A&D CO., LTD A&D Weighing Indicator AD Series (Stream Mode)

Supported version TOP

TOP Design Studio V1.4.10.27 or higher

R

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".

1. System configuration Page 2

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 Page 9

Describes how to set up communication for external devices.

5. Cable table

Page 10

Describes the cable specifications required for connection.

6. Supported addresses

Page 11

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



1. System configuration

The system configuration of TOP and "A&D Co., Ltd. – A&D Weighing Indicator AD Series (Command Mode)" is as follows.

Series	CPU	Link I/F	Communication method	System setting	Cable
AD	AD-4401	RS-232C I/O Port	RS-232C	3. TOP communication setting 4. External device setting	<u>5. Cable table</u>

Connection configuration

• 1:1 (one TOP and one external device) connection – This configuration is available in RS232c communication.





2. External device selection

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

elect Device						
PLC select [CO	M1]					
Filter : [All]			\sim	9	Search :	
					Mo	del 🔿 Vendor
Vendor		Model				
AJINEXTEK Co., Ltd.		^ 🌮	Indicator A	D Series (Comm	and Mode)	
IEC Standard		80	Indicator A	D Series (Strear	n Mode)	
CAS						
A&D						
SEHWA CNM						
SHINHAN Electronics						
BONGSHIN LOADCELL						
EANILIC Co. 1 tel						
PANOC CO., LIG.						
MUNEBEA CO., Ltd.						
Azbil Corporation						
KORO TECHNOLOGY						
ROBOSTAR						
Ebmpapst						
CoDeSvs Automation Alli	ance	*				
PLC Setting[Indica	itor AD S	eries (Str	eam Mode	e)]		
Alias Name :	PLC1					
Interface :	Serial		\sim		_	
Protocol :	STREAM MC	DDE	\sim			Comm Manual
Use Redundance	/					
Change Condition :	D ∨ TimeOut		 (Second) 			
	Condition		(occond)			Edit
Brimary Option						
Format						
Format	1	~				
Format Address	SYS	~ 102 3	9	ê 👩 🔜		
Data Address	SYS	~ 0000	00	i 🔂 📰		
Data Address	SYS	~ <mark>0000</mark>	00	E 🔂 🔳		
Data Address	SYS	✓ 0000	0			
Data Address	SYS	~ 0000	00			
Data Address	SYS	~ 000C	00			
Data Address	SYS	~ 0000	0			
Data Address	SYS	~ 0000	0			

Settings			Contents				
ТОР	Model	Check the display and process of TOP to select the touch model.					
External device	Vendor	Select the vendor of the external device to be connected to TOP. Select "Indicator Series".					
	PLC	Select an external device to connect to	Select an external device to connect to TOP.				
		Model	Interface	Protocol			
	A&D AD Series (Stream Mode) Serial STRE						
		Please check the system configuration connect is a model whose system can	n in Chapter 1 to see if the be configured.	external device you want to			



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 properties > TOP settings] \rightarrow [HMW settings] \rightarrow [Check Use HMI settings] \rightarrow [Edit] \rightarrow [System] \rightarrow [Serial] - Set the TOP communication interface in TOP Design Studio.



Control Panel			
🔯 System 🔤	Devices	🕎 Service	📴 Option
		🚥 Serial	×
	7	Serial Port:	COM1 -
PLC Security	y Date/Time	Signal Level	422(4) 🔿 RS-485(2)
		Baud Rate:	9600 🔻
		Data Bit:	7 🔹
Ethernet Seria	al HDMT	Stop Bit:	1 •
		Parity Bit:	Even 🔻
	Ping	Flow:	Off 🝷
Diagnostic File Manage	e Ping er	Auto Search	Loopback Test
			Apply Cancel

Items	ТОР	External device	Remarks
Signal Level (port)	RS-232C	RS-232C	
Baud Rate	9600		
Data Bit	7		
Stop Bit	1		
Parity Bit	Eve	n	

* 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 properties > PLC settings > COM > "PLC1 : A&D AD Series (Stream Mode)"]
 - A&D Co.Ltd. A&D Weighing Indicator AD Series (Stream Mode) Computer Link

