

## Specification

### MFC PROFINET Data Communication

#### Introduction

Axetris offers high-performance Mass Flow Controllers (MFCs) with a standard PROFINET interface.

The goal of this document is to describe all the communication features according to the PROFINET protocol, permitting the customer to quickly integrate MFCs into a PROFINET network, establishing a safe and reliable communication for the success of the application.

#### Mass Flow Controllers MFC with PROFINET Interface



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## Abbreviations, terms and definitions

MFM	Mass Flow Meter
MFC	Mass Flow Controller
% O.R.	Percent Of Rate
% F.S.	Percent of Full Scale
sccm	Standard cubic centimetre per minute at reference conditions of 1013 mbar absolute pressure and 0°C temperature.
uccm	User defined standard cubic centimetre per minute at reference conditions of 1013 mbar absolute pressure and 0°C temperature. (Term defined by Axetris)

PROFINET	<b>Process Field Network</b>
GSDML	<b>General Station Description Markup Language</b>

## 1 General Description

This document describes the communication of Axetris MFCs with PROFINET interface. Other interfaces available are analog 0-5V or 4-20mA and digital RS-232 EIA, RS-232 TTL level (see the MFM / MFC RS232 Data Communication Document) or RS-485 Half and Full Duplex (see the MFM / MFC RS485 Data Communication Document).

All Axetris mass flow products of the MFM / MFC 2000 series are factory calibrated for a specific gas type, flow range, input pressure range and reference conditions. The devices are fully temperature compensated for a temperature range from 0...50°C<sup>1</sup>. The parameters for digital filtering and PID parameters are factory set and support almost all common applications. For special conditions they can be tuned and changed by the customer.

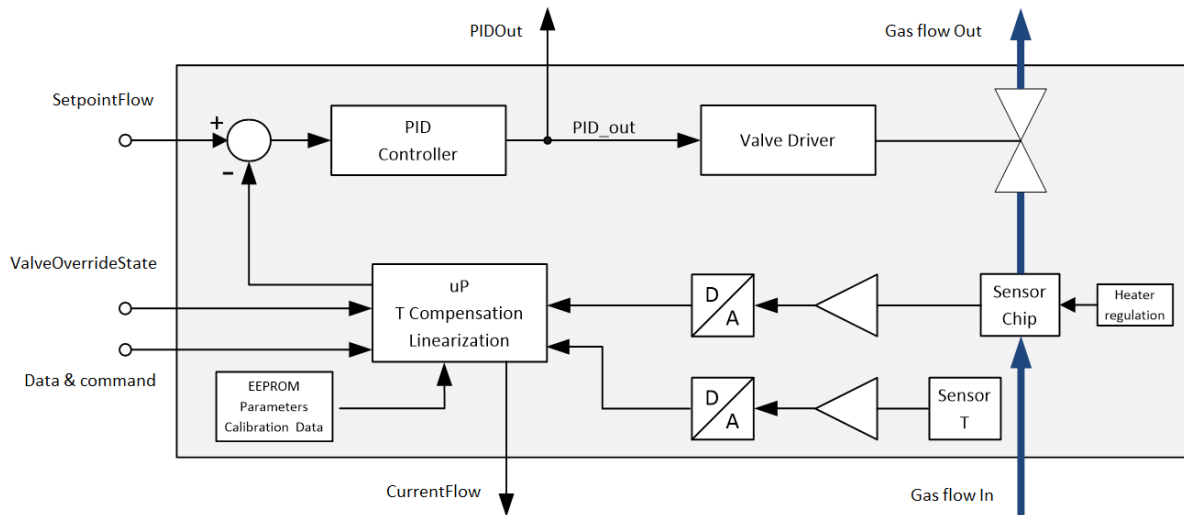
To respond to the important diversity of applications of such devices, and to deliver the right level of integration complexity, Axetris has developed two levels of communication to fit with the customer's integration.

- The **customer mode** (Access Level A) communication level which is the ready-to-use level for high-end applications with standard communication capabilities.
- The **service mode** (Access Level B) communication level that allows read/write (R/W) of low level information, such as calibration parameters or filter gains.

