

Betriebsanleitung | Operating instructions | Notice d'instruction  
Istruzioni per l'uso | Instrucciones de servicio | Bruksanvisning

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# AVENTICS™ IO-Link AF2

Durchflusssensor

Flow rate sensor

Capteur de débit

Flussometro

Sensor de medición de caudal

Flödessensor



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# 1 Zu dieser Dokumentation

Diese Anleitung enthält wichtige Informationen für den sicheren und sachgerechten Umgang mit dem Produkt.

Diese Dokumentation ist eine Ergänzung zur mitgeltenden Montageanleitung. Lesen Sie die Montageanleitung vollständig, bevor Sie mit dem Produkt arbeiten.

## 1.1 Gültigkeit der Dokumentation

Diese Dokumentation liefert ergänzende Informationen im Umgang mit folgenden Produktvarianten der Serie AF2 und 652/653:

Serie	Produktvariante	Schnittstelle
AF2	Sensorfilterkombination (AS)	IO-Link
	Sensor High Flow (HF)	IO-Link
652	Filter-Produktvariante	IO-Link (A)
	Rohr-Produktvariante	IO-Link (A)
653	Filter-Produktvariante	IO-Link (A)
	Rohr-Produktvariante	IO-Link (A)

## 1.2 Zusätzliche Dokumentationen

Beachten Sie folgende mitgeltende Dokumentationen:

- Anlagendokumentation des Herstellers
- Dokumentation übriger Anlagenkomponenten
- Montageanleitung (R412026496 oder 549411)

# 2 Sicherheit

## 2.1 Zu diesem Kapitel

- Lesen Sie das Kapitel Sicherheit der Montageanleitung sowie die gesamte Dokumentation gründlich und vollständig, bevor Sie mit dem Produkt arbeiten.
- Bewahren Sie die Dokumentation so auf, dass sie jederzeit für alle Benutzer zugänglich ist.

# 3 Durchflusssensor im IO-Link-System konfigurieren



Die IODD-Dateien und die Technischen Informationen mit englischen und deutschen Texten für den Durchflusssensor IO-Link finden Sie im Media Centre.

Zur IO-Link-Konfiguration können Sie Konfigurationsprogramme verschiedener Hersteller einsetzen.

Bevor Sie den Durchflusssensor nutzen können, muss dieser vom IO-Link-Master erkannt werden. Dies geschieht entweder automatisch oder muss manuell ausgeführt werden.

- ▶ Beachten Sie dazu die Dokumentation des verwendeten IO-Link-Masters.

# 4 Physikalische Schicht



Die maximale Stromaufnahme des IO-Link Devices (inkl. Lastströme) darf den maximalen Ausgangsstrom des Master-Ports nicht überschreiten.

SIO Modus	ja
Min. Zykluszeit	3,0 ms
Baudrate	COM3
Prozessdatenlänge (IN)	32 Byte

COM-Werte spezifizieren die Baudrate (s. IO-Link-Spezifikation): COM3 (230,4 kbit/s)

# 5 Prozessdaten

Massendurchfluss [kg/h]

Durchflusgeschwindigkeit [m/s]

Volumen [m<sup>3</sup>]

Volumendurchfluss [m<sup>3</sup>/h]

Masse [kg]

Energie [kWh]

Temperatur [°C]

Druck [bar]

Record: 32 Byte – Prozessdaten					
Bitoffset	224				
Byte/Name	0	1	2	Massendurchfluss	3
Type/Subindex				Float	8
Bitoffset	192				
Byte/Name	4	5	6	Durchflusgeschwindigkeit	7
Type/Subindex				Float	7
Bitoffset	160				
Byte/Name	8	9	10	Volumen	11
Type/Subindex				Float	6
Bitoffset	128				
Byte/Name	12	13	14	Volumendurchfluss	15
Type/Subindex				Float	5
Bitoffset	96				
Byte/Name	16	17	18	Masse	19
Type/Subindex				Float	4
Bitoffset	64				
Byte/Name	20	21	22	Energie	23
Type/Subindex				Float	3
Bitoffset	32				
Byte/Name	24	25	26	Temperatur	27
Type/Subindex				Float	2
Bitoffset	0				
Byte/Name	28	29	30	Druck	31
Type/Subindex				Float	1

# 6 Servicedaten

Die folgenden ISDUs werden nicht über Data-Storage gesichert: Direkte Parameter 1, Direkte Parameter 2, Sensorspezifischer Name, Q1 Simulation Schaltausgang, Q2 Schaltausgang Simulation, Q2 Frequenz Simulation, Qa Analogwert Simulation, Q2, Analogwert Simulation, Simulation Durchfluss, Simulation Temperatur, Simulation Druck und Sonderfunktion Speicher.

