

USING ANYBUS
COMMUNICATOR
PROFINET WITH
OJ1436

1 Introduction

Using the Anybus Communicator ModbusTCP Client to PROFINET IO Device, the OJ1436 series Belt Weigher Indicators can be connected to a PROFINET network.

HMS Anybus Communicator Model Number: ABC3213-A

Up to 10 Belt Weigher Indicators can be connected to one Anybus Communicator device. The Belt Weigher Indicators must have an Ethernet interface and be set for the ModbusTCP protocol.

If the Anybus Communicator is supplied by OJ's Vågssystem it will be preconfigured for the appropriate number of Belt Weigher Indicators, as this will affect the amount of data on the PROFINET network.

This document applies to OJ1436 software revision 3.2.x and later.



1.1 Anybus Communicator Configuration

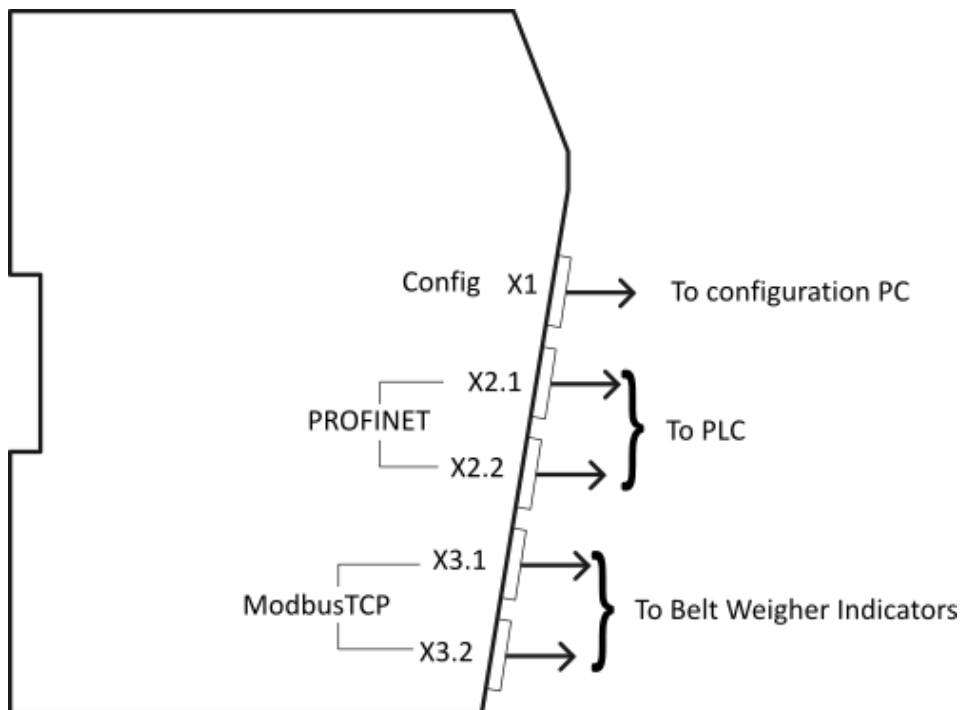
Configuration of the Anybus Communicator should not be necessary, but if required this IP address is used to access the configuration pages of the Anybus Communicator via a web browser.

IP Address: 192.168.1.200

The appropriate configuration will be loaded into the Anybus Communicator, as required for the number of Belt Weigher Indicators to be connected to the PROFINET network.

Note: only the “Config” network port can be used to access the configuration web pages of the Anybus Communicator.

1.2 Connections



For the PROFINET connection, either port X2.1 or X2.2 can be used.
For the ModbusTCP connection, either port X3.1 or X3.2 can be used.

1.3 Modbus Network Settings

If the Anybus Communicator is supplied by OJ's Vågssystem it will be preconfigured for the Modbus network to use fixed IP addresses. No further configuration of the Anybus Communicator is necessary.

1.3.1 Modbus Client IP Address

The Modbus network port of the Anybus Communicator is assigned the following static IP address:

IP Address: 192.168.1.100

1.3.2 Modbus Slave IP Addresses

Each Belt Weigher Indicator must be assigned the static IP configuration as shown below:

	IP Address	Subnet Mask	Default Gateway
Indicator 1	192.168.1.101	255.255.255.0	192.168.1.1
Indicator 2	192.168.1.102		
Indicator 3	192.168.1.103		
Indicator 4	192.168.1.104		
Indicator 5	192.168.1.105		
Indicator 6	192.168.1.106		
Indicator 7	192.168.1.107		
Indicator 8	192.168.1.108		
Indicator 9	192.168.1.109		
Indicator 10	192.168.1.110		

1.4 PROFINET Network Settings

The PROFINET network settings should be set by configuration of the PROFINET controller, e.g. within the PLC configuration.

