Pro-face

Digital Human Machine Interface

Device/PLC Connection Manuals

About the Device/PLC Connection Manuals

Prior to reading these manuals and setting up your device, be sure to read the "Important: Prior to reading the Device/PLC Connection manual" information. Also, be sure to download the "Preface for Trademark Rights, List of Units Supported, How to Read Manuals and Documentation Conventions" PDF file. Furthermore, be sure to keep all manual-related data in a safe, easy-to-find location.

A Siemens

A.1 Maximum Number of Consecutive Device Address

The following lists the maximum number of consecutive addresses that can be read by each PLC. Refer to these tables to utilize *Block Transfer*.

Note: **When the device is setup using the methods below, the Data Communication Speed declines by the number of times the device is read.**

- **When consecutive addresses exceed the maximum data number range**
- **When an address is designated for *division***
- **When device types are different**

To speed up data communication, plan the tag layout in screen units, as consecutive devices. (Includes the Alarm and Trend screens.)

■ PLCs

<SIMATIC S5 Series>

Device	Max. No. of Consecutive Address
Input I	64 Words
Output Q	
Internal Relay F	
Timer T	
Counter C	
Data Word D	
Ext. Data Word X	

<SIMATIC S7 300/400 (via MPI)>

Device	Max. No. of Cosecutive Address
Input	64 Words
Output	
Internal	
Timer	
Counter	
Data Block	

<SIMATIC S7 200 (via PPI)>

Device	Max. No. of Cosecutive Address
Input	64 Words
Output	
Internal	
Timer	
Counter	
Variable Memory	

<SIMATIC S7 300/400 (via 3964/RK512)>

Device	Max. No. of Cosecutive Address
Data Block	64 Words

SIMATIC S200 (via MPI)

Device	Max. No. of Cosecutive Address
Input	64 Words
Output	
Internal	
Timer	
Counter	
Data Block	

<SIMATIC 505 Series>

Device	Max. No. of Consecutive Addresses
Variable Memory V	15 Words *1
Word Input WX	15 Words
Word Output WY	15 Words
Loop Gain LKC	7 Words
Loop Reset LTI	7 Words
Loop Rate LTD	7 Words
Loop Alarm High Limit LHA	7 Words
Loop Low Alarm Limit LLA	7 Words
Loop Process Variable LPV	7 Words
Loop PV High Limit LPVH	7 Words
Loop PV Low Limit LPVL	7 Words
Loop Orange Deviation Limit LODA	7 Words
Loop Yellow Deviation Alarm Limit LYDA	7 Words
Loop Sample Rate LTS	7 Words
Loop Setpoint LSP	7 Words
Loop Output LMN	7 Words
Loop Error LERR	7 Words
Loop Bias LMX	7 Words
Loop Alarm High-High Limit LHHA	7 Words
Loop Low-Low Alarm Unit LLLA	7 Words
Loop Rate of Change Alarm Limit LRCA	7 Words
Loop Setpoint High Point LSPH	7 Words
Loop Setpoint Low Limit LSPL	7 Words

Device	Max. No. of Consecutive Addresses
Loop Alarm Deadband LADB	7 Words
Loop V-flags LVF	7 Words
Most Significant Word of Loop C-flags LCFH	7 Words
Least Significant Word of Loop C-flags LCFL	7 Words
Analog Alarm/Alarm Acknowledge Flags AADB	7 Words
Most Significant Word of Analog Alarm C-flags ACFH	7 Words
Least Significant Word of Analog Alarm C-flags ACFL	7 Words
Analog Alarm Error AERR	7 Words
Analog Alarm High Alarm Limit AHA	7 Words
Analog Alarm High-High Alarm Limit AHHA	7 Words
Analog Alarm Low Alarm Limit ALA	7 Words
Analog Alarm Low-Low Alarm Limit ALLA	7 Words
Analog Alarm Loop Orange Deviation Alarm Limit AODA	7 Words
Analog Alarm Process Variable APV	7 Words
Analog Alarm Rate of Change Alarm Limit ARCA	7 Words
Analog Alarm Setpoint ASP	7 Words
Analog Alarm SP High Limit ASPH	7 Words
Analog Alarm SP Low Limit ASPL	7 Words
Analog Alarm Sample Rate ATS	7 Words
Analog Alarm Yellow Deviation Alarm Limit AYDA	7 Words
Timer/Counter Preset TCP	7 Words
Timer/Counter Current TCC	7 Words
Drum Counter Preset DCP	7 Words
Drum Step Preset DSP	10 Words
Drum Step Current DSC	10 Words
Status Word STW	7 Words
Drum Count Current DCC	10 Words