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

Project Option			×
Change HMI[H] Add PLC	[A] Image PLC[C] Image PLC[D]		
Change HMI[H] Add PLC	A Pict Change PLC[0] Pict Setting[Indicator AD Series (Stream Mode)] Alias Name: Pict: Interface: Serial Protocol: STREAM MODE Operate Condition: No Change Condition: No Condition: No Primary Option Format Format Address Sys Sys Sys No Sys No Sys Operate Condition: No Primary Option Format Address Sys Sys Operate Condition: Sys Operate Condition: No Primary Option Format Address Sys Operate Condition: Sys Operate Condition: Sys Primary Option Sys Operate Condition: Sys Sys Operate Condition: Sys Operate Condition: Sys Operate Condition: Sys <th>Co</th> <th>mm Manual</th>	Co	mm Manual
< >>			
		Apply	Close

Items	Settings	Remarks
Interface	Select "Serial".	Refer to "2. External
Protocol	Select the "STREAM MODE."	device selection".
Format	Select format 1 ~ 8 for the external device.	
Foramt Address	Set the address to save the format of the external device.	
Data Adress	Set the starting address to save data.	



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]

<u> </u>						
	Š.		Control Pane	<u>í</u>	×	
	сана Проделание и страние и Проделание и страние и Проделание и страние и		• •••	erial	×	
Run	Syste		Serial Port	COM1		
			Signal Leve RS-232C ORS	┃ -422(4) ○ RS-485	5(2)	
	PLC	Security I	Baud Rate	9600	-	
VNC Viewer	~	_	Data Bit	: 7	-	
		0 0000	Stop Bit	: [1	-	
	Ethernet	Serial	Parity Bit	Even	-	
8.0.0.0			Flow:	Off	→	
shot	infl ^{ad}	-	Auto Search	Loopback Te	est	
	Diagnostic	File Manager				
				Apply Can		
	[System]			Close	
Toprx – Toprx0800	S				A 2021-08-31	02:01:17 PM
Items		ТОР		Externa	l device	Remarks
Signal Level (port) RS-232		2C	RS-2	232C		

Signal Level (port)	RS-232C RS-232C		
Baud Rate	9600		
Data Bit	7		
Stop Bit	1		
Parity Bit	Even		

* 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.



3.3 Communication diagnostics

■ Check the interface setting status between the TOP and an external device.

- Touch the top of the TOP screen and <u>drag</u> it down. Touch "EXIT" in the pop-up window to go to the main screen.
- Check if the COM port settings you want to use in [Control Panel > Serial] are the same as those of the external device.
- 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.

ОК	Communication setting normal
Time Out Error	Communication setting abnormal
	- Check the cable, TOP, and external device setting status. (Reference: Communication diagnostics sheet)

Communication diagnostics sheet

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

Items	Contents		Check		Remarks
System	How to connect the system		OK	NG	1 System configuration
configuration	Connection cable name		OK	NG	<u>1. System computation</u>
ТОР	Version information		ОК	NG	
	Port in use		OK	NG	
	Driver name		OK	NG	
	Other detailed settings		OK	NG	
	Relative prefix	Project setting	ОК	NG	
		Communication	014	NG	2. External device selection
		diagnostics	ÜK	NG	3. Communication setting
	Serial Parameter	Transmission	OK	NG	
		Speed	ÜK		
		Data Bit	OK	NG	
		Stop Bit	ОК	NG	
		Parity Bit	OK	NG	
External device CPU name			OK	NG	
	Communication port name (module name)		OK	NG	
	Protocol (mode)	OK	NG		
	Setup Prefix	OK	NG		
	Other detailed settings		OK	NG	4 External device setting
	Serial Parameter	Transmission Speed	ОК	NG	4. External device setting
		Data Bit	ОК	NG	-
		Ston Bit	OK	NG	-
		Parity Bit	OK	NG	-
	Check address range		0.11		6 Supported addresses
			ОК	NG	(For details, please refer to the PLC
					vendor's manual.)



4. External device setting

For more detailed setting methods than described in this example, please refer to the user manual of A&D Co., Ltd.

Step 1. While holding down the 'ENTER' key, press the 'SETPOINT' key, and then press the 'ENTER' key again.

Step 2. Press the ' \triangle ' or ' \bigtriangledown ' button to change to " rS ", and press the 'ENTER' key.

Step 3. RSF(OP-04 RS-232C) Set the detailed item settings as follows.

Items	Functions	Settings	Settings	Remarks
RSF-01	Output data	1	1~8	Only 1 to 8 are available
RSF-02	Data transfer mode	1	Communication method: stream mode	Fixed
RSF-03	Transmission Speed	5	Communication speed: 9600 bps	
RSF-04	Parity Bit	2	Parity Bit: even	
RSF-05	Character bit	7	Character bit: 7	
RSF-06	Stop Bit	1	Stop Bit: 1	
RSF-07	End code	2	End code: CR + LF	Fixed
RSF-08	Change RS-422/485	1	Invalid when using RS-232C	
RSF-09	Prefix	0	Exchange number: 0	Fixed

Step 4. Press the 'POWER' key (ESC key) to return to the weight display status.



