HAWE Hydraulik SE

: PLVC Series

Supported version TOP Design Studio

v1..4.0 or higher



CONTENTS

We would like to thank our customers for using M2I's "Touch Operation Panel (M2I TOP) Series". Read this manual and familiarize yourself with the connection method and procedures of the "TOP and external device".

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Describes the devices required for connection, the setting of each device, cables, and configurable systems.

2. External device selection Page 3

Select a TOP model and an external device.

3. TOP communication setting Page 4

Describes how to set the TOP communication.

4. External device setting

Describes how to set up communication for external devices.

5. Cable table

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Describes the cable specifications required for connection.

6. Supported addresses

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Refer to this section to check the addresses which can communicate with an external device.



1. System configuration

The system configuration of TOP and "plvc" is as follows:

Series	СРИ	Link I/F	Communication method	System setting	Cable
PLVC Series			RS-232C	<u>3.1 Settings example 1</u> (<u>Page 4)</u>	5.1. Cable table 1 (Page 9)
		CPU Direct	RS-422 (4 wire)	<u>3.2 Settings example 2</u> (Page 5)	5.1. Cable table 1 Page 10

Connection configuration

• 1:1 (one TOP and one external device) connection – configuration which is possible in RS232C/422/485 communication.





• 1:N (one TOP and multiple external devices) connection - configuration which is possible in RS422/485 communication.





2. External device selection

■ Select a TOP model and a port, and then select an external device.

PLC select [C	OM2]				
Filter : [All]		\sim	5	Search :	
				Mode	() Vendor
Vendor		Model			
ATLAS COPCO		DLVC S	eries		
TOSHIBA MACHINE Co.	, Ltd				
GREEN POWER					
ROOTECH					
CKD Corporation					
CSCAM					
IDEC Corporation	_				
HAWE HYDRAULIK					
SEHAN Electools					
TOHO Electronics Inc.					
IAI Corporation					
MKP					
TEMCOLINE Co., Ltd.					
ITNMOT		1			
PLC Setting[PLVC	Series]				
Alias Name	: PLC1				
		1			
Interface	: Computer Lin	K V		_	
Interface Protocol String Save Mode	Computer Lin MC Protocol	IC ACPU V		Co	mm Manual
Interface Protocol String Save Mode	: Computer Lin : MC Protocol : First LH HL	IC ACPU V Change		Co	mm Manual
Interface Protocol String Save Mode	Computer Lin MC Protocol First LH HL	IC ACPU V Change		Co	mm Manual
Interface Protocol String Save Mode	: Computer Lin : MC Protocol : : First LH HL CY ND ~ 1 TimeOut	IC ACPU V Change	und)	Co	mm Manual
Interface Protocol String Save Mode	: Computer Lin : MC Protocol 3 : First LH HL CY ND ~ 1 TimeOut 1 Condition	IC ACPU V Change	und)	Co	mm Manual
Interface Protocol String Save Mode Use Redundant Operate Condition : Change Condition :	Computer Lin MC Protocol First LH HL CY TimeOut Condition	IC ACPU V Change	ind)	Co	mm Manual
Interface Protocol String Save Mode Use Redundan Operate Condition : A Change Condition : T Primary Option Timeout	Computer Lin MC Protocol First LH HL MD Cy TimeOut Condition	IC ACPU Change	nd)	Co	mm Manual
Interface Protocol String Save Mode	Computer Lin MC Protocol First LH HL MD MD CM Condition	IC ACPU V Change	ind)	Co	mm Manual
Interface Protocol String Save Mode	: Computer Lin MC Protocol of : MC Protocol of : First LH HL : TimeOut 1 TimeOut 1 Condition 200 5 E	IC ACPU Change	nd)	co	mm Mənuəl
Interface Protocol String Save Mode Use Redundane Operate Condition : Change Condition : Primary Option Timeout Send Wait Retry Station Num	: Computer Lin : MC Protocol : : First LH HL : MC Ordition 1 TimeOut 1 Condition 300 5 5 0 0 1	K V IC ACPU V Change 5 (Secc msec a) msec	ind)	Co	mm Mənuəl
Interface Protocol String Save Mode	: Computer Lin : MC Protocol : : First LH HL : MC ondition : TimeOut : Condition : 0 : 0 : 0 : 0 : 0 : 0 : 0 : 0	ic ACPU Change	nd)		mm Manual
Interface Protocol String Save Mode	: Computer Lin : MC Protocol : First LH HL Condition 300 5 0 0 5 0 0 0 0 0 0 0 0 0 0	ic ACPU V Change	nd)		mm Manual
Interface Protocol String Save Mode	: Computer Lin : MC Protocol : First LH HL DY ND V Condition 300 C 5 C 0 C 5 C 0 C	il ACPU V Change 5 (Seco	nd)		mm Manuai
Interface Protocol String Save Mode	: Computer Lin : MC Protocol : First LH HL EY ND V 1 TimeOut 1 Condition 300 5 5 0 6 0 7 0 7 0 7 0 7 7 7 7 7 7 7 7 7 7 7 7 7	IC ACPU V Change 5 C (Secc msec a) msec	nd)		mm Mənuəl
Interface Protocol String Save Mode	: Computer Lin : MC Protocol : First LH HL : MD 1 TimeOut 1 Condition 300 5 5 6 0 2 0 2 0 2 0 2 2 0 2 2 2 2 2 2 2 2 2 2 2 2 2	IC ACPU Change	ind)		mm Mənuəl

Settings		Contents
TOP	Model	Check the TOP display and process to select the touch model.
External device	al device Vendor Select the vendor of the external device to be connected to TOP.	
		Select "HAWE HYDRAULIK".
	PLC	Select an external device to connect to TOP.
Select "HAWE PLVC".		Select "HAWE PLVC".
Please check the system configuration in Chapter 1 to see if the		Please check the system configuration in Chapter 1 to see if the external device you want to
		connect is a model whose system can be configured.

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3. TOP communication setting

The communication can be set in TOP Design Studio or TOP main menu. The communication should be set in the same way as that of the external device.

3.1 Communication setting in TOP Design Studio

(1) Communication interface setting

- [Project > Project Property > TOP Setting] → [Project Option > "Use HMI Setup" Check > Edit > Serial]
 - Set the TOP communication interface in TOP Design Studio.

Project Option	×
Change HMI[H] Mdd PLC [A] The Change PLC[C]	Delete PLC(D)
Date / Time Sync. Screen	Option Unit Convert
Option Module Setting FieldBus (0) Project Option Screen Cha	nge HmiSetup Global Lock & Touch Project Style Splash PLC Buffer Sync.
RFID (0) Use HMI Setup	Initialization
COM3 (0) Character (0) Start Screen No. = 1 Latch Use=0 Latch Set=0.00	
Wireless (0) USBErrorMessage=0 USBErrorMessage=0	
Databasemensage=1 SystemMessage=1	
DisplayLockIcon=0 DisplayDermissionIcon=0	-
Control Panel	
🔯 System 🛛 📼 Devices	Service 🔤 Option
7	Serial X
PLC Security Date/Ti	me Serial Port: COM2 🔻
	Signal Level
	O RS-232C O RS-422(4) ● RS-485(2)
	Baud Rate: 38400 🔻
Ethernet Serial HDMI	Data Bit: 8
	Stop Bit: 1 🔻
	Parity Rit: None
Diagnostic File Ping	Flow: Off 👻
Hanagor	Auto Conrola IIII IIII
	AUTO Search Loopback Test
L	
[System]	Apply Lancel
	Get HMI Setup OK Cancel

Items	ТОР	External device	Remarks
Signal Level (port)	RS-232C/RS-485	RS-232C/RS-485	
Baud Rate	38400		
Data Bit	8		
Stop Bit	1		
Parity Bit	NONE		

* The above settings are examples recommended by the company.

Items	Description
Signal Level	Select the serial communication method between the TOP and an external device.
Baud Rate	Select the serial communication speed between the TOP and an external device.
Data Bit	Select the serial communication data bit between the TOP and an external device.
Stop Bit	Select the serial communication stop bit between the TOP and an external device.
Parity Bit	Select the serial communication parity bit check method between the TOP and an external device.