Multi-gas and/or multi-range calibration is possible; the device contains up to 8 channels that can be selected any time with the digital communication protocol. Using other gases and/or other ranges than the ones for which the MFC is calibrated is strongly discouraged. False measurements and/or controlled flows can occur in such cases.

Axetris MFCs with PROFINET interface are factory programmed with a unique standard address (MAC) and reset to factory defaults for delivery.

<sup>1</sup> MFC 2162 with PROFINET Interface are specified for use in the ambient temperature range of 0...40°C.



**Figure 1** Block diagram of the MFC 2100 series mass flow controller

## 2 Installation

The Axetris mass flow controllers with a PROFINET Interface are equipped with a dual port RJ45 connector. Both Port 1 and Port 2 connector work identically (switch).

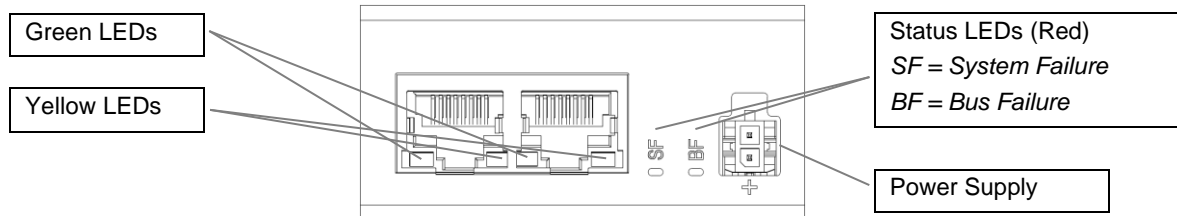


Figure 2 Top view of MFC 2162 with PROFINET interface

### 2.1 Connector RJ45 – 8 pins (Ethernet standard)

Receptacle	RJ45 Connector	Pin	I/O Type	Description
		1	Digital Out	Tx+
		2	Digital Out	Tx-
		3	Digital In	Rx+
		4	-	Not used
		5	-	Not used
		6	Digital In	Rx-
		7	-	Not used
		8	-	Not used

Table 1 Pin assignment for RJ45 connector (8 pins Ethernet standard)

### 2.2 Power Supply

Receptacle	Connector	Pin	I/O Type	Description
		1	Power	+24 V $\pm$ 10%
		2	Power	GND

Table 2 Pin assignment for Power Supply connector (2 Pin Molex Microfit)

The following connector types and tools are recommended for use with this product:

- Micro-Fit 3.0 Crimp Terminal Female: 43030-0001
- Micro-Fit 3.0 Receptacle Housing: 43025-0200
- Hand Crimp Tool for Micro-Fit 3.0 Female Crimp Terminals: 63828-0200

### 2.3 Cables

#### Ethernet Port 1 and Port 2:

- According to IEC 802.3 the maximum cable length for 100 MBaud Ethernet is 100m (100BaseT)
- Minimum category 5E
- Shielded

#### Power Supply:

- Maximum cable length is 30m. The instruments are not intended to connect to a DC-network
- Recommended cable size 20-24 AWG
- Non shielded

## 2.4 Ethernet Status LEDs PROFINET IO

LED	Color	State	Meaning
<b>SF</b> (System Failure) General name: COM 0	Dual color LED red/green		
	● Off	Off	No error
	●● Red	Flashing (1Hz, 3s)	DCP signal service is initiated via the bus.
	● Red	On	Watchdog timeout; channel, generic or extended diagnosis present; system error
<b>BF</b> (Bus Failure) General name: COM 1	Dual color LED red/green		
	● Off	Off	No error
	●● Red	Flashing (2Hz)	No data exchange
	● Red	On	No configuration; or low speed physical link; or no physical link
<b>LINK</b> Ch0, Ch1	LED green		
	● Green	On	The device is linked to the Ethernet
	● Off	Off	The device has no link to the Ethernet
<b>RX/TX</b> Ch0, Ch1	LED yellow		
	●● Yellow	Flickering (load dependent)	The device sends/receives Ethernet frames.
	● Off	Off	The device does not send/receive Ethernet frames.