The Anybus Communicator is supplied with no IP address set and the Station Name is blank.

1.4.1 Data Mapping Overview

An overview of the data mapping on the PROFINET network can be seen below.

Indicator →			1	2	3	4	5	6	7	8	9	10
Direction	Data Item	Type	PROFINET Address Offset									
IN to PLC (35 bytes per indicator)	Belt Status	UINT8	0	35	70	105	140	175	210	245	280	315
	Flow Rate	REAL	1	36	71	106	141	176	211	246	281	316
	Resettable Total	REAL	5	40	75	110	145	180	215	250	285	320
	Non-resettable Total	REAL	9	44	79	114	149	184	219	254	289	324
	Material Number (R)	UINT16	13	48	83	118	153	188	223	258	293	328
	Tare Time Remaining	UINT16	15	50	85	120	155	190	225	260	295	330
	Belt Load	REAL	17	52	87	122	157	192	227	262	297	332
	Flow Time	UINT32	21	56	91	126	161	196	231	266	301	336
	Belt Running Time	UINT32	25	60	95	130	165	200	235	270	305	340
	Belt Speed	REAL	29	64	99	134	169	204	239	274	309	344
Error Code	UINT16	33	68	103	138	173	208	243	278	313	348	
OUT of PLC (5 bytes per indicator)	Clear Total	UINT8	0	5	10	15	20	25	30	35	40	45
	Clear Flow Time	UINT8	1	6	11	16	21	26	31	36	41	46
	Start Dynamic Tare	UINT8	2	7	12	17	22	27	32	37	42	47
	Material Number (W)	UINT16	3	8	13	18	23	28	33	38	43	48

This shows how the data can be accessed on the PROFINET network (slots and byte positions).

Input data: 35 bytes per indicator

Output data: 5 bytes per indicator

The Modbus holding registers and coils from the Belt Weigher Indicators are mapped as a contiguous block of data on the PROFINET network. The description for the individual registers and coils can be found in the Belt Weigher Indicator Ethernet Interface user manual. The following registers and coils are mapped in the order as shown for each Belt Weigher:

IN data (to PLC):

Modbus Holding Register Number	Modbus Coil Number	Description
	4	Belt Status
1 – 2		Flow Rate
3 – 4		Resettable Total
5 – 6		Non-resettable Total
26		Material Number (R)
27		Tare Time Remaining
11 – 12		Belt Load
13 – 14		Flow Time
15 – 16		Belt Running Time
19 – 20		Belt Speed
21		Error Code

OUT data (from PLC):

Modbus Holding Register Number	Modbus Coil Number	Description
	1	Clear Total
	2	Clear Flow Time
	3	Start Dynamic Tare
26		Material Number (W)

The bits for Clear Total, Clear Flow Time and Start Dynamic Tare are only sent to the Belt Weigher Indicator if the bit state on the PROFINET network changes.

1.4.2 PLC Configuration

The Anybus Communicator uses modules of sizes from 1 to 1024 bytes. When configuring the PLC, the following modules should be used:

Number of Indicators	Module Required	
	Slot 1 (IN data)	Slot 2 (OUT data)
1	IN 0035 (35 bytes)	OUT 0005 (5 bytes)
2	IN 0070 (70 bytes)	OUT 0010 (10 bytes)
3	IN 0105 (105 bytes)	OUT 0015 (15 bytes)
4	IN 0140 (140 bytes)	OUT 0020 (20 bytes)
5	IN 0175 (175 bytes)	OUT 0025 (25 bytes)
6	IN 0210 (210 bytes)	OUT 0030 (30 bytes)
7	IN 0245 (245 bytes)	OUT 0035 (35 bytes)
8	IN 0280 (280 bytes)	OUT 0040 (40 bytes)
9	IN 0315 (315 bytes)	OUT 0045 (45 bytes)
10	IN 0350 (350 bytes)	OUT 0050 (50 bytes)

Example device configuration for 2 indicators, using “IN 0070” and “OUT 0010” modules:

