able Ed	t	Insert PLC Variable View O	ptions Window	Help	_ 8	×
-14								
1 . r ≣	1	I 1.0		₽ <u>*</u> # 6⊈ ₽				
	1	Address		Symbol	Display format	Status value	Modify value	*
38		MW 1	10	"Read Outputs"	BIN	2#0000_0011_0000_0001		
39		M 11	1.0	"Output 1"	BOOL	📔 true		
40		M 11	1.1	"Output 2"	BOOL	📕 false		
41		M 11	1.2	"Output 3"	BOOL	📕 false		
42		M 11	1.3	"Output 4"	BOOL	📕 false		

Read preset Tare

The Preset Tare value will show at address PID 268.



Module = ; Inputs	"IND1020 : double	0x6A word, word, byte, byte, word, word,	, 0) 32 16 8 16 16	x5F bit bit bit inpu outpu	ned integer/float, weight register itus mand (if addressed as word high byte is command, low byte is select register) ght select register 116, inputs 4-16 are virtual inputs generated by software 5 201216, outputs 205-216 are virtual outputs generated by software	
;	double	word,	32	bit :	ned integer, preset tare	
,	double double double double	word, word, word, word,	32 32 32 32 32	bit bit bit bit	ned integer/float, indicator gross x10(same as weight select register 9) ned integer/float, indicator net x10(same as weight select register 10) ned integer/float, indicator tare x10(same as weight select register 13) ned integer/float, multirange weight(same as weight select register 0)	
Output	s:	byte, byte,	8 8	bit bit	mand (if addressed as word high byte is command, low byte is select register) ght select register	
	double	word,	32	bit :	ned integer, preset tare. Setup this register and at rising edge of command bit 5 prese	et tare is activated.
,	double double double double	word, word, word, word,	32 32 32 32 32	bit bit bit bit	ned integer, level 1 ned integer, level 2 ned integer, level 3 ned integer, level 4	

To read out the preset tare, write the following lines:

L	PID 268	//Load preset tare value	
т	"Read Preset tare value"	//Store preset tare value	MD112

The first line will load the preset tare (double word) from the 1020. The second line will copy the preset tare (double word) in MD 112.

In the example below the Preset Tare value is 100.

🕌 Var - [1020 @	1020\SIMATIC 300 Station\CPU 315-2	DP(1)\S7 Progra	am(1) ONLINE	E]		×
🌃 Table Edit	Insert PLC Variable View Opti	ons Window	Help		_ 8	×
		° <u> </u>		S 🗤 🖓 🚱	42 //w	
	⊒ ab # . 64 47					
Address	Symbol	Display format	Status value		Modify value	
44 MD 112	"Read Preset tare value"	DEC	L#100			

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 PID 272.

Module = "IND1020" 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, inputs 4-16 are virtual inputs generated by software word, 16 inputs 201..216, outputs 205-216 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 9) double word, 32 bit signed integer/float, indicator tare 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) 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 3 double word, 32 bit signed integer, level 3 double word, 32 bit signed integer, level 4

To read out the indicator gross x10, write the following lines:

```
L PID 272 //Load indicator value gross x10
T "Read Ind value gross x10" //Store indicator value gross x10 MD116
```

The first line will load the indicator gross x10 (double word) from the 1020. The second line will copy the indicator gross x10 (double word) in MD 116.

In the example below the gross x 10 value is 50000.

🌃 Var - [1020 @	1020\SIMATIC 300 Station\CPU 315-2	DP(1)\S7 Progra	am(1) ONLINE]			×
👪 Table Edit	Insert PLC Variable View Optic	ons Window	Help		_ 8	×
		° <u> </u>	Ē	S≱ 667 🗤 🧐	42 <i> </i> 42	
	₽ <u>₽</u> # . 6⊈ 47					
Address	Symbol	Display format	Status value		Modify value	*
46 MD 116	"Read Ind value gross x10"	DEC	L#50000			



Read indicator net x 10

The indicator net x 10 value will show at address PID 276.