**Table 3** Ethernet Status LEDs for PROFINET IO Device

### 3 PROFINET Interface Specification

#### 3.1 GSDML-file

The GSDML-file for Axetris Mass Flow Controllers is named:

- GSDML-V2.33-Axetris-MFD\_216x-yyymmdd.xml

The latest version of the file is available for download on the Axetris website under the link:

<https://www.axetris.com/en/mass-flow-meters-and-controllers/downloads-mfd>

The parameter definition for each device is static.

#### 3.2 Parameters and properties

Cyclic and acyclic data types are defined in the following sections. Cyclic I/O data is exchanged at regular time intervals, whereas acyclic data is exchanged only when it is needed.

In keeping with industrial best practice, and in order to use available network capabilities efficiently, it is suggested to use acyclic data I/O at a minimum that is defined by process requirements.  
As a rule of thumb, requests for acyclic data should be kept more than 200ms apart. In case of doubt, please discuss your requirements with Axetris specialists.



Example of a parameter explanation:

	Data Type	Range	Access Level		PROFINET		
			A	B	Slot	Subslot	Index
ValveOverrideState	UINT16	0..0xFFFF	R/W	R/W	1	1	1

UINT16 = one of the following data types:  
 BYTE  
 INT8  
 UINT8  
 UINT16  
 UINT16[x]  
 UINT32  
 FLOAT32  
 STRING[x] Array of characters (string)

0..0xFFFF = parameter range  
 Access Level = A: customer (default after power on), B: service  
 R/W = R-parameter can be read, W-parameter can be written  
 Slot/Subslot/Index = data mapping address PROFINET



### 3.3 Process Data (cyclic)

#### 3.3.1 SetpointFlow

	Data Type	Range	Access Level		PROFINET		
			A	B	Slot	Subslot	Index
SetpointFlow	FLOAT32	0..MaxFlow	Output		1	2	-

Use this data point to set nominal gas flow. If the value is outside the valid range, the appropriate flag in the StatusBitmap will be set (SetpointFlow Limit Exceeded – Low and SetpointFlow Limit Exceeded - High).

The unit of the gas flow is either sccm or uccm (customer specific).

#### 3.3.2 StatusBitmap

	Data Type	Range	Access Level		PROFINET		
			A	B	Slot	Subslot	Index
StatusBitmap	UINT16	0..0xFFFF	Input		1	10	-

The StatusBitmap contains the following information:

#### Input Bitfield Name

Input Bitfield Name	Bit Length	Bit Offset	Comment
DataValid	1	0	0 = invalid, 1 = valid
SetpointFlow Limit Exceeded - Low	1	1	SetpointFlow < 0
SetpointFlow Limit Exceeded - High	1	2	SetpointFlow > MaxFlow
InternalError	1	3	Internal communication error with sensor module
SensorError	1	4	Sensor value cannot be read
InitError	1	5	Error when starting the sensor
Not Used	10	6..15	N/A

#### 3.3.3 CurrentFlow

	Data Type	Range	Access Level		PROFINET		
			A	B	Slot	Subslot	Index
CurrentFlow	FLOAT32	0..1.1 x MaxFlow	Input		1	11	-

This data point contains the current measured and temperature compensated gas flow.

The unit of the gas flow is either sccm or uccm (customer specific).

### 3.4 Normal Operation Parameters (acyclic)

#### 3.4.1 SetpointFlow

	Data Type	Range	Access Level		PROFINET		
			A	B	Slot	Subslot	Index
SetpointFlow	FLOAT32	0..MaxFlow	R	R	1	2	1

SetpointFlow is part of the process data group (cyclic). For detailed information see chapter 3.3.1. Parameter is configured read only in acyclic mode.

#### 3.4.2 StatusBitmap

	Data Type	Range	Access Level		PROFINET		
			A	B	Slot	Subslot	Index
StatusBitmap	UINT16	0..0xFFFF	R	R	1	10	1

StatusBitmap is part of the process data group (cyclic). For detailed information see chapter 3.3.2.

#### 3.4.3 CurrentFlow

	Data Type	Range	Access Level		PROFINET		
			A	B	Slot	Subslot	Index
CurrentFlow	FLOAT32	0..1.1 x MaxFlow	R	R	1	11	1

CurrentFlow is part of the process data group (cyclic). For detailed information see chapter 3.3.3.