(2) Communication option setting

■ [Project > Project Property > Device Setting > COM > "PLC1 : HAWE PLVC"]

Set the options of the HAWE PLVC communication driver in TOP Design Studio.

Project Option			×
Change HMI[H] Keel Add P	LC [A] The Change PLC[C] Celete PLC[D]		
 TOP Setting SYS: RD 1520X Option Module Setting FieldBus (0) RFID (0) COM1 (0) COM2 (1) PLC1: PLVC Series [0] COM3 (0) Ethernet (0) USBDevice (0) 	PLC Setting[PLVC Series] Alas Name: PLC 1 Interface: Computer Link Protocol: MC Protocol IC ACPU String Save Mode: First LH HL Change Operate Condition: Allow Change Condition: TimeOut Station Num		mm Manual
		Apply	Close

Items	Settings	Remarks
Interface	"Computer Link	Fined
Protocol	MC Protocol 1C ACPU	Fixed
TimeOut (ms)	Set the time for the TOP to wait for a response from an external device.	
SendWait (ms)	Set the waiting time between TOP's receiving a response from an external device and	
	sending the next command request.	
Retry	Retry attempts upon communication failure.	
Station Num	Select station number.	



3.2. Communication setting in TOP

* This is a setting method when "Use HMI Setup" in the setting items in "3.1 TOP Design Studio" is not checked.

■ Touch the top of the TOP screen and drag it down. Touch "EXIT" in the pop-up window to go to the main screen.



(1) Communication interface setting

■ [Main Screen > Control Panel > Serial]



Items	ТОР	External device	Remarks
Signal Level (port)	RS-232C/RS-485	RS-232C/RS-485	
Baud Rate	38400		
Data Bit	8		
Stop Bit	1		
Parity Bit	NOI	NE	

* The above settings are setting examples recommended by the company.

Items	Description
Signal Level	Select the serial communication method between the TOP and an external device.
Baud Rate	Select the serial communication speed between the TOP and an external device.
Data Bit	Select the serial communication data bit between the TOP and an external device.
Stop Bit	Select the serial communication stop bit between the TOP and an external device.
Parity Bit	Select the serial communication parity bit check method between the TOP and an external device.



(2) Communication option setting

■ [Main Screen > Control Panel > PLC]

	ŏ	1001	PLC		×
Bun	🔯 System	Driver(COM2)	PLC1(PLVC Series) -		
		Interface Protocol	Computer Link		
	PLC Se	Timeout	300 - msec		
YNC	~	Send Wait	0 🔷 msec		
viewer	ໂທທີ 🗉	Retry Station N	5		
	Ethernet S				
Screen shot	infi ^{w/}				
	Diagnostic M				
	[System]	Diagnostic		Apply C	ancel
tems	Settings				Remarks
nterface	"Computer Lin	k			

items	Settings	Remarks
Interface	"Computer Link	Fixed
Protocol	Computer Link	Fixed
TimeOut (ms)	Set the time for the TOP to wait for a response from an external device.	
SendWait (ms)	Set the waiting time between TOP's receiving a response from an external device and	
	sending the next command request.	
Retry	Retry attempts upon communication failure.	
Station Num	Select station number.	

3.3 Communication diagnostics

 \blacksquare Diagnosis of whether the port communication is normal or not

- Touch "Communication diagnostics" in [Control Panel > PLC].

- The Diagnostics dialog box pops up on the screen and determines the diagnostic status.