Module = "IND1020" 0x6A, 0xSF 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, inputs 4-16 are virtual inputs generated by software word, 16 outputs 201..216, outputs 205-216 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 9) double word, 32 bit signed integer/float, indicator tare 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) double word, 32 bit signed integer/float, multirange weight(same as weight select register 0) double word, 32 bit signed integer/float, multirange weight(same as weight select register 0) 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

To read out the indicator net x10, write the following lines:

```
L PID 276 //Load indicator value net x10
T "Read Ind value net x10" //Store indicator value net x10 MD120
```

The first line will load the indicator net x10 (double word) from the 1020. The second line will copy the indicator net x10 (double word) in MD 120.

In the example below the net x 10 value is 50000.

👪 Var - [1020 @	1020\SIMATIC 300 Station\CPU 315-2	DP(1)\S7 Progr	am(1) ONLINE]	_ 🗆	×
👪 Table Edit	Insert PLC Variable View Opti	ons Window	Help		_ 8	×
-M D 🛩 🖬		° <u>a</u> 2 k ?		©∦ 64' MP 64'	42 //w	
	₽ <u>*</u> #. 6⊈ ₩					
Address	Symbol	Display format	Status value		Modify value	^
48 MD 120	"Read Ind value net x10"	DEC	L#50000			



Read indicator tare x 10

The indicator tare x 10 value will show at address PID 280.

Module = "IND1020" 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, inputs 4-16 are virtual inputs generated by software word, 16 outputs 201.216, outputs 205-216 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 9) double word, 32 bit signed integer/float, indicator net x10(same as weight select register 10) double word, 32 bit signed integer/float, indicator net x10(same as weight select register 13) double word, 32 bit signed integer/float, multirange weight(same as weight select register 0) double word, 32 bit signed integer/float, multirange weight(same as weight select register 0) double word, 32 bit signed integer/float, multirange weight(same as weight select register 0) 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

To read out the indicator tare x10, write the following lines:

L	PID 280	//Load indicator value tare x10	
т	"Read Ind value tare x10"	//Store indicator value tare x10 M	4D124

The first line will load the indicator tare x10 (double word) from the 1020. The second line will copy the indicator tare x10 (double word) in MD 124.

In the example below the tare x 10 value is 0.

🌃 Var - [1020 @	1020\SIMATIC 300 Station\CPU 315-2	DP(1)\S7 Progr	am(1) ONLINE]	<u> </u>
👪 Table Edit	Insert PLC Variable View Opti	ons Window	Help	_ & ×
		° <u>a</u> 🖁 💦	© ∦ 66° ≤ ▲▲	₩ ¹ [₩] 2
	⊇ ab # 64 ¶			
Address	Symbol	Display format	Status value	Modify value
50 MD 124	"Read Ind value tare x10"	DEC	L#0	



Read multirange weight

The indicator multirange weight value will show at address PID 284.

Module = "IND1020" 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, inputs 4-16 are virtual inputs generated by software word, 16 outputs 201..216, outputs 205-216 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 10) double word, 32 bit signed integer/float, indicator tare x10(same as weight select register 10) double word, 32 bit signed integer/float, multirange weight(same as weight select register 13) double word, 32 bit signed integer/float, multirange weight(same as weight select register 0) 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

To read out the multirange weight, write the following lines:

L	PID 284	//Load indicator value multirange weight	
т	"Read Multirange weight"	//Store indicator value multirange weight	MD128

The first line will load the multirange weight (double word) from the 1020. The second line will copy the multirange weight (double word) in MD 128.

In the example below the multirange weight value is 50000.

👪 Var - [1020 @	1020\SIMATIC 300 Station\CPU 315-2	DP(1)\S7 Progra	am(1) ONLIN	E]	_ 🗆	×
👪 Table Edit	Insert PLC Variable View Optic	ons Window	Help		_ 8	×
-M D 🛩 🖬		° <u> </u>		© ∦ 667 🚧 667	44 /ka	
	₽ <u>₽</u> # . 6⊈ 47					
Address	Symbol	Display format	Status value		Modify value	-
52 MD 128	"Read Multirange weight"	DEC	1 #5000			



Outputs

Note: the Start addresses are explained on page 19.

Note: In the examples below the start address of the 1020 inputs is PQ 256.