IO-Link spezifisch					
Index dez (hex)	Name	Format (Offset)	Länge	Zugriff	Standardwert
12 (0x0C)	Gerätezugriffssperre	Record	2 Byte	rw	
2 (0x02)	Datenspeicherungs-sperre	Bit (1)	1 Bit	rw	
4 (0x04)	Lokale Benutzerinter-face-Sperre	Bit (3)	1 Bit	rw	

IO-Link spezifisch					
Index dez (hex)	Name	Format (Offset)	Länge	Zugriff	Standardwert
16 (0x10)	Herstellername	String	64 Byte	ro	Aventics
17 (0x11)	Herstellertext	String	64 Byte	ro	Emerson – Consider It Solved
18 (0x12)	Produktname	String	64 Byte	ro	AF2
19 (0x13)	Produkt-ID	String	64 Byte	ro	R412026761 R412026762 R412026763
20 (0x14)	Produkttext	String	64 Byte	ro	Air Flow Sensor
21 (0x15)	Seriennummer	String	16 Byte	ro	
22 (0x16)	Hardwareversion	String	64 Byte	ro	
23 (0x17)	Firmwareversion	String	64 Byte	ro	
24 (0x18)	Anwendungsspezifische Markierung	String	32 Byte	rw	***
36 (0x24)	Gerätestatus	UInt	8 Bit	ro	0 = Gerät ist OK 1 = Wartung erforderlich 2 = Außerhalb der Spezifikation 3 = Funktionsprüfung 4 = Fehler 5...255 = reserviert
40 (0x28)	Prozessdaten Eingang	PD In	32 Byte	ro	

AVENTICS spezifisch							
Index dez (hex)	Name	Format (Offset)	Länge	Zugriff	Standardwert	Wertebereich	Bemerkung [Einheit]
64 (0x40)	Sensorspezifischer Name	String	32 Byte	rw	***		
66 (0x42)	Systemstatus	UInt	8 Bit	ro	0 = Ok 1 = Warnung vor Fehler 2 = Fehler		
190 (0xBE)	OpTimer	UInt	32 Bit	ro	Betriebszeit in Sekunden [s]		
260 (0x104)	Q1 Modus	UInt	8 Bit	rw	0 = Schaltausgang-Hysterese-Volumendurchfluss 1 = Schaltausgang-Fensterfunktion-Volumendurchfluss 2 = Schaltausgang-Hysterese-Druck 3 = Schaltausgang-Fensterfunktion-Druck 4 = Schaltausgang-Hysterese-Temperatur 5 = Schaltausgang-Fensterfunktion-Temperatur		
262 (0x106)	Q1 Typ	UInt	8 Bit	rw	2 = NPN 3 = PNP 4 = DRV/Push-Pull		
270 (0x10E)	Q1 Schalterpunkt 1 setzen	Float	4 Byte	rw	- 30.0 ... 999 9.0	siehe Index 272	
271 (0x10F)	Q1 Schalterpunkt 2 setzen	Float	4 Byte	rw	- 30.0 ... 999 9.0	siehe Index 272	
272 (0x110)	Q1 Einheit und Bereich	String	32 Byte	ro	Einheit und Bereich für Index 270 und 271		
278 (0x116)	Q1 Polarität	UInt	8 Bit	rw	0 = Schließer 1 = Öffner		
279 (0x117)	Q1 Simulation Schaltausgang	UInt	8 Bit	rw	255	0 = inaktiv 1 = aktiv 255 = normal	

AVENTICS spezifisch							
Index dez (hex)	Name	Format (Offset)	Länge	Zugriff	Standardwert	Wertebereich	Bemerkung [Einheit]
291 (0x123)	Q2 Funktion	UInt	8 Bit	rw	0	0 = Schaltausgang 1 = Frequenz 2 = Pulsausgang 3 = Analogausgang	
292 (0x124)	Q2 Typ	UInt	8 Bit	rw	2 = NPN 3 = PNP 4 = DRV/Push-Pull		für Schalt-, Puls- und Frequenzausgang
299 (0x12B)	Q2 Schalt-Modus	UInt	8 Bit	rw	0 = Schaltausgang-Hysterese-Volumendurchfluss 1 = Schaltausgang-Fensterfunktion-Volumendurchfluss 2 = Schaltausgang-Hysterese-Druck 3 = Schaltausgang-Fensterfunktion-Druck 4 = Schaltausgang-Hysterese-Temperatur 5 = Schaltausgang-Fensterfunktion-Temperatur		
300 (0x12C)	Q2 Schalterpunkt 1 set-zen	Float	4 Byte	rw	- 30.0 ... 999 9.0	siehe Index 302	
301 (0x12D)	Q2 Schalterpunkt 2 set-zen	Float	4 Byte	rw	- 30.0 ... 999 9.0	siehe Index 302	
302 (0x12E)	Q2 Schaltausgang Einheit und Bereich	String	32 Byte	ro	Einheit und Bereich für Index 300 und 301		
307 (0x133)	Q2 Schaltausgang Simulation	UInt	8 Bit	rw	255	0 = inaktiv 1 = aktiv 255 = normal	
308 (0x134)	Q2 Schaltausgang Polarität	UInt	8 Bit	rw	0 = Schließer 1 = Öffner		
309 (0x135)	Qa Pulsausgang Einheit und Bereich	String	32 Byte	ro	Einheit und Bereich für Index 310		
310 (0x136)	Q2 Pulswertigkeit	Float	4 Byte	rw	0.001 ... 10 0.0	siehe Index 309	
311 (0x137)	Q2 Pulsbreite	UInt	32 Bit	rw	1 ... 2000	[ms]	
312 (0x138)	Q2 Pulsmodus	UInt	8 Bit	rw	0 = Volumen 1 = Energie		
313 (0x139)	Q2 oberer Frequenzwert	Float	4 Byte	rw	-30.0 ... 999 9.0	siehe Index 315	
314 (0x13A)	Q2 unterer Frequenzwert	Float	4 Byte	rw	- 30.0 ... 999 9.0	siehe Index 315	
315 (0x13B)	Q2 Frequenz Einheit und Bereich	String	32 Byte	ro	Einheit und Bereich für Index 313 und 314		
316 (0x13C)	Q2 maximale Frequenz	UInt	16 Bit	rw	0 ... 10000	[Hz]	
317 (0x13D)	Q2 minimale Frequenz	UInt	16 Bit	rw	0 ... 10000	[Hz]	
318 (0x13E)	Q2 Frequenz Simulation	UInt	8 Bit	rw	255	0 = 1Hz 1 = 10Hz 2 = 100Hz 3 = 1kHz 4 = 10kHz 255 = Simulation aus	
319 (0x13F)	Q2 Frequenz-Modus	UInt	8 Bit	rw	0 = Volumendurchfluss		
380 (0x17C)	Qa Analog-Modus	UInt	8 Bit	rw	0 = 4-20mA Volumendurchfluss 1 = 4-20mA Druck 2 = 4-20mA Temperatur		
383 (0x17F)	Qa Analog-Polarität	UInt	8 Bit	rw	0 = Normal 1 = Invertiertes Signal		