◆Interbus-S Communication

Packet Transfer Mode

Device	Max. No. of Consecutive Address
Data Block DBxW	6 Words
Input IW	
Output OW	
Internal Memory MW	

◆ Ethernet Communication

Device	Max. No. of Consecutive Addresses
Input E	64 Words
Output A	
Marker M	128 Words
Data Block DB	256 Words
Timer T	1 Word
Counter Z	

A.2 Device Codes and Address Codes

Device codes and address codes are used to specify indirect addresses for the E-tags or K-tags.

The word addresses of data to be displayed are coded and stored in the word address specified by the E-tags and K-tags. (Code storage is done either by the PLC, or with T-tag and K-tags)

■ PLCs

<SIMATIC S5 Series (using Link I/F)*>

	Device	Word Address	Device code (HEX)	Address code
Word Device	Data Register	D003000~	0040	Upper two digits: Value of "DB number minus 3" is indicated in HEX. Lower two digits: Value that DB number is indicated in HEX.
	Extended Data Register	X0030000~	5840	Upper two digits: Value of "DB number minus 3" is indicated in HEX. Lower two digits: Value that DB number is indicated in HEX.
	LS area	LS0000~	4040	Word Address

* *The address codes for Data Register and Extended Data Register are as follows:*

E.g. D019255

Data Word (DW) No.

Data Block (DB) No.

Address code

Upper two digits: 019-3=16 (DEC) ->10 (HEX)

Lower two digits: 255 (DEC) -> FF (HEX)

Address code is 10FF.

<SIMATIC S5 Series (CPU Direct Connection)*>

	Device	Word Address	Device code (HEX)	Address code
Bit Device	Input Relay	IW000~	8140	Save as address value divided by 2.
	Output Relay	QW000~	8940	Save as address value divided by 2.
	Internal Relay	FW000~	9140	Save as address value divided by 2.
Word Device	Timer	T000~	6000	Word Address
	Counter	C000~	7000	Word Address
	Data Register	D002000~	0040	Upper two digits: Value of "DB number minus 2" is indicated in HEX. Lower two digits: Value that DB number is indicated in HEX.
	Extended Data Register	X002000~	5840	Upper two digits: Value of "DB number minus 2" is indicated in HEX. Lower two digits: Value that DB number is indicated in HEX.
	LS area	LS0000~	4040	Word Address

** The address codes for Data Register and Extended Data Register are as follows:*

E.g. D019 255

- 255 → Data Word (DW) No.
- D019 → Data Block (DB) No.

Address code

Upper two digits: 019-2=17 (DEC) ->11 (HEX)

Lower two digits: 255 (DEC) ->FF (HEX)

Address code is 11FF.

<SIMATIC S7 300/400 (via MPI)>

	Device		Word Address	Device Address	Address Code
Bit Device	Input	Node 1	EW000 ~	8000	Word Address devided by 2
		Node 2	EW000 ~	8200	Word Address devided by 2
		Node 3	EW000 ~	8400	Word Address devided by 2
		Node 4	EW000 ~	8600	Word Address devided by 2
	Output	Node 1	AW000 ~	8800	Word Address devided by 2
		Node 2	AW000 ~	8A00	Word Address devided by 2
		Node 3	AW000 ~	8C00	Word Address devided by 2
		Node 4	AW000 ~	8E00	Word Address devided by 2
	Internal	Node 1	MW000 ~	9000	Word Address devided by 2
		Node 2	MW000 ~	9200	Word Address devided by 2
		Node 3	MW000 ~	9400	Word Address devided by 2
		Node 4	MW000 ~	9600	Word Address devided by 2
Word Device	Timer		T000 ~	6000	Word Address
	Counter		Z00 ~	7000	Word Address
	Data Block		DB1W00000 ~ DB1W65534	0000	Word Address devided by 2
	Data Block		DB2W00000 ~ DB2W65534	0200	Word Address devided by 2
	Data Block		DB3W00000 ~ DB3W65534	0400	Word Address devided by 2
	:		:	:	:
	Data Block		DB32W00000 ~ DB32W65534	3E00	Word Address devided by 2
	Data Block		DB33W00000 ~ DB33W65534	4200	Word Address devided by 2
	:		:	:	:
	Data Block		DB47W00000 ~ DB47W65534	5E00	Word Address devided by 2
	Data Block		DB48W00000 ~ DB48W65534	6200	Word Address devided by 2
	:		:	:	:
	Data Block		DB54W00000 ~ DB54W65534	6E00	Word Address devided by 2
	Data Block		DB55W00000 ~ DB55W65534	7200	Word Address devided by 2
	:		:	:	:
	Data Block		DB60W00000 ~ DB60W65534	7C00	Word Address devided by 2
	Data Block		DB1.DBW0 ~ DB1.DBW65534	A000	Word Address devided by 2
	:		:	:	:
	Data Block		DB65535.DBW0 ~ DB65535.DBW65534	EE00	Word Address devided by 2
	LS area		LS0000 ~	4000	Word Address