; 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

Siemens PLC's output addresses have a length of 1 byte, for example the command (byte) has a length of 1 byte, so if the start address is PQ 256, so the next data which is the Weight (word) will start at PQ 257 (1 byte further. The table below will show the addresses of all the outputs of the 1020.

1 word equals 2 bytes

1 Double word equals 4 bytes

Address	Description
PQB 256	Byte, Command
PQB 257	Byte, Weight select register
PQD 258	Double word, Preset tare
PQD 262	Double word, Level 1
PQD 266	Double word, Level 2
PQD 270	Double word, Level 3
PQD 274	Double word, Level 4



Set commands

The commands will start at address PQB 256 (high byte).

Module = "IND1020" 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 onputs 1..16, inputs 4-16 are virtual inputs generated by software word, 16 outputs 201..216, outputs 205-216 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 9) double word, 32 bit signed integer/float, indicator tare 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) double word, 32 bit signed integer/float, multirange weight(same as weight select register 0) double word, 32 bit signed integer/float, multirange weight(same as weight select register 0) 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

The following commands can be used.



To set the commands, write the following lines:

1	//Send	commands,	weight select	register, p	reset	tare	and	levels	for	the	PLC	to	the	SGM	740	or	SGM840	Weight	
	I	Set	commands"	11	Load C	Comma	nd												MB132
	I	r pqb	256	11	Store	Comm	and												

The first line will load the commands (byte) from MB 132. The second line will copy the commands (byte) into the 1020.



In the example below the command "Tare On" is given to the 1020.

K	🕍 Var - [1020 @1020\SIMATIC 300 Station\CPU 315-2 DP(1)\S7 Program(1) ONLINE]											
	Table Edit Insert PLC Variable View Options Window Help											
÷												
	1	Address		Symbol	Display format	Status value	Modify value	*				
54		MB	132	"Set commands"	BIN	2#0000_1000						
55		М	132.0	"Set Zero reset command"	BOOL	📕 false						
56		М	132.1	"Set Zero set command"	BOOL	false						
57		М	132.2	"Set Tare off"	BOOL	false						
58		М	132.3	"Set Tare on"	BOOL	📘 true						
59		М	132.4	"Set Preset tare command"	BOOL	false						
60		М	132.5	"Set Freeze bit"	BOOL	false	[=				
61		М	132.6	"Set Ind channel 2, 0"	BOOL	false		-				
62		М	132.7	"Set Ind channel 2, 1"	BOOL	false						

To check if the 1020 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 PQB 257(low byte).

Module = "IND1020" 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, inputs 4-16 are virtual inputs generated by software word, 16 outputs 201..216, outputs 205-216 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 9) double word, 32 bit signed integer/float, indicator net x10(same as weight select register 10) double word, 32 bit signed integer/float, multirange weight(same as weight select register 13) double word, 32 bit signed integer/float, multirange weight(same as weight select register 0) 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 4

The following weight registers can be selected.

)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

To set the weight select register, write the following lines:

L	"Set weight select reg"	//Load weight select register MB133
т	PQB 257	//Store weight select register

The first line will load the weight select register (byte) from MB133. The second line will copy the weight select register (byte) into the 1020.



In the example below weight register "Display Net" is chosen. The Display Net weight will now be shown in MD 100.

🔚 Var - [1020 @	1020\SIMATIC 300 Station\CPU 315-2	DP(1)\S7 Progra	am(1) ONLINE]	_ 🗆 X						
Table Edit Insert PLC Variable View Options Window Help										
Address	Symbol	Display format	Status value	Modify value 🔺						
64 MB 133	"Set weight select reg"	HEX	B#16#04	B#16#04						

To check if the 1020 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 PQD 258.

Note: to change the value of the preset tare, command bit 5 (preset tare command) must be set. The address will be M 132.4.

Module = "IND1020" 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 command (if inputs 1.16, inputs 4-16 are virtual inputs generated by software word, 16 inputs 1.16, inputs 4-16 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 9) double word, 32 bit signed integer/float, indicator tare 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) byte, 8 bit command (if addressed as word high byte is command, low byte is select register) 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/float, multirange weight(same as weight select register 0) 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

To set the preset tare, write the following lines:

//Load Preset tare value To set a new preset tare value, command "Preset tare" must be set high (M132.4) MD134 "Set preset tare" L T POD 258 //Store Preset tare value

The first line will load the preset tare (double word) from MD 134. The second line will copy the preset tare (double word) into the 1020. Even if the new preset tare is stored in the 1020, the old preset tare is used until command bit 5 is set high.

Use the following program to automatically change the preset tare if a new value is set in MD 134.

L	"Set preset tare"	//Load set preset tare value To set a new preset tare value, command "Preset tare" must be set high (M132.4)	MD134
т	PQD 258	//Store set preset tare value	
L	"Read Preset tare value"	//Load current preset tare value	MD112
L	"Set preset tare"	//Load set preset tare	MD134
<>D		//If set preset tare not equel with read preset tare	
=	"Set Preset tare command"	//Command bit "preset tare" is on, storing the new preset tare into the SGM740 or SGM840	M132.4
			1

In the example below the preset tare value is set, the value (100) will be shown in MD 134.

👪 Var - [1020 @1020\SIMATIC 300 Station\CPU 315-2 DP(1)\S7 Program(1) ONLINE]										
Table Edit Insert PLC Variable View Options Window Help										
Address	Symbol	Display format	Status value	Modify value						
66 MD 134	"Set preset tare"	DEC	L#100	L#100						

To check if the 1020 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 PQD 262.

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 M 132.6 and M 132.7.

dule = '	"IND1020'	0x6A	, 0>	x5F			
Inputs	: double	word,	32	bit	signed	integer/float,	t, weight register
		word, byte, byte,	16 8 8	bit bit	command weight	(if addressed select_register	ed as word high byte is command, low byte is select register) ter
		word, word,	16 16	out	uts 1. puts 201.	16, inputs 4- 216, outputs	4-16 are virtual inputs generated by software ts 205-216 are virtual outputs generated by software
	double	word,	32	bit	signed i	integer, preset	set tare
	double double double double	word, word, word, word,	32 32 32 32 32	bit bit bit bit	signed signed signed signed	integer/float, integer/float, integer/float, integer/float,	t, indicator gross x10(same as weight select register 9) t, indicator net x10(same as weight select register 10) t, indicator tare x10(same as weight select register 13) t, multirange weight(same as weight select register 0)
Outputs	:	byte, byte,	8 8	bit bit	command weight s	(if addressed select register	ed as word high byte is command, low byte is select register) ter
	double	word,	32	bit	signed i	integer, preset	set tare. Setup this register and at rising edge of command bit 5 preset tare is activated.
	double double double double	word, word, word, word,	32 32 32 32	<mark>bit</mark> bit bit bit	signed i signed i signed i signed i	integer, level integer, level integer, level integer, level	el 1 el 2 el 3 el 4
	dule = ' Inputs Outputs	dule = "IND1020' Inputs : double double double double double double double double double double double double double double	dule = "IND1020" Ox6A Inputs : double word, byte, word, byte, word, double word, double word,	dule = "IND1020" 0x6A, 0: Inputs : double word, 32 word, 16 byte, 8 word, 16 word, 16 double word, 32 double word, 32	dule = "IND1020" 0x6A, 0x5F Inputs : double word, 32 bit word, 16 bit byte, 8 bit word, 16 inp word, 16 out word, 16 out word, 16 out double word, 32 bit double word, 32 bit double word, 32 bit byte, 8 bit byte, 8 bit double word, 32 bit	<pre>dule = "IND1020" 0x6A, 0x5F Inputs : double word, 32 bit signed word, 16 bit status byte, 8 bit command byte, 8 bit weight : word, 16 inputs 1 word, 16 outputs 201 double word, 32 bit signed double word, 32 bit signed</pre>	<pre>dule = "IND1020" 0x6A, 0x5F Inputs : double word, 32 bit signed integer/float word, 16 bit status byte, 8 bit command (if address byte, 8 bit weight select regis word, 16 inputs 116, inputs word, 16 outputs 201.216, output double word, 32 bit signed integer, pres double word, 32 bit signed integer/float double word, 32 bit signed integer, float double word, 32 bit signed integer, float double word, 32 bit signed integer, float double word, 32 bit signed integer, pres double word, 32 bit signed integer, lev double word, 32 bit signed integer, lev</pre>