AVENTICS spezifisch						
Index dez (hex)	Name	Format (Offset)	Länge	Zu-griff	Standardwert	Werte-bereich Be-merkung [Ein-heit]
384 (0x180)	Qa oberer Ana-logwert (20mA)	Float	4 Byte	rw	- 30.0...999 9.0	siehe Index 386
385 (0x181)	Qa unterer Ana-logwert (4mA)	Float	4 Byte	rw	- 30.0...999 9.0	siehe Index 386
386 (0x182)	Qa Analo-gsignal Einheit und Be-reich	String	32 Byte	ro	Einheit und Bereich für Index 384 und 385	
390 (0x186)	Qa Analo-gsignal im Fehlerfall	UInt	8 Bit	rw	0 = 3.5mA 1 = 21.5mA	
391 (0x187)	Qa Analogwert Simulation	UInt	8 Bit	rw	255	35 = 3.5mA 38 = 3.8mA 40 = 4.0mA 100 = 10mA 120 = 12mA 180 = 18mA 200 = 20mA 205 = 20,5mA 215 = 21,5mA 255 = Simulation aus
400 (0x190)	Q2 Analogmo-dus	UInt	8 Bit	rw	0 = 4-20mA Volumendurchfluss 1 = 4-20mA Druck 2 = 4-20mA Temperatur	
403 (0x193)	Q2 Analog-Pola-rität	UInt	8 Bit	rw	0 = Normal 1 = Invertiertes Signal	
404 (0x194)	Q2 oberer Ana-logwert (20mA)	Float	4 Byte	rw	- 30.0 ... 999 9.0	siehe Index 406
405 (0x195)	Q2 unterer Ana-logwert (4mA)	Float	4 Byte	rw	- 30.0 ... 999 9.0	siehe Index 406
406 (0x196)	Q2 Analo-gsignal Einheit und Be-reich	String	32 Byte	ro	Einheit und Bereich für Index 404 und 405	
410 (0x19A)	Q2 Analogwert im Fehlerfall	UInt	8 Bit	rw	0 = 3.5mA 1 = 21.5mA	
411 (0x19B)	Q2 Analogwert Simulation	UInt	8 Bit	rw	255	35 = 3.5mA 38 = 3.8mA 40 = 4.0mA 100 = 10mA 120 = 12mA 180 = 18mA 200 = 20mA 205 = 20,5mA 215 = 21,5mA 255 = Simulation aus
420 (0x1A4)	Anzeige Einheit Massen-durchfluss	UInt	8 Bit	rw	0 = kg/h 1 = g/s 2 = kg/min	
421 (0x1A5)	Anzeige Einheit Gasgeschwin-digkeit	UInt	8 Bit	rw	0 = m/s 1 = fps	
422 (0x1A6)	Anzeige Einheit Volumen	UInt	8 Bit	rw	0 = m <sup>3</sup> 1 = l 2 = ft <sup>3</sup>	
423 (0x1A7)	Anzeige Einheit Volumendurch-fluss	UInt	8 Bit	rw	0 = m <sup>3</sup> /h 1 = m <sup>3</sup> /min 2 = l/s 3 = l/min 4 = ft <sup>3</sup> /s 5 = ft <sup>3</sup> /min	
424 (0x1A8)	Anzeige Einheit Masse	UInt	8 Bit	rw	0 = kg	
425 (0x1A9)	Anzeige Einheit Energie	UInt	8 Bit	rw	0 = kWh	

AVENTICS spezifisch						
Index dez (hex)	Name	Format (Offset)	Länge	Zu-griff	Standardwert	Werte-bereich Be-merkung [Ein-heit]
426 (0x1AA)	Anzeige Einheit Temperatur	UInt	8 Bit	rw	0 = °C 1 = °F	
427 (0x1AB)	Anzeige Einheit Druck	UInt	8 Bit	rw	0 = bar 1 = psi	
428 (0x1AC)	Anzeige aus-schalten	UInt	8 Bit	rw	0 = Aus 1 = 1min 2 = 2min 5 = 5min 10 = 10min 30 = 30min 60 = 60min	
429 (0x1AD)	Anzeige drehen	UInt	8 Bit	rw	0 = 0° 1 = 90° 2 = 180° 3 = 270°	
430 (0x1AE)	Anzeigenscho-ner	UInt	8 Bit	rw	0 = Aus 1 = 1min 2 = 2min 5 = 5min 10 = 10min 30 = 30min 60 = 60min	
431 (0x1AF)	Anzeige Hellig-keit	UInt	8 Bit	rw	2 = 40% 7 = 60% 10 = 80% 15 = 100%	
432 (0x1B0)	Anzeige Pin	UInt	16 Bit	rw	0 ... 9999	Pin zum Schutz der Konfiguration, 0000 ==> kein Pin vergeben
433 (0x1B1)	Anzeige 1 oben	UInt	8 Bit	rw	0 = Massendurchfluss 1 = Durchflussgeschwindigkeit 2 = Volumen 3 = Volumendurchfluss 4 = Masse 5 = Energie 6 = Temperatur 7 = Druck	
434 (0x1B2)	Anzeige 1 unten	UInt	8 Bit	rw	0 = Massendurchfluss 1 = Durchflussgeschwindigkeit 2 = Volumen 3 = Volumendurchfluss 4 = Masse 5 = Energie 6 = Temperatur 7 = Druck	
435 (0x1B3)	Anzeige 2 oben	UInt	8 Bit	rw	0 = Massendurchfluss 1 = Durchflussgeschwindigkeit 2 = Volumen 3 = Volumendurchfluss 4 = Masse 5 = Energie 6 = Temperatur 7 = Druck	
436 (0x1B4)	Anzeige 2 unten	UInt	8 Bit	rw	0 = Massendurchfluss 1 = Durchflussgeschwindigkeit 2 = Volumen 3 = Volumendurchfluss 4 = Masse 5 = Energie 6 = Temperatur 7 = Druck	