<SIMATIC S7 300/400 (via 3964/RK512)>

	Device	Word Address	Device code (HEX)	Address Code
Word Device	Data Block	DB00W00000 ~	7C00	Save as word address value divided by 2.

<SIMATIC S7 200 (via PPI)>

	Device	Word Address	Device code (HEX)	Address Code
Bit Device	Input Bit	IW0 ~	9000	Save as word address value divided by 2.
	Output Bit	QW0 ~	8800	Save as word address value divided by 2.
	Internal Bit	MW00 ~	C800	Save as word address value divided by 2.
	Specioal Memory	SMW00 ~	B800	Save as word address value divided by 2.
	Variable Memory	VW0000 ~	D000	Save as word address value divided by 2.
Word Device	Timer Word	T000 ~	0400	Save as word address value divided by 2.
	Counter Word	C000 ~	0800	Save as word address value divided by 2.

<SIMATIC S7 200 (via MPI)>

	Device		Word Address	Device Address	Address Code
Bit Device	Input	Node 1	IW0 ~	9000	Word Address devided by 2
		Node 2	IW0 ~	9200	Word Address devided by 2
		Node 3	IW0 ~	9400	Word Address devided by 2
		Node 4	IW0 ~	9600	Word Address devided by 2
	Output	Node 1	QW0 ~	8800	Word Address devided by 2
		Node 2	QW0 ~	8A00	Word Address devided by 2
		Node 3	QW0 ~	8C00	Word Address devided by 2
		Node 4	QW0 ~	8E00	Word Address devided by 2
	Internal	Node 1	MW00 ~	C800	Word Address devided by 2
		Node 2	MW00 ~	CA00	Word Address devided by 2
		Node 3	MW00 ~	CC00	Word Address devided by 2
		Node 4	MW00 ~	CE00	Word Address devided by 2
Word Device	Timer	Node 1	T000 ~	0400	Word Address
		Node 2	T000 ~	0600	Word Address
		Node 3	T000 ~	1000	Word Address
		Node 4	T000 ~	1200	Word Address
	Counter	Node 1	C00 ~	0800	Word Address
		Node 2	C00 ~	0A00	Word Address
		Node 3	C00 ~	0C00	Word Address
		Node 4	C00 ~	0E00	Word Address
	Var. Memory	Node 1	VW0000 ~	D000	Word Address devided by 2
		Node 2	VW0000 ~	D200	Word Address devided by 2
		Node 3	VW0000 ~	D400	Word Address devided by 2
		Node 4	VW0000 ~	D600	Word Address devided by 2
	LS area		LS0000 ~	4000	Word Address

<SIMATIC 505>

	Device	Word Address	Device Code (HEX)	Address Code
Word Device	Variable Memory	V00001 ~	0000	Word Address minus 1
	Word Input	WX00001 ~	0C00	Word Address minus 1
	Word Output	WY00001 ~	0E00	Word Address minus 1
	Loop Gain	LKC0001 ~	1C00	Word Address minus 1
	Loop Reset	LTI0001 ~	1E00	Word Address minus 1
	Loop Rate	LTD0001 ~	2000	Word Address minus 1
	Loop Alarm High Limit	LHA0001 ~	2400	Word Address minus 1
	Loop Low Alarm Limit	LLA0001 ~	2800	Word Address minus 1
	Loop Process Variable	LPV0001 ~	2C00	Word Address minus 1
	Loop PV High Limit	LPVH0001 ~	2E00	Word Address minus 1
	Loop PV Low Limit	LPVL0001 ~	3000	Word Address minus 1
	Loop Orange Deviation Limit	LODA0001 ~	3400	Word Address minus 1
	Loop Yellow Deviation Alarm Limit	LYDA0001 ~	3800	Word Address minus 1
	Loop Sample Rate	LTS0001 ~	3A00	Word Address minus 1
	Loop Setpoint	LSP0001 ~	3E00	Word Address minus 1
	Loop Output	LMN0001 ~	4400	Word Address minus 1
	Loop Error	LERR0001 ~	4800	Word Address minus 1
	Loop Bias	LMX0001 ~	4E00	Word Address minus 1
	Loop Alarm High-High Limit	LHHA0001 ~	5000	Word Address minus 1
	Loop Low-Low Alarm Unit	LLLA0001 ~	5400	Word Address minus 1
	Loop Rate of Change Alarm Limit	LRCA0001 ~	5600	Word Address minus 1
	Loop Setpoint High Limit	LSPH0001 ~	5A00	Word Address minus 1
	Loop Setpoint Low Limit	LSPL0001 ~	6000	Word Address minus 1
	Loop Alarm Deadband	LADB0001 ~	6200	Word Address minus 1
	LS Area	LS0000 ~	4000	Word Address
	Loop V-flags	LVF0001 ~	6400	Word Address
	Most Significant Word of Loop C-flags	LCFH0001 ~	6600	Word Address
	Least Significant Word of Loop C-flags	LCFL0001 ~	6800	Word Address
	Analog Alarm/Alarm Acknowledge Flags	AADB0001 ~	6C00	Word Address
	Most Significant Word of Analog Alarm C-flags	ACFH0001 ~	6E00	Word Address
	Least Significant Word of Analog Alarm C-flags	ACFL0001 ~	7000	Word Address
	Analog Alarm Error	AERR0001 ~	7400	Word Address
	Analog Alarm High Alarm Limit	AHA0001 ~	7800	Word Address
	Analog Alarm High-High Alarm Limit	AHHA0001 ~	7C00	Word Address
	Analog Alarm Low Alarm Limit	ALA0001 ~	7E00	Word Address

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	Device	Word Address	Device Code (HEX)	Address Code
Device	Analog Alarm Low-Low Alarm Limit	ALLA0001 ~	7A00	Word Address
	Analog Alarm Loop Orange Deviation Alarm Limit	AODA0001 ~	7600	Word Address
	Analog Alarm Process Variable	APV0001 ~	7200	Word Address
	Analog Alarm Rate of Change Alarm Limit	ARCA0001 ~	6A00	Word Address
	Analog Alarm Setpoint	ASP0001 ~	5E00	Word Address
	Analog Alarm SP High Limit	ASPH0001 ~	5800	Word Address
	Analog Alarm SP Low Limit	ASPL0001 ~	5200	Word Address
	Analog Alarm Sample Rate	ATS0001 ~	4C00	Word Address
	Analog Alarm Yellow Deviation Alarm Limit	AYDA0001 ~	4A00	Word Address
	Timer/Counter Preset	TCP0001 ~	2600	Word Address
	Timer/Counter Current	TCC0001 ~	2A00	Word Address
	Drum Counter Preset	DCP0101 ~	3200	Word Address
	Drum Step Preset	DSP0001 ~	3600	Word Address
	Drum Step Current	DSC0001 ~	3C00	Word Address
	Status Word	STW0001 ~	4600	Word Address
	Drum Count Current	DCC0001 ~	4200	Word Address
	LS Area	LS0000 ~	4000	Word Address

◆ Interbus Communication

<Direct I/O Mode>

	Device	Word Address	Device code (HEX)	Address code
Word Device	LS area	LS0000 ~	4000	Word Address

<Packet Transfer Mode>

	Device	Word Address	Device code (HEX)	Address code
Word Device	Data Block	DB02W00000~	7C00	Same as word address value divided by 2
	Input Relay	IW00000~	8000	Same as word address value divided by 2
Bit Device	Output Relay	OW00000~	8800	Same as word address value divided by 2
	Internal Memory	Mw00000~	9000	Same as word address value divided by 2

◆ Ethernet Communication

Device	Word Address	Device Code	
Input	EW00000~	8000	(Word address) / 2
Output	AW00000~	8800	(Word address) / 2
Marker	MW00000~	9000	(Word address) / 2
Timer	T00000~	6000	Word address
Counter	Z00000~	7000	Word address
Data Block Index 1	DBx.DBW00000 ~	A000	(Word address) / 2
Data Block Index 2	DBx.DBW00000 ~	A200	(Word address) / 2
:	:	:	:
Data Block Index 40	DBx.DBW00000 ~	EE00	(Word address) / 2
LS area	LS0000 ~	4000	Word address