#### 3.4.4 ValveOverrideState

	Data Type	Range	Access Level		PROFINET		
			A	B	Slot	Subslot	Index
ValveOverrideState	UINT16	0..0xFFFF	R/W	R/W	1	1	1

ValveOverrideState allows overwriting the valve position and to deactivate and activate the PID controller:

Value	Comment
0	Valve closed
4095	Valve open
0..4095	0..100% override valve
32'768..65'535	Normal mode

#### 3.4.5 SensorTemperature

	Data Type	Range	Access Level		PROFINET		
			A	B	Slot	Subslot	Index
SensorTemperature	FLOAT32	16...84	R	R	1	1	2

This data point contains the current measured temperature of the sensor. The unit of SensorTemperature is [°C].

#### 3.4.6 GasType

	Data Type	Range	Access Level		PROFINET		
			A	B	Slot	Subslot	Index
GasType	UINT8	1...8	R/W	R/W	1	1	3

GasType is used to select the desired process gas and request the actual gas type. The sensor supports a maximum of eight gases.

### 3.5 GasInfo Parameters (acyclic)

Each GasType has a group of GasInfo Parameters. The desired GasInfo must first be selected via the parameter GasType.

#### 3.5.1 GasID

	Data Type	Range	Access Level		PROFINET		
			A	B	Slot	Subslot	Index
GasID	UINT16	1, 4, 7, 8, 13, 15, 25	R	R/W <sup>2</sup>	1	1	20

According the Semi E52-0703 standard:

<b>Gas</b>	He	Ar	H2	Air	N2	O2	CO2
<b>Gas ID</b>	1	4	7	8	13	15	25

#### 3.5.2 MaxFlow

	Data Type	Range	Access Level		PROFINET		
			A	B	Slot	Subslot	Index
MaxFlow	UINT16	0..65'535	R	R/W <sup>2</sup>	1	1	21

MaxFlow is according to the customer specific calibration in sccm or uccm.

#### 3.5.3 UnitCode

	Data Type	Range	Access Level		PROFINET		
			A	B	Slot	Subslot	Index
UnitCode	UINT8	10, 11, 12, 100	R	R/W <sup>2</sup>	1	1	22

UnitCode defined by Axetris:

<b>Unit</b>	sccm	uccm	ccm	slpm
<b>Code</b>	10	11	12	100

#### 3.5.4 ReferencePressure

	Data Type	Range	Access Level		PROFINET		
			A	B	Slot	Subslot	Index
ReferencePressure	UINT16	0..10'000	R	R/W <sup>2</sup>	1	1	23

#### 3.5.5 ReferenceTemperature

	Data Type	Range	Access Level		PROFINET		
			A	B	Slot	Subslot	Index
ReferenceTemperature	INT8	0..50	R	R/W <sup>2</sup>	1	1	24

#### 3.5.6 CalibrationPressure

	Data Type	Range	Access Level		PROFINET		
			A	B	Slot	Subslot	Index
CalibrationPressure	UINT16	0..10'000	R	R/W <sup>2</sup>	1	1	25

<sup>2</sup> Only for customer's channels 3 to 8. Channels 1 and 2 are reserved for the manufacturer.

### 3.5.7 CalibrationTemperature

	Data Type	Range	Access Level		PROFINET		
			A	B	Slot	Subslot	Index
CalibrationTemperature	INT8	0..50	R	R/W <sup>3</sup>	1	1	26

### 3.5.8 HeatCapacity

	Data Type	Range	Access Level		PROFINET		
			A	B	Slot	Subslot	Index
HeatCapacity	UINT16	0..65'535	R	R/W <sup>3</sup>	1	1	27

### 3.5.9 HeatConduct

	Data Type	Range	Access Level		PROFINET		
			A	B	Slot	Subslot	Index
HeatConduct	UINT16	0..65'535	R	R/W <sup>3</sup>	1	1	28

### 3.5.10 GasDensity

	Data Type	Range	Access Level		PROFINET		
			A	B	Slot	Subslot	Index
GasDensity	UINT16	0..65'535	R	R/W <sup>3</sup>	1	1	29

<sup>3</sup> Only for customer's channels 3 to 8. Channels 1 and 2 are reserved for the manufacturer.

### 3.6 Control Parameters (acyclic)

Control parameters are dedicated to GasType.