To set level 1, write the following lines:

L "Set level 1" //Load Value level 1 To set a new setpoint level, command "indicator channel 2,0 and 2,1 must be set high (132.6 and 132.7) MD138 T PQD 262 //Store value level 1

The first line will load level 1 (double word) from MD 138. The second line will copy level 1 (double word) into the 1020.

In the example below level 1 is set, the value (10) will be shown in MD 138.

🕍 Var - [1020 @1020\SIMATIC 300 Station\CPU 315-2 DP(1)\S7 Program(1) ONLINE]												
Table Edit Insert PLC Variable View Options Window Help												
	Address		ress	Symbol	Display format Status value		Modify value	×				
68		MD	138	"Set level 1"	DEC	L#10	L#10					
69		М	132.6	"Set Ind channel 2, 0"	BOOL	📘 true						
70		М	132.7	"Set Ind channel 2, 1"	BOOL	📘 true						



Set level 2

The Setpoint for level 2 can be set at address PQD 266.

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 M 132.6 and M 132.7.

<pre>Module = ; Inputs ; </pre>	"IND1020 : double	" 0x6A word, word, byte, byte, word, word,	, 0: 32 16 8 16 16	x5F bit bit bit inpu out	signed integer/float, weight register status command (if addressed as word high byte is command, low byte is select register) weight select register uts 116, inputs 4-16 are virtual inputs generated by software puts 201.216, outputs 205-216 are virtual outputs generated by software
	double	word,	32	bit	signed integer, preset tare
,	double double double double	word, word, word, word,	32 32 32 32 32	bit bit bit bit	signed integer/float, indicator gross x10(same as weight select register 9) signed integer/float, indicator net x10(same as weight select register 10) signed integer/float, indicator tare x10(same as weight select register 13) signed integer/float, multirange weight(same as weight select register 0)
Outputs	:	byte, byte,	8 8	bit bit	command (if addressed as word high byte is command, low byte is select register) weight select register
1	double	word,	32	bit	signed integer, preset tare. Setup this register and at rising edge of command bit 5 preset tare is activated.
,	double double double double	word, word, word, word,	32 32 32 32	bit <mark>bit</mark> bit bit	signed integer, level 1 <mark>signed integer, level 2</mark> signed integer, level 3 signed integer, level 4

To set level 2, write the following lines:

L "Set level 2" //Load Value level 2 To set a new setpoint level, command "indicator channel 2,0 and 2,1 must be set high (132.6 and 132.7) MD142 T PQD 266 //Store value level 2

The first line will load level 2 (double word) from MD 142. The second line will copy level 2 (double word) into the 1020.

Mar - [1020 @1020\SIMATIC 300 Station\CPU 315-2 DP(1)\S7 Program(1) ONLINE]											
Table Edit Insert PLC Variable View Options Window Help											
▰◧▰◼◓▯◾▣◧▫▫▾◾◾◣?											
1. r			.0	₽ <u>₽</u> # 64 ¥2							
	Address		ress	Symbol	Display format	Display format Status value		•			
68		MD	142	"Set level 2"	DEC	L#20	L#20				
69		М	132.6	"Set Ind channel 2, 0"	BOOL	📘 true					
			100 7	Nortzad abaarad oo dii	0001						

In the example below level 2 is set, the value (20) will be shown in MD 142.



Set level 3

The Setpoint for level 3 can be set at address PQD 270

<u>Note: to change the value of level 3, command bit 7 and 8 (indicator channel 2,0 and 2,1) must be set.</u> The addresses will be M 132.6 and M 132.7.

