# **Application Notes**

How to Configure the Communication Settings of IDEC HMI and ABB TotalFlow Device

#### Introduction:

The following information will help you configure the IDEC touchscreens and the ABB TotalFlow device using the ABB TotalFlow Serial or Ethernet Driver.

In WindOI NV4, Double Click on "Project Settings".



Select "Communication Driver" tab.

In Manufacturer, select "ABB. In Communication Driver, select "TotalFlow (G4 & G5)(RS232C/485)" for serial connection.

Project S	ettings				?	×
System Expans	Communication Interface Communicat ion Module External Memory Device (E-ma	ion Driver (Communication Driv il (Project Details (Font Setting	ver Network User Communio	cation (Autorun (Web Server (FTP Server		
Exte	rnal Device Communication 1	<u>M</u> anufacturer:	АВВ		•	
Exte	rnal Device Communication 2	Communication Driver:	Totalflow(G4 & G5)(RS2320	C/485)	-	
Exte	rnal Device Communication 3 rnal Device Communication 4	Connection:	1:N			
		External Device Transmission <u>W</u> ait (x10	msec): 0 📫			
		Time <u>O</u> ut (x100 msec) :	20 🛨			
		Retry <u>C</u> ycles :	5 +			
		Storage Method of <u>3</u> 2-b	it Numerical Data:	from Lower word 🔹		



#### Or, select "TotalFlow (G4 & G5)(Ethernet)" for Ethernet connection.

Project Settings		7	2	×
System (Communication Interface) Communicati Expansion Module (External Memory Device (E-ma	ion Driver (Communication Driv il (Project Details (Font Setting	ver Network (User Communication (Autorun (Web Server (FTP Server) s (Printer)		_
External Device Communication 1	Manufacturer:	ABB	-	
External Device Communication 2	Communication Driver:	Totalflow(G4 & G5)(Ethernet)	-	
External Device Communication 3	Connection:	1:N		
	External Device Transmission <u>W</u> ait (x10	msec): 0 +		
	Time Out (x100 msec) :	20		
	Retry <u>C</u> ycles :	5		
	Storage Method of <u>3</u> 2-b	it Numerical Data: from Lower word		

Note, make sure to follow the External Device settings values "for serial or ethernet connection" as shown below.

- a) Set the "Transmission Wait" value larger than "Unkey delay" value in PCCU.
- b) Set the "Time Out" value larger than "Response Delay" value in PCCU.
- c) Retry Cycles and Storage Method can be set as a default.

Project Settings			?	×
System Communication Interface Communication Expansion Module External Memory Device E-mail	on Driver Communication Driver	ver Network (User Communication (Autorun (Web Server (FTP Server us (Printer)		
External Device Communication 1	<u>M</u> anufacturer:	ABB	•	
External Device Communication 2 External Device Communication 3 External Device Communication 4	Communication Dri <u>v</u> er: Connection:	Totalflow(G4 & G5)(RS232C/485)	•	
	External Device Transmission <u>W</u> ait (x10 Time <u>Q</u> ut (x100 msec) : Retry <u>C</u> ycles : Storage Method of <u>3</u> 2-1	msec) : 42 - 42 - 5 - vit Numerical Data: from Lower word		



#### **PCCU Settings (for reference only):**

		orie Com A		Seri	al port se	ettings	
Port descript	ion: Ger	ienc Com A	φp	Baud:	960	00 ~	
Protocol:	Totalflow Ren	note	~	Parity:	Nor	ne v	
RBAC:	Disable		~	Data bits	s: 8	~	
Port used by	: Unknown			Stop bits	: 1	~	
	Lister	n cyde:	0 \	, Interfac	e: RS	232 ~	
		Time	outs & D	elays			
Ack timeo	ut (s):	10	_	Xmit key delay (	(ms <b>):</b>	420	]
Response	e delay (ms):	40	] [	Unkey delay (m	s):	40	
				Power up delay	(ms):	80	[

Next, in WindOINV4 – Project Settings, go to "Communication Interface" tab. If your driver is serial communications, the Interface Settings: "Baud Rate", "Data Bits", "Stop Bits", "Parity" and "Serial Interface" must be the same as PCCU settings.

The Data Bits needs to be set to 8. If 7 is set, the communication error will be occurred.

		Interface Settings				
Interface	Function	Function:	Đ	ternal Device Communication	1 •	
COM1	External Device Communication 1	Baud Rate:	9(	500		
COM2	N/A					
Ethernet		Data B <u>i</u> ts:	8		•	
Protocol1	N/A	Ston Bits:	1			
Protocol2	N/A	Drop bitar	-			
Protocol3	N/A	<u>P</u> arity:	N	one	-	
Protocol4	N/A	Elow Control	N	0.04		
Protocol5	N/A	Liow control.		one		
Protocol6	N/A	Serial Interface:	R	5232C	-	
Protocol7	N/A					
USB2(USB-A)	N/A					
USB1(USB-B)	Printer					
CU Sett	ings (for reference o	only):				
			<ul> <li>Serial</li> </ul>	port settings	_	
ort descrip	otion: Generic Com A	Ba	aud:	9600 ~		
Protocol:	Totalflow Remote	∼ Pa	arity:	None 🗸		
BAC:	Disable	~	nta hita:			

IDEC

Interface:

Listen cycle:

0

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RS232

If your driver is ethernet connection, enter your HMI IP address, Subnet Mask in the boxes below.

Interface Configuration		Interface Settings
Interface	Evention	
	Function	IP Settings
COM1	N/A	Obtain an IP address automatically (DHCP)
COM2(RS232C)	N/A	Use the following 10 address
COM2(RS422/485)	N/A	<u>Ose the following IP address:</u>
Ethernet	-	IP Address: 192.168.1.6
Protocol1	External Device Communication 1	Subast Mask
Protocol2	N/A	<u>Sublici mask:</u> 255 , 255 , 0
Protocol3	N/A	Default Gateway: 0 . 0 . 0 . 0
Protocol4	N/A	
Protocol5	N/A	Port Number: 2537
Protocol6	N/A	Forbid Maintenance Communication
Protocol7	N/A	
USB2(USB-A)	N/A	DNS Settings
USB1(USB-B)	Printer	O Obtain DNS Server Address Automatically (DHCP)
		• Use the <u>Following DNS Server Addresses</u> :
		Preferred DNS Server: 0 . 0 . 0 . 0
		Alternate DNS Server: 0 0 0 0

Next, go to "Communication Driver Network" tab. Enter the values of the "Link Time" and "Security Code" in NV4 the same as "Listen Cycle" and "Security Code" in PCCU.

The name of the "Station ID" should be the same as the "Station ID" in PCCU.

Click "OK" to close the Project Settings dialog box.



External Device ID	External Device Name	External Device Communication	Communication	Claure Number				
) (	0		Driver	sidve Number	IP Address	Port Number		
	0	External Device Communication 1	Totalflow(G4 & G5)					
		Disabled						
2 2		Disabled						
3		Disabled						
4 2	4	Disabled						
5		Disabled						
5 6		Disabled						
7		Disabled						
3 8		Disabled						
9 9		Disabled						
10		Disabled						
11		Disabled						
12 :		Disabled						
13		Disabled						
14	14	Disabled						
15		Disabled						
16	16	Disabled					¥ .	

# PCCU Settings (for reference only):

Death description	Cer	eric Com An	<b>n</b>	Serial po	ortse	ettings	
Port descript	ion: Ger	ieric com Ap	9	Baud:	960	00	$\sim$
Protocol:	Totalflow Ren	note	$\sim$	Parity:	Nor	ne	$\sim$
RBAC:	Disable		$\sim$	Data bits:	8		$\sim$
Port used by	: Unknown			Stop bits:	1		$\sim$
	Lister	n cycle: 0	~	Interface:	RS2	232	$\sim$
		Timeou	its & Delay	/5			
Ack timeo	ut (s):	10	Xmit	key delay (ms):	:	420	
Response	delay (ms):	40	Unke	ey delay (ms):		40	
			Pow	er up delay (ms	):	80	



ation Se	tup	Application/License Management	Batter	y Information	Resources	System Log	Security Log	Registry
		Description						Value
0.0.4	Sta	tion ID		TOTALFLOW				
0.0.5	Loc	cation		ABB Totalflow	1			
0.9.0	Dat	e/Time		2020/05/28 15:	58:09			
0.9.0	Set	Device with PCCU Date/Time		No				
	\$	Security						
0.0.6	Sec	curity Code Level 1						
0.0.7	Sec	curity Code Level 2						
0.7.3	Sec	curity Switch Status		Off				

This is the end of the Communication Settings in WindOINV4 software.

# 2. Data Types of the ABB Registers and ABB Device Format.

Below are the Data Types of the ABB registers that we support.