#### 3.6.1 KFactor

	Data Type	Range	Access Level		PROFINET		
			A	B	Slot	Subslot	Index
KFactor	UINT8	0..16	-	R/W	1	1	40

The variable Kfactor is the value for the 1st order digital noise filter:

KFactor	0	1	2	3	...	15	16
K	0	2	4	8	...	32'768	65'535

#### 3.6.2 PIDOut

	Data Type	Range	Access Level		PROFINET		
			A	B	Slot	Subslot	Index
PIDOut	UINT16	0..4095	R	R	1	1	41

#### 3.6.3 P\_Param

	Data Type	Range	Access Level		PROFINET		
			A	B	Slot	Subslot	Index
P_Param	UINT16	0..0xFFFF	-	R/W	1	1	42

#### 3.6.4 I\_Param

	Data Type	Range	Access Level		PROFINET		
			A	B	Slot	Subslot	Index
I_Param	UINT16	0..0xFFFF	-	R/W	1	1	43

#### 3.6.5 D\_Param

	Data Type	Range	Access Level		PROFINET		
			A	B	Slot	Subslot	Index
4.5.6 D_Param	UINT16	0..0xFFFF	-	R/W	1	1	44

#### 3.6.6 ISumLimit

	Data Type	Range	Access Level		PROFINET		
			A	B	Slot	Subslot	Index
ISumLimit	UINT16	0..0xFFFF	-	R/W	1	1	45

#### 3.6.7 ISum

	Data Type	Range	Access Level		PROFINET		
			A	B	Slot	Subslot	Index
4.5.8 ISum	UINT16	0..0xFFFF	-	R	1	1	46

### 3.7 Calibration Parameters (acyclic)

This group contains various parameters that are important in the context of MFC calibration. These parameters are used by Axetris in the manufacturing and calibration of the MFC and are not required in normal operation mode.

#### 3.7.1 CalibParameters

	Data Type	Range	Access Level		PROFINET		
			A	B	Slot	Subslot	Index
CalibParameters	UINT16 [112]	0..0xFFFF	-	R/W <sup>4</sup>	1	1	61

#### 3.7.2 Rawdata

	Data Type	Range	Access Level		PROFINET		
			A	B	Slot	Subslot	Index
Rawdata	UINT16 [144]	0..0xFFFF	-	R <sup>5</sup>	1	1	62

<sup>4</sup> Only for customer's channels 3 to 8. Channels 1 and 2 are reserved for the manufacturer.

<sup>5</sup> Only for manufacturer's channels 1 and 2.

### 3.8 Offset Parameters (acyclic)

Offset parameters are dedicated to GasType.

#### 3.8.1 OffsetZero

	Data Type	Range	Access Level		PROFINET		
			A	B	Slot	Subslot	Index
OffsetZero	UINT8	0..3	R/W	R/W	1	1	80

Offset compensation is limited to  $\pm 2\%$  of MaxFlow. The following table shows how to activate the offset zeroing and how to read the status of the parameter:

Value	Write (W)	Read (R)
0	None	Zeroing/reset done
1	Activate auto zeroing	Zeroing ongoing
2	Reset	-
3	-	Error Offset out of range

Activating auto zeroing can take up to 30 seconds. During this time, the DataValid Flag in the StatusBitmap is set to '0' (invalid). After completion of zeroing, the DataValid Flag is set to '1' (valid) again.

#### 3.8.2 OffsetValue

	Data Type	Range	Access Level		PROFINET		
			A	B	Slot	Subslot	Index
OffsetValue	FLOAT32	$\pm 2\%$ of MaxFlow	R	R	1	1	81

### 3.9 FlowFilter Parameters (acyclic)

The dynamic FlowFilter can be set on ('1') or off ('0').

#### 3.9.1 FlowFilterMode

	Data Type	Range	Access Level		PROFINET		
			A	B	Slot	Subslot	Index
FlowFilterMode	UINT8	0..1	R/W	R/W	1	1	90

### 3.10 Identification Parameters (acyclic)

These values are used to identify the product including the versions of the various software parts.