Module = "IND1020" 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, inputs 4-16 are virtual inputs generated by software word, 16 outputs 201.216, outputs 205-216 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 9) double word, 32 bit signed integer/float, indicator tare 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) outputs: byte, 8 bit command (if addressed as word high byte is command, low byte is select register) byte, 8 bit command (if addressed as word high byte is command, low byte is select register) 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 4

To set level 3, write the following lines:

L "Set level 3" //Load Value level 3 To set a new setpoint level, command "indicator channel 2,0 and 2,1 must be set high (132.6 and 132.7) MD146 T FQD 270 //Store value level 3

The first line will load level 3 (double word) from MD 146. The second line will copy level 3 (double word) into the 1020.

🕍 Var - [1020 -- @1020\SIMATIC 300 Station\CPU 315-2 DP(1)\S7 Program(1) ONLINE] - 🗆 🗙 Table Edit Insert PLC Variable View Options Window Help _ 8 × 60 12 -ᅍ 🗋 😅 🔏 🛍 🛍 🗠 🗠 X 😏 🔐 🛷 2 ller 1. A 11.0 Z 2 4 # 64 47 1 Symbol Address Display format Status value Modify value ۰ 68 MD 146 "Set level 3" L#30 DEC L#30 69 "Set Ind channel 2, 0" м 132.6 BOOL true 70 "Set Ind channel 2, 1" М 132.7 BOOL true

In the example below level 3 is set, the value (30) will be shown in MD 146.



Set level 4

The Setpoint for level 4 can be set at address PQD 274.

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 M 132.6 and M 132.7.

Module =	"IND1020	" 0x6A	, 0;	x5F	
; Inputs	: double	word,	32	bit	signed integer/float, weight register
,		word, byte, byte,	16 8 8	bit bit bit	status command (if addressed as word high byte is command, low byte is select register) weight select register
		word, word,	16 16	inpu outp	jts – 116, inpūts 4-16 are virtual inputs generated by software puts 201216, outputs 205-216 are virtual outputs generated by software
-	double	word,	32	bit	signed integer, preset tare
, , , ,	double double double double	word, word, word, word,	32 32 32 32 32	bit bit bit bit	signed integer/float, indicator gross x10(same as weight select register 9) signed integer/float, indicator net x10(same as weight select register 10) signed integer/float, indicator tare x10(same as weight select register 13) signed integer/float, multirange weight(same as weight select register 0)
Output	s:	byte, byte,	8 8	bit bit	command (if addressed as word high byte is command, low byte is select register) weight select register
1	double	word,	32	bit	signed integer, preset tare. Setup this register and at rising edge of command bit 5 preset tare is activated.
;	double double double <mark>double</mark>	word, word, word, word,	32 32 32 32 32	bit bit bit bit	signed integer, level 1 signed integer, level 2 signed integer, level 3 signed integer, level 4

To set level 4, write the following lines:

L "Set level 4" //Load Value level 4 To set a new setpoint level, command "indicator channel 2,0 and 2,1 must be set high (132.6 and 132.7) MD150 T PQD 274 //Store value level 4

The first line will load level 4 (double word) from MD 150. The second line will copy level 4 (double word) into the 1020.

In the example below level 4 is set, the value (40) will be shown in MD 150.

🕍 Var - [1020 @1020\SIMATIC 300 Station\CPU 315-2 DP(1)\S7 Program(1) ONLINE]										
	T	able	Edit	Insert PLC Variable View Option	ons Window	Help		_ 8 ×		
	1	Add	ress	Symbol	Display format	Status value	Modify value	*		
68		MD	150	"Set level 4"	DEC	L#40	L#40			
69		М	132.6	"Set Ind channel 2, 0"	BOOL	📘 true				
70		М	132.7	"Set Ind channel 2, 1"	BOOL	🚺 true				



Complete program to read and write values

Read:

//102	0 Weig	ht, status, weight select re	gister, inputs, outputs information to the PLC	
	L T	PID 256 "Read Weight register"	//Load Weight register //Store Weight register	MD100
	L T	PIW 260 "Read Status bits"	//Load Status //Store Status	MW104
	L T	PIB 262 "Read Command bits"	//Load Command bits and weight select register //Store Command bits and weight select register	MB106
	L T	PIB 263 "Read Weight select reg"	//Load Weight select register //Store Weight select register	MB107
	L T	PIW 264 "Read Inputs"	//Load inputs //Store inputs	MW108
	L T	PIW 266 "Read Outputs"	//Load outputs //Store outputs	MW110
	L T	PID 268 "Read Preset tare value"	//Load preset tare value //Store preset tare value	MD112
	L T	PID 272 "Read Ind value gross x10"	//Load indicator value gross x10 //Store indicator value gross x10	MD116
	L T	PID 276 "Read Ind value net x10"	//Load indicator value net x10 //Store indicator value net x10	MD120
	L T	PID 280 "Read Ind value tare x10"	//Load indicator value tare x10 //Store indicator value tare x10	MD124
	L	PID 284	//Load indicator value multirange weight	
	т	"Read Multirange weight"	//Store indicator value multirange weight	MD128

Write:

//Send commands, weight select register, preset tare and levels for the PLC to the 1020 $\,$

L	"Set commands" POB 256	//Load Command //Store Command	MB132
L	"Set weight select reg"	//Load weight select register	MB133
т	PQB 257	//Store weight select register	
L	"Set preset tare"	//Load set preset tare value To set a new preset tare value, command "Preset tare" must be set high (M132.4)	MD134
т	PQD 258	//Store set preset tare value	
L	"Read Preset tare value"	//Load current preset tare value	MD112
ь	"Set preset tare"	//Load set preset tare	MD134
<>D		//If set preset tare not equel with read preset tare	
=	"Set Preset tare command"	//Command bit "preset tare" is on, storing the new preset tare into the SGM740 or SGM840	M132.4
L	"Set level 1"	//Load Value level 1 To set a new setpoint level, command "indicator channel 2,0 and 2,1 must be set high (132.6 and 132.7)	MD138
т	PQD 262	//Store value level 1	
T.	"Set level 2"	//Toad Value level 2 To set a new setpoint level, command "indicator channel 2.0 and 2.1 must be set high (132.6 and 132.7)	MD142
т	POD 266	//Store value level 2	
	-		
L	"Set level 3"	//Load Value level 3 To set a new setpoint level, command "indicator channel 2,0 and 2,1 must be set high (132.6 and 132.7)	MD146
т	PQD 270	//Store value level 3	
L	"Set level 4"	//Load Value level 4 To set a new setpoint level, command "indicator channel 2,0 and 2,1 must be set high (132.6 and 132.7)	MD150
т	PQD 274	//Store value level 4	



Variable table

Read:

¥ Va 影 Ta	r - [1020 @ able Edit	1020\SIMATIC 300 Station\CPU 315-2 Insert PLC Variable View Opti	DP(1)\S7 Progra	am(1) ONLINE] Help	_ 0	×
	niei		⊆_ <u>8</u> <u>N</u> ?	©y & w &	Ma Her	<u> </u>
	Address	Symbol	Display format	Status value	Modify value	
1	MD 100	"Read Weight register"	DEC	L#0		
2						
3	MW 104	"Read Status bits"	BIN	2#0010_0001_1000_1100		
4	M 105.0	"Hardware overload"	BOOL	📕 false		
5	M 105.1	"Overload detected"	BOOL	false		
6	M 105.2	"Stable signal"	BOOL	📘 true		
7	M 105.3	"In stable range"	BOOL	🚺 true		
8	M 105.4	"Zero corrected"	BOOL	false		_
9	M 105.5	"Center of zero"	BOOL	false		
10	M 105.6	"In zero range"	BOOL	false		
11	M 105.7	"Zero tracking possible"	BOOL	🚺 true		
12	M 104.0	"Tare active"	BOOL	📘 true		
13	M 104.1	"Preset tare active"	BOOL	false		
14	M 104.2	"New sample available"	BOOL	false		
15	M 104.3	"Calibration invalid"	BOOL	f alse		=
16	M 104.4	"Calibration enabled"	BOOL	false		
17	M 104.5	"User certified operation"	BOOL	📘 true		
18	M 104.6	"Reserved 1"	BOOL	false		
19	M 104.7	"Reserved 2"	BOOL	📕 false		
20						
21	MB 106	"Read Command bits"	BIN	2#1100_1000		
22	M 106.0	"Read Zero reset command"	BOOL	false		
23	M 106.1	"Read Zero set command"	BOOL	false		
24	M 106.2	"Read Tare off"	BOOL	false		
25	M 106.3	"Read Tare on"	BOOL	🚺 true		
26	M 106.4	"Read Preset tare command"	BOOL	false		
27	M 106.5	"Read Freeze bit"	BOOL	false		
28	M 106.6	"Read Ind channel 2, 0"	BOOL	🚺 true		
29	M 106.7	"Read Ind channel 2, 1"	BOOL	🚺 true		
30						
31	MB 107	"Read Weight select reg"	HEX	B#16#04		
32						
33	MW 108	"Read Inputs"	BIN	2#0000_0000_0000_1001		-
34	M 109.0	"Input 1"	BOOL	📘 true		
35	M 109.1	"Input 2"	BOOL	false		
36	M 109.2	"Input 3"	BOOL	false		
37						
38	MW 110	"Read Outputs"	BIN	2#0000_0011_0000_0000		1
39	M 111.0	"Output 1"	BOOL	📕 false		
40	M 111.1	"Output 2"	BOOL	false		-
41	M 111.2	"Output 3"	BOOL	false		~
42	M 111.3	"Output 4"	BOOL	false		
43						-
44	MD 112	"Read Preset tare value"	DEC	L#100		-
45			-			
46	MD 116	"Read Ind value gross x10"	DEC	L#50000		
47						
48	MD 120	"Read Ind value net x10"	DEC	L#-1		
49						
50	MD 124	"Read Ind value tare x10"	DEC	L#50001		
51					1	
52	MD 128	"Read Multirange weight"	DEC	L#0		-
					•	
1020\\$	IMATIC 300 S	tation\\S7 Program(1)			RUN	
		2				- 10



Write:

놂	🕍 Var - [1020 @1020\SIMATIC 300 Station\CPU 315-2 DP(1)\S7 Program(1) ONLINE]									
	Ta	able	Edit	Insert PLC Variable View Optic	ons Window	Help	_ 8	×		
-	a _	D	2		° <u>a</u> 2 <u>k</u> ?	∰ 66° м⊅ 66	Man Iker			
	1	Addr	ress	Symbol	Display format	Status value	Modify value	^		
54		MB	132	"Set commands"	BIN	2#1100_1000				
55		М	132.0	"Set Zero reset command"	BOOL	📕 false				
56		М	132.1	"Set Zero set command"	BOOL	📕 false				
57		М	132.2	"Set Tare off"	BOOL	📕 false				
58		М	132.3	"Set Tare on"	BOOL	📘 true				
59		М	132.4	"Set Preset tare command"	BOOL	false				
60		М	132.5	"Set Freeze bit"	BOOL	f alse				
61		М	132.6	"Set Ind channel 2, 0"	BOOL	📘 true				
62		М	132.7	"Set Ind channel 2, 1"	BOOL	📘 true				
63										
64		MB	133	"Set weight select reg"	HEX	B#16#04	💓 B#16#04			
65										
66		MD	134	"Set preset tare"	DEC	L#100	🙀 L#100			
67										
68		MD	150	"Set level 4"	DEC	L#40	L#40			
69		М	132.6	"Set Ind channel 2, 0"	BOOL	📘 true				
70		М	132.7	"Set Ind channel 2, 1"	BOOL	🚹 true				
71		MD	142	"Set level 2"	DEC	L#20	L#20	=		
72										
73		MD	146	"Set level 3"	DEC	L#30	🙀 L#30			
74										
75		MD	150	"Set level 4"	DEC	L#40	💓 L#40	-		
1							+			
102	1020\SIMATIC 300 Station\\S7 Program(1)									





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

PENKO Alliances

PENKO's worldwide network: Australia, Belgium, Brazil, China, Denmark, Germany, Egypt, Finland, France, India, Italy, Netherlands, Norway, Poland, Portugal, Slovakia, Spain, Syria, Turkey, United Kingdom, South Africa, Slovakia Sweden, Switzerland and Singapore. A complete overview you will find on: www.penko.com/dealers