AVENTICS spezifisch							
Index dez (hex)	Name	Format (Offset)	Länge	Zu-griff	Standardwert	Werte-bereich	Be-merkung [Ein-heit]
437 (0x1B5)	Anzeige 3 oben	UInt	8 Bit	rw	0 = Massendurchfluss 1 = Durchflussgeschwindigkeit 2 = Volumen 3 = Volumendurchfluss 4 = Masse 5 = Energie 6 = Temperatur 7 = Druck		
438 (0x1B6)	Anzeige 3 unten	UInt	8 Bit	rw	0 = Massendurchfluss 1 = Durchflussgeschwindigkeit 2 = Volumen 3 = Volumendurchfluss 4 = Masse 5 = Energie 6 = Temperatur 7 = Druck		
439 (0x1B7)	Anzeige Historie	UInt	8 Bit	rw	0 = Massendurchfluss 1 = Durchflussgeschwindigkeit 2 = Volumen 3 = Volumendurchfluss 4 = Masse 5 = Energie 6 = Temperatur 7 = Druck		
440 (0x1B8)	Simulation Durchfluss	UInt	8 Bit	rw	0 = 0% 10 = 10% 20 = 20% 30 = 30% 40 = 40% 50 = 50% 60 = 60% 70 = 70% 80 = 80% 90 = 90% 100 = 100% 255 = Simulation Aus		
441 (0x1B9)	Simulation Tem- peratur	UInt	8 Bit	rw	0 = 0% 10 = 10% 20 = 20% 30 = 30% 40 = 40% 50 = 50% 60 = 60% 70 = 70% 80 = 80% 90 = 90% 100 = 100% 255 = Simulation Aus		
442 (0x1- BA)	Simulation Druck	UInt	8 Bit	rw	0 = 0% 10 = 10% 20 = 20% 30 = 30% 40 = 40% 50 = 50% 60 = 60% 70 = 70% 80 = 80% 90 = 90% 100 = 100% 255 = Simulation Aus		

AVENTICS spezifisch							
Index dez (hex)	Name	Format (Offset)	Länge	Zu-griff	Standardwert	Werte-bereich	Be-merkung [Ein-heit]
443 (0x1BB)	Durchfluss- medium	UInt	8 Bit	rw	0 = Luft 1 = Nitrogen 2 = Kohlendioxid CO2 4 = Argon		
444 (0x1BC)	Referenz- konditionen für den Durchfluss	UInt	8 Bit	rw	0 = ISO8778 1 = ISO6358 2 = DIN1343 3 = DIN1945-1 4 = ISO1217 5 = ISO2533 6 = kundenspezifisch		
445 (0x1BD)	Kunden- spezifischer Re- ferenzdruck	Float	4 Byte	rw	-1.0 ... 16.0		
446 (0x1- BE)	Kunden- spezifische Referenz- temperatur	Float	4 Byte	rw	-20.0 ... 60.0		
447 (0x1BF)	Eingabe Nullpunktversatz für Durchfluss	Float	4 Byte	rw	-10.0 ... 10.0		
448 (0x1C0)	Eingabe Schleich- mengen- unterdrückung	Float	4 Byte	rw	0.0 ... 10.0		
449 (0x1C1)	Eingabe Glät- tungsfilter für Durchfluss	UInt	8 Bit	rw	0 = Aus 1 = 100ms 2 = 200ms 5 = 500ms 10 = 1sec 20 = 2sec 50 = 5sec 100 = 10sec		
450 (0x1C2)	Durchfluss- Messmodus	UInt	8 Bit	rw	0 = Standard		
453 (0x1C5)	Eingabe Null- punktversatz für Druck	Float	4 Byte	rw	-0.5 ... 0.5	[bar]	
454 (0x1C6)	Eingabe Glät- tungsfilter für Druck	UInt	8 Bit	rw	0 = Aus 1 = 100ms 2 = 200ms 5 = 500ms 10 = 1sec 20 = 2sec 50 = 5sec 100 = 10sec		
458 (0x1- CA)	Eingabe Glät- tungsfilter für Temperatur	UInt	8 Bit	rw	0 = Aus 1 = 100ms 2 = 200ms 5 = 500ms 10 = 1sec 20 = 2sec 50 = 5sec 100 = 10sec		
481 (0x1E1)	Signalqualität 1 (Sensorrobust- heit)	UInt	8 Bit	ro	0 ... 100	[%]	
482 (0x1E2)	Signalqualität 2	UInt	8 Bit	ro	0 ... 100	[%]	
483 (0x1E3)	Signalqualität 3	UInt	8 Bit	ro	0 ... 100	[%]	
484 (0x1E4)	Signalqualität 4	UInt	8 Bit	ro	0 ... 100	[%]	
485 (0x1E5)	PowerUp Zähler	UInt	32 Bit	ro			