OK Communication setting normal



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■ Communication diagnostics sheet

- If there is a problem with the communication connection with an external terminal, please check the settings in the sheet below.

ltems	Contents		Check		Remarks
System	How to connect the system		OK	NG	1 System configuration
configuration	Connection cable name		OK	NG	1. System configuration
TOP	Version information		OK	NG	
	Port in use		OK	NG	
	Driver name		OK	NG	
	Other detailed settings		OK	NG	
	Relative prefix	Project setting	OK	NG	
		Communication	OK	NC	2. External device selection
		diagnostics	ŬK	NG	3. Communication setting
	Serial Parameter	Transmission	OK	NG	
		Speed	OK		
		Data Bit	OK	NG	
		Stop Bit	OK	NG	
		Parity Bit	OK	NG	
External device	External device CPU name		OK	NG	
	Communication port	ОК	NG		
	name)				
Protocol (mode)			OK	NG	
	Setup Prefix		OK	NG	
Other detailed sett			OK	NG	4. External device setting
	Serial Parameter	Transmission	ОК	NG	
		Speed			
		Data Bit	OK	NG	
		Stop Bit	OK	NG	
		Parity Bit	OK	NG	
	Check address range				6. Supported addresses
			OK	NG	(For details, please refer to the PLC
					vendor's manual.)



Configure the communication setting of the external device by referring to its user manual.



5. Cable table

This chapter introduces a cable diagram for normal communication between the TOP and the corresponding device. (The cable diagrams described in this section may differ from the external device vendor's recommendations.)

■ RS-232C (1:1 connection)

СОМ				PLC	
Pin	Signal	Pin	Cable connection	Signal	
arrangement*Note 1)	name	number		name	
1 5	CD	1			
Õ Õ	RD	2		SD	
	SD	3		RD	
6 9	DTR	4		DTR	
Based on	SG	5		SG	
communication cable	DSR	6		DSR	
connector front,	RTS	7		RTS	
D-SUB 9 Pin male	CTS	8		CTS	
(male, convex)		9			

*Note 1) The pin arrangement is as seen from the connecting side of the cable connection connector.

■ **RS-422** (1:1 connection)

СОМ				PLC	
Pin	Signal	Pin	Cable connection	Signal	
arrangement*Note 1)	name	number		name	
1 5	RDA(+)	1		SDA(+)	
Õ Õ		2	<u>₽</u>	SDB(-)	
		3	•	RDA(+)	
6 9	RDB(-)	4		RDB(-)	
Based on	SG	5		SG	
communication cable	SDA(+)	6			
connector front, D-SUB 9 Pin male		7			
		8			
(male, convex)	SDB(-)	9	•		

*Note 1) The pin arrangement is as seen from the connecting side of the cable connection connector.

■ **RS-485** (1:1 connection)

СОМ					PLC
Pin	Signal	Pin	Cable connection	Signal	
arrangement*Note 1)	name	number		name	
1 5	RDA(+)	1	•	SDA(+)	
		2	P	SDB(-)	
		3		RDA(+)	
6 9	RDB(-)	4		RDB(-)	
Based on	SG	5		SG	
communication cable	SDA(+)	6	→		
connector front,		7			
D-SUB 9 Pin male		8			
(male, convex)	SDB(-)	9	•		

*Note 1) The pin arrangement is as seen from the connecting side of the cable connection connector.



6. Supported addresses

The devices available in TOP are as follows:

The device range (address) may differ depending on the CPU module series/type. The TOP series supports the maximum address range used by the external device series. Please refer to each CPU module user manual and be take caution to not deviate from the address range supported by the device you want to use.

Туре	Remarks	Bit-designated address	Word-designated address
Input relay	Bit	X0000 – X1FFF	X0000 – X1FF0
Output relay	Bit	Y0000 – Y1FFF	Y0000 – Y1FF0
Internal relay	Bit	M0000.00–M9999.15	M0000–M9999
Timer (contact)	Bit	T0000.00–T9999.15	T0000–T9999
Counter (contact)	Bit	C0000.00–C9999.15	C0000–C9999
Link relay	Bit	B0000 – B1FFF	B0000 – B1FF0
Special relay	Bit	F0000.00–F99999.15	F0000–F9999
Timer value	Word	TV000.00–TV999.15	TV000–TV999
Counter value	Bit	CV000.00-CV999.15	CV000–CV999
Data register	Bit	D0000.00-D9999.15	D0000–D9999
Link register	Word	W0000 – W1FFF	W0000 - W1FF0
Extend register	Bit	R0000.00–R9999.15	R0000–R9999