#### 3.10.1 Productkey

	Data Type	Range	Access Level		PROFINET		
			A	B	Slot	Subslot	Index
Productkey	STRING [16]	0x20..0x7A	R	R/W	0	10	1

#### 3.10.2 Product

	Data Type	Range	Access Level		PROFINET		
			A	B	Slot	Subslot	Index
Product	STRING [24]	0x20..0x7A	R	R	0	10	2

#### 3.10.3 SerialNoOEM

	Data Type	Range	Access Level		PROFINET		
			A	B	Slot	Subslot	Index
SerialNoOEM	UINT16	0..0xFFFF	R	R	0	10	3

Serial number of sensor module with its sensor chip.

#### 3.10.4 SWVersionOEM

	Data Type	Range	Access Level		PROFINET		
			A	B	Slot	Subslot	Index
SWVersionOEM	UINT32	0..0xFFFFFFFF	R	R	0	10	4

Software version of sensor module.

#### 3.10.5 SerialNoGW

	Data Type	Range	Access Level		PROFINET		
			A	B	Slot	Subslot	Index
SerialNoGW	UINT32	0..0xFFFFFFFF	R	R	0	10	5

#### 3.10.6 SWVersionGW

	Data Type	Range	Access Level		PROFINET		
			A	B	Slot	Subslot	Index
4.8.7 SWVersionGW	UINT32	0..0xFFFFFFFF	R	R	0	10	6

#### 3.10.7 SWVersionStack

	Data Type	Range	Access Level		PROFINET		
			A	B	Slot	Subslot	Index
SWVersionStack	UINT32	0..0xFFFFFFFF	R	R	0	10	7

#### 3.10.8 SWVersionSSBL

	Data Type	Range	Access Level		PROFINET		
			A	B	Slot	Subslot	Index
SWVersionSSBL	UINT32	0..0xFFFFFFFF	R	R	0	10	8



### 3.11 Additional (acyclic)

#### 3.11.1 Password

	Data Type	Range	Access Level		PROFINET		
			A	B	Slot	Subslot	Index
Password	STRING[4]	0x20..0x7A	W	W	0	10	20

This data point is used to set the password.

## 4 Error Handling

### 4.1 Safe Value Actions

The following safe value action is defined in case of a communication interrupt.

#### Valve close:

- Valve close (ValveOverrideState = 0) after interrupt of PROFINET connection longer than 5s
- After reconnection of PROFINET the valve stays in closed state
- To reactivate normal operation mode set ValveOverrideState to 65'535

### 4.2 Diagnosis

The following manufacturer specific diagnoses are implemented:

- InitError: Error when starting the sensor
- InternalError: Internal communication error with sensor module
- SensorError: Sensor value cannot be read

All sent diagnostics are of type MAINTENANCE\_DIAGNOSIS and are sent to slot 0 Subslot 10. These diagnoses are registered in the GSDML file.

### 4.3 PNIO Status (user specific)

InitError	PNIO_E_IOD_READ_ACCESS_USERSPEC11 PNIO_E_IOD_WRITE_ACCESS_USERSPEC11
SensorError	PNIO_E_IOD_READ_RESOURCE_USERSPEC19 PNIO_E_IOD_WRITE_RESOURCE_USERSPEC19
InternalError	PNIO_E_IOD_READ_APPL_USERSPEC6 PNIO_E_IOD_WRITE_APPL_USERSPEC6

**Table 4:** PNIO status user specific

## 5 Caution

### 5.1 Product damage

- Read all instructions carefully before using the device.
- The MFM anemometric mass flow sensors are not designed to sense liquid flow and damage will result if liquid is passed through the sensor.
- The sensor is not suited for measuring aggressive or corrosive gases. Use only non-corrosive, clean and dry gases. Gas loaded with particles can eventually clog the sensor.
- The appliance must not be used in damp or moist surroundings.
- Use only accessories that are indicated in the instructions for use or are recommended by the manufacturer.
- Failure to comply with these instructions can result in product damage.

### 5.2 Danger of life

- These sensors employ a heated element.
- The heated element is above the ambient temperature. The sensor must not be used with flammable or explosive gases or mixtures.
- Unprofessional gas handling can cause injury or death. The use of mass flow controllers should only be performed by qualified personnel.
- Do not use this product as safety or emergency stop device or in any other application where failure of the product could result in personal injury or death.