AVENTICS spezifisch						
Index dez (hex)	Name	Format (Offset)	Länge	Zugriff	Standardwert	Wertebereich Bemerkung [Einheit]
486 (0x1E6)	Spannungsversorgung Sensor	Float	4 Byte	ro	[V]	
487 (0x1E7)	Sensor Temperatur	Float	4 Byte	ro	(Parameter in 0.1°C) [°C]	
488 (0x1E8)	Statistik Massendurchfluss	Record	12 Byte	ro		
1 (0x01)	Minimal	Bit (64)	4 Byte	ro		
2 (0x02)	Maximal	Bit (32)	4 Byte	ro		
3 (0x03)	Durchschnittlicher Wert	Bit (0)	4 Byte	ro		
489 (0x1E9)	Statistik Durchflussgeschwindigkeit	Record	12 Byte	ro	siehe Index 488	
490 (0x1EA)	Statistik Volumendurchfluss	Record	12 Byte	ro	siehe Index 488	
491 (0x1EB)	Statistik Temperatur	Record	12 Byte	ro	siehe Index 488	
492 (0x1EC)	Statistik Druck	Record	12 Byte	ro	siehe Index 488	
493 (0x1ED)	Statistikdauer seit Reset	UInt	32 Bit	ro	siehe Index 488	
496 (0x1F0)	Zählerstand seit Reset	UInt	32 Bit	ro	Reset Prozessdaten rVolume, rMass, rEnergy	
502 (0x1F6)	aktive Meldungen	Record	140 Byte	ro	4 aktive Meldungen mit höchster Priorität	
1 (0x01)	Meldung 1 Nummer	Bit (1104)	16 Bit	ro		
2 (0x02)	Meldung 1 Level	Bit (1096)	8 Bit	ro	0 = keine Meldung 1 = Information 2 = Warnung 3 = Fehler	
3 (0x03)	Meldung 1 Beschreibung	Bit (840)	32 Byte	ro		
4 (0x04)	Meldung 2 Nummer	Bit (824)	16 Bit	ro		
5 (0x05)	Meldung 2 Level	Bit (816)	8 Bit	ro	0 = keine Meldung 1 = Information 2 = Warnung 3 = Fehler	
6 (0x06)	Meldung 2 Beschreibung	Bit (560)	32 Byte	ro		
7 (0x07)	Meldung 3 Nummer	Bit (544)	16 Bit	ro		
8 (0x08)	Meldung 3 Level	Bit (536)	8 Bit	ro	0 = keine Meldung 1 = Information 2 = Warnung 3 = Fehler	
9 (0x09)	Meldung 3 Beschreibung	Bit (280)	32 Byte	ro		
10 (0x0A)	Meldung 4 Nummer	Bit (264)	16 Bit	ro		
11 (0x0B)	Meldung 4 Level	Bit (256)	8 Bit	ro	0 = keine Meldung 1 = Information 2 = Warnung 3 = Fehler	
12 (0x0C)	Meldung 4 Beschreibung	Bit (0)	32 Byte	ro		
17342 (0x43BE)	Hardware Identifikationschlüssel	String	32 Byte	ro		

ro = nur lesen, rw = lesen / schreiben

Standardkommando				
Index dez (hex)	Standardkommando	Zugriff	Wert	Name
2 (0x02)	Standardkommando	wo	83	BM_ACTIVATE
			128	Gerät zurücksetzen
			130	Auslieferungszustand wiederherstellen
			210	Reset aller Statistikwerte
			211	Reset aller Zählerwerte

wo = nur schreiben

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# 1 About this documentation

These instructions contain important information for the safe and proper handling of the product.