Data type in PCCU ABB software	Data Size in NV4
Bool, Byte, Char, Int8, SInt8, UChar, UInt8	Byte
Int16, UInt16	Word
Datetime, Float, Int32, Register, SInt32, UInt32	DWord
Double	Double
String65, UInt8[65]	String



# • Bit Device Format: Application.Array.Register/Bit:Data Size

rait Wallie.	BitButton 1			>> 0 <u>F</u> F Text	>> 0 <u>N</u> Text	
<u>A</u> ction Mode:		Momentary	•			
Destination Dev	ice Address:	0:0.1.2/3:Byte				
<u>W</u> rite:	Tag Editor				?	>
Source Data — D <u>e</u> vice Addr Transfer:	Tar <u>q</u> et: ess	External (	Device 0:0			
View Switching	M					
Button		Application from M				
© De <u>v</u> ice A © <u>N</u> o Imag	e <u>A</u> pplicatio	n: A <u>r</u> ray:	Register:	<u> ■</u> <u>B</u> it:	Data Si <u>z</u> e	:
		• • •	* • ·	2 <b>-</b> /	J . Dyce	



• Word device: Application.Array.Register:Data Size

Part Name:	WordBut	ton 1		>> 0 <u>F</u> F Tex	t >>	0 <u>N</u> Text		
Action Mode:		Set						
Data T <u>y</u> pe:		UBIN16(W)	•					
Source 1:		Tag Editor					?	>
Source Data -		Target:	External Device 0:0	)				1
• vaiue		_		-				
Use Refer	ence Device	2						
Use Refer	ence Device							
Use Refer Transfer:	rence Device	Select Appli	cation from Name List					
Use Refer Transfer: Destination Dev	rence Device vice Address Device Addres	Select Appli Application:	cation from Name List A <u>r</u> ray:	Reg <u>i</u> ster:	<u> </u>		Data Si <u>z</u> e:	
Destination Dev Destination Dev	rence Device vice Address Device Addres rence Device	Select Appli Application:	cation from Name List A <u>r</u> ray:	Reg <u>i</u> ster:	<u>B</u> it:	0 🜲 :	Data Size:	

Please note that the Data Type should be set correctly between ABB and IDEC. If it is set incorrectly, the value on the HMI will not show correctly and the communication error will be displayed.

#### Special Note:

\* Currently IDEC does not support Double data type in WindnOINV4. Therefore, if a Double data type is used in PCCU, please set this device's Data type to Float in WindO/I-NV4.

Precision of the double value will be reduced and some value will not be displayed because the digit range for Float is set to 1~10 in WindO/I-NV4.



# For example: Double value "113.766093633332999957019637804" in ABB unit will be displayed as the Float value "113.76609" on the HMI.

art Name: Nur	nInput1							
dethods of using the Numerical Input: Use as Numerical Input				8	1	•		
Keypad							1	
Typg:	Standard	•						
Screen Number: 3001				Tag Editor			?	×
Adjust location automatically				Target:	Target: External Device 0:0			
Coordinates 👌	0	Ľ						
Display Type			_					
Decimal	(C) Mayadacim	a.						
Contraction Contraction				-		<u>م</u> م		
Data Format				Select Applic	ation from Name Li	st		
	Float32(F)		Dig	Application:	Agray:	Register:	Bit: Data Si	ze:
Data <u>T</u> ype:	The second secon		-				the second second	-
Data <u>Type:</u> Display <u>F</u> loatin	g Point Floati	ing Digits		0	3 🛱 .	0 0 1	0 DWord	-
Data <u>T</u> ype: Display <u>F</u> loatin Suppress <u>Z</u> eros	g Point Floati	ing Digits	the valu	0	3 🔁 .	0 - /	0 DWord	
Data Type: Display Floatin Suppress Zeros Display the mir	g Point Floati	ing Digits	the valu	•	3 <u>⊊</u> .	0 🕹 / [	P [] : Dword	
Data <u>Type</u> : Display <u>F</u> loatin Suppress <u>Z</u> eros Display the mir Symbol to show w	g Point Floati	ing Digits [ o not display when isplay the plug sign for occurs: ? (q	the valu		. <u>3</u>	0 🗘 /		
Data <u>T</u> ype: Display <u>F</u> loatin Suppress <u>Z</u> eros Display the mir Symbol to show wi When <u>input</u> val	g Point Float	ing Dight [ o not display when isplay the plu <u>s</u> sign for occurs: ? (q play value near max	the valu uestion		. 31	0 🗐 / [	OK	Cancel
Data Type: Display Floatin Suppress Zeros Display the mir Symbol to show wi When input val	g Point Float Di us sign Di nen out of range or Err se is out of range, disp	ing Dight [ o not display when isplay the plu <u>s</u> sign for occurs: ? (q play value near max	the valu juestion		. 30.	0 2 /	OK	Cancel



# 3. Wiring Diagram

### RS232 Connection between ABB and IDEC HMI



RS485 Connection between ABB and IDEC HMI





## RS422 Connection between ABB and IDEC HMI