## 6 Important Notice / Disclaimer

The information furnished by Axetris is believed to be correct and accurate. However, Axetris shall not be held liable to recipient of any third party of any damages, including but not limited to personal injury, property damage, loss of profits, loss of use, interruption of business or indirect, special incidental or consequential damages, of any kind, in connection with or arising out of the furnishing, performance or use of technical data herein. No obligation or liability to recipient or any third party shall arise or flow out of Axetris' rendering of technical or other services.

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## 7 APPENDIX A: Data Definition Table

Parameter	Group	Data Type	Range	Access Level		PROFINET		
				A	B	Slot	Sub-slot	Index
SetpointFlow	Normal Operation	FLOAT32	0..MaxFlow	R	R	1	2	1
StatusBitmap		UINT16	0..0xFFFF	R	R	1	10	1
CurrentFlow		FLOAT32	0..1.1 x MaxFlow	R	R	1	11	1
ValveOverrideState		UINT16	0..FFFF	R/W	R/W	1	1	1
SensorTemperature		FLOAT32	16..84	R	R	1	1	2
GasType		UINT8	1..8	R/W	R/W	1	1	3
GasID	GasInfo	UINT16	1, 4, 7, 8, 13, 15, 25	R	R/W <sup>6</sup>	1	1	20
MaxFlow		UINT16	0..65'535	R	R/W <sup>6</sup>	1	1	21
UnitCode		UINT8	10, 11, 12, 100	R	R/W <sup>6</sup>	1	1	22
ReferencePressure		UINT16	0..10'000	R	R/W <sup>6</sup>	1	1	23
ReferenceTemperature		INT8	0..50	R	R/W <sup>6</sup>	1	1	24
CalibrationPressure		UINT16	10'000	R	R/W <sup>6</sup>	1	1	25
CalibrationTemperature		INT8	0..50	R	R/W <sup>6</sup>	1	1	26
HeatCapacity		UINT16	0..65'535	R	R/W <sup>6</sup>	1	1	27
HeatConduct		UINT16	0..65'535	R	R/W <sup>6</sup>	1	1	28
GasDensity		UINT16	0..65'535	R	R/W <sup>6</sup>	1	1	29
KFactor	Control	UINT8	0..16	-	R/W	1	1	40
PIDOut		UINT16	0..4095	R	R	1	1	41
P_Param		UINT16	0..0xFFFF	-	R/W	1	1	42
I_Param		UINT16	0..0xFFFF	-	R/W	1	1	43
D_Param		UINT16	0..0xFFFF	-	R/W	1	1	44
ISumLimit		UINT16	0..0xFFFF	-	R/W	1	1	45
ISum		UINT16	0..0xFFFF	-	R	1	1	46
CalibParameters	Calibration	UINT16 [112]	0..0xFFFF	-	R/W <sup>6</sup>	1	1	61
Rawdata		UINT16 [144]	0..0xFFFF	-	R <sup>7</sup>	1	1	62
OffsetZero	Offset	UINT8	0..3	R/W	R/W	1	1	80
OffsetValue		FLOAT32	± 2% of MaxFlow	R	R	1	1	81
FlowFilterMode	FlowFilter	UINT8	0..1	R/W	R/W	1	1	90
Productkey	Identification	STRING [16]	0x20..0x7A	R	R/W	0	10	1
Product		STRING [24]	0x20..0x7A	R	R	0	10	2
SerialNoOEM		UINT16	0..0xFFFF	R	R	0	10	3
SWVersionOEM		UINT32	0..0xFFFFFFFF	R	R	0	10	4
SerialNoGW		UINT32	0..0xFFFFFFFF	R	R	0	10	5
SWVersionGW		UINT32	0..0xFFFFFFFF	R	R	0	10	6
SWVersionStack		UINT32	0..0xFFFFFFFF	R	R	0	10	7
SWVersionSSBL		UINT32	0..0xFFFFFFFF	R	R	0	10	8
Password	Additional	STRING[4]	0x20..0x7A	W	W	0	10	20

<sup>6</sup> Only for customer's channels 3 to 8. Channels 1 and 2 are reserved for the manufacturer.

<sup>7</sup> Only for manufacturer's channels 1 and 2.