This documentation is a supplement to the applicable assembly instructions. Read the assembly instructions completely before working with the product.

## 1.1 Documentation validity

This documentation provides supplementary information for handling the following product variants of series AF2 and 652/653:

Series	Product variant	Interface
AF2	Sensor/filter combination (AS)	IO-Link
	High-flow sensor (HF)	IO-Link
652	Filter product variant	IO-Link (A)
	Pipe product variant	IO-Link (A)
653	Filter product variant	IO-Link (A)
	Pipe product variant	IO-Link (A)

## 1.2 Additional documentation

Observe the following related documents:

- Manufacturer's system documentation
- Documentation of other system components
- Assembly instructions (R412026496 or 549411)

# 2 Safety

## 2.1 About this chapter

- Read the chapter Safety of the assembly instructions and this documentation completely before working with the product.
- Keep this documentation in a location where it is accessible to all users at all times.

# 3 Configuring the flow sensor in the IO-Link system



The IODD files and the Technical Information with English and German language content for the flow sensor IO-Link can be found in the Media Center.

You can use configuration software from various manufacturers for the IO-Link configuration.

Before you can use the flow sensor, it has to be recognized by the IO-Link master. This process is either automatic or must be completed manually.

- ▶ Please observe the documentation for the IO-Link master used.

# 4 Physical layer



The maximum current consumption of the IO-Link device (including load currents) must not exceed the maximum output current of the master port.

SIO mode	Yes
Min. cycle time	3.0 msec
Baud rate	COM3
Process data length (IN)	32 bytes

COM values specify the Baud rate (see IO-Link specifications): COM3 (230.4 kbit/s)

# 5 Process data

Mass flow [kg/h]

Flow speed [m/s]

Volume [m<sup>3</sup>]

Volume flow [m<sup>3</sup>/h]

Mass [kg]

Energy [kWh]

Temperature [°C]

Pressure [bar]

Record: 32 Byte – process data						
Bitoffset						224
Byte/Name	0	1	2	Mass flow	3	
Type/Subindex				Float	8	
Bitoffset						192
Byte/Name	4	5	6	Flow speed	7	
Type/Subindex				Float	7	
Bitoffset						160
Byte/Name	8	9	10	Volume	11	
Type/Subindex				Float	6	
Bitoffset						128
Byte/Name	12	13	14	Volume flow	15	
Type/Subindex				Float	5	
Bitoffset						96
Byte/Name	16	17	18	Ground	19	
Type/Subindex				Float	4	
Bitoffset						64
Byte/Name	20	21	22	Energy	23	
Type/Subindex				Float	3	
Bitoffset						32
Byte/Name	24	25	26	Temperature	27	
Type/Subindex				Float	2	
Bitoffset						0
Byte/Name	28	29	30	Pressure	31	
Type/Subindex				Float	1	

# 6 Service data

The following ISDUs are not backed up via data storage: Direct parameter 1, direct parameter 2, sensor-specific name, Q1 simulation switch output, Q2 switch output simulation, Q2 frequency simulation, Qa analog value simulation, Q2, analog value simulation, simulation flow, simulation temperature, simulation pressure and special function memory.

IO-Link-specific					
Index dec (hex)	Name	Format (offset)	Length	Access	Default value
12 (0x0C)	Device access block	Record	2 bytes	rw	
2 (0x02)	Data storage block	Bit (1)	1 bit	rw	
4 (0x04)	Local user interface block	Bit (3)	1 bit	rw	
16 (0x10)	Manufacturer name	String	64 bytes	ro	AVENTICS
17 (0x11)	Manufacturer text	String	64 bytes	ro	Emerson – Consider It Solved
18 (0x12)	Product name	String	64 bytes	ro	AF2