5. Cable table

This chapter introduces a cable diagram for normal communication between the TOP and the corresponding device. (The cable diagram described in this chapter may differ from the recommendations of "A&D Co., Ltd.")

СОМ			External device			
Pin	Signal	Pin	Cable connection	Pin	Signal	Pin
arrangement*Note 1)	name	number		number	name	arrangement*Note 1)
1 5	CD	1		1		1 5
$\left(\circ \circ \right)$	RD	2		2	SD	6 9 Based on communication
	SD	3		3	RD	
6 9 Based on	DTR	4		4		
communication	SG	5		5		
cable connector	DSR	6		6		
front	front RTS 7	- 7 SG	front			
D-SUB 9 Pin male	CTS	8		8		D-SUB 9 Pin male
(male, convex)		9		9		(male, convex)
*Note 1) The pin arrangement is as seen from the connecting side of the cable connection connector.						

■ RS-232C (1:1 connection)



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.

HEADER1

Status	Display value
ST (stable)	1
OL (over load)	2
US (unstable)	3
TW (accumulated weight)	4
TN (accumulated count)	5

HEADER2

Status	Display value
GS (gross)	1
NT (net)	2
TR (tare)	3

DataAddress = Start address of data set in communication option <u>*Remark</u>)

Ex) If setting the address of DataAddress to SYS:00000 in the communication options, DataAddress = SYS:00000

Format	Data address	
Format 1	HEADER1 (DEC) 16Bit	: Data Address
DISPLAYEDWEIGHT	HEADER2 (DEC) 16Bit	: Data Address + 1
	Weight (FLOAT) 32Bit	: Data Address + 2
	Unit (string) 2 letters	: Data Address + 4
Format 2	HEADER1 (DEC) 16Bit	: Data Address
GROSS	HEADER2 (DEC) 16Bit	: Data Address + 1
	Weight (FLOAT) 32Bit	: Data Address + 2
	Unit (string) 2 letters	: Data Address + 4
Format 3	HEADER1 (DEC) 16Bit	: Data Address
NET	HEADER2 (DEC) 16Bit	: Data Address + 1
	Weight (FLOAT) 32Bit	: Data Address + 2
	Unit (string) 2 letters	: Data Address + 4
Format 4	HEADER1 (DEC) 16Bit	: Data Address
TARE	HEADER2 (DEC) 16Bit	: Data Address + 1
	Weight (FLOAT) 32Bit	: Data Address + 2
	Unit (string) 2 letters	: Data Address + 4
Format 5	HEADER1 (DEC) 16Bit	: Data Address
GROSS/NET/TARE	HEADER2 (DEC) 16Bit	: Data Address + 1
(Gross/Net/Tare)	Weight (FLOAT) 32Bit	: Data Address + 2
	Unit (string) 2 letters	: Data Address + 4
	HEADER1 (DEC) 16Bit	: Data Address + 6
	HEADER2 (DEC) 16Bit	: Data Address + 7
	Weight (FLOAT) 32Bit	: Data Address + 8
	Unit (string) 2 letters	: Data Address + 10
	HEADER1 (DEC) 16Bit	: Data Address + 12
	HEADER2 (DEC) 16Bit	: Data Address + 13
	Weight (FLOAT) 32Bit	: Data Address + 14
	Unit (string) 2 letters	: Data Address + 16

External device connection manual for TOP Design Studio





Format	Data address	
Format 6	HEADER1 (DEC) 16Bit	: Data Address
Accumulated weight	Weight (FLOAT) 32Bit	: Data Address + 1
	Unit (string) 2 letters	: Data Address + 3
Format 7	HEADER1 (DEC) 16Bit	: Data Address
Accumulated counts	Counts (FLOAT) 32Bit	: Data Address + 1
Format 8	HEADER1 (DEC) 16Bit	: Data Address
ACCUMULATED WEIGHT/ COUNTS	Weight (FLOAT) 32Bit	: Data Address + 1
(Accumulated weight / Accumulated counts)	Unit (string) 2 letters	: Data Address + 3
	HEADER1 (DEC) 16Bit	: Data Address + 5
	Counts (FLOAT) 32Bit	: Data Address + 6