IO-Link-specific					
Index dec (hex)	Name	Format (offset)	Length	Access	Default value
19 (0x13)	Product ID	String	64 bytes	ro	R412026761 R412026762 R412026763
20 (0x14)	Product text	String	64 bytes	ro	Air flow sensor
21 (0x15)	Serial number	String	16 bytes	ro	
22 (0x16)	Hardware version	String	64 bytes	ro	
23 (0x17)	Firmware version	String	64 bytes	ro	
24 (0x18)	Application-specific marking	String	32 bytes	rw	***
36 (0x24)	Device status	UInt	8 bits	ro	0 = device is OK 1 = maintenance required 2 = outside of specification 3 = function test 4 = error 5...255 = reserved
40 (0x28)	Input process data	PD In	32 bytes	ro	

AVENTICS specific							
Index dec (hex)	Name	Format (offset)	Length	Access	Default value	Value range	Comment [unit]
64 (0x40)	Sensor-specific name	String	32 bytes	rw	***		
66 (0x42)	System status	UInt	8 bits	ro	0 = Ok 1 = warning of error 2 = error		
190 (0xBE)	OpTimer	UInt	32 bits	ro	Operating time in seconds [s]		
260 (0x104)	Q1 mode	UInt	8 bits	rw	0 = switch output hysteresis volume flow 1 = switch output window function volume flow 2 = switch output hysteresis pressure 3 = switch output window function pressure 4 = switch output hysteresis temperature 5 = switch output window function temperature		
262 (0x106)	Q1 type	UInt	8 bits	rw	2 = NPN 3 = PNP 4 = DRV/push-pull		
270 (0x10E)	Q1 set switching point 1	Float	4 bytes	rw	-30.0 ... 999 9.0	See index 272	
271 (0x10F)	Q1 set switching point 2	Float	4 bytes	rw	-30.0 ... 999 9.0	See index 272	
272 (0x110)	Q1 unit and range	String	32 bytes	ro	Unit and range for index 270 and 271		
278 (0x116)	Q1 polarity	UInt	8 bits	rw	0 = make contact 1 = break contact		
279 (0x117)	Q1 simulation switch output	UInt	8 bits	rw	255	0 = inactive 1 = active 255 = normal	
291 (0x123)	Q2 function	UInt	8 bits	rw	0	0 = switch output 1 = frequency 2 = pulse output 3 = analog output	
292 (0x124)	Q2 type	UInt	8 bits	rw	2 = NPN 3 = PNP 4 = DRV/push-pull	for switch, pulse and frequency output	

AVENTICS specific							
Index dec (hex)	Name	Format (offset)	Length	Access	Default value	Value range	Comment [unit]
299 (0x12B)	Q2 switch mode	UInt	8 bits	rw	0 = switch output hysteresis volume flow 1 = switch output window function volume flow 2 = switch output hysteresis pressure 3 = switch output window function pressure 4 = switch output hysteresis temperature 5 = switch output window function temperature		
300 (0x12C)	Q2 set switching point 1	Float	4 bytes	rw	-30.0 ... 999 9.0	See index 302	
301 (0x12D)	Q2 set switching point 2	Float	4 bytes	rw	-30.0 ... 999 9.0	See index 302	
302 (0x12E)	Q2 switch output unit and range	String	32 bytes	ro	Unit and range for index 300 and 301		
307 (0x133)	Q2 switch output simulation	UInt	8 bits	rw	255	0 = inactive 1 = active 255 = normal	
308 (0x134)	Q2 switch output polarity	UInt	8 bits	rw	0 = make contact 1 = break contact		
309 (0x135)	Qa pulse output unit and range	String	32 bytes	ro	Unit and range for index 310		
310 (0x136)	Q2 pulse valence	Float	4 bytes	rw	0.001 ... 10 0.0	See index 309	
311 (0x137)	Q2 pulse width	UInt	32 bits	rw	1 ... 2000	[ms]	
312 (0x138)	Q2 pulse mode	UInt	8 bits	rw	0 = volume 1 = energy		
313 (0x139)	Q2 upper frequency value	Float	4 bytes	rw	-30.0 ... 999 9.0	See index 315	
314 (0x13A)	Q2 lower frequency value	Float	4 bytes	rw	-30.0 ... 999 9.0	See index 315	
315 (0x13B)	Q2 frequency unit and range	String	32 bytes	ro	Unit and range for index 313 and 314		
316 (0x13C)	Q2 maximum frequency	UInt	16 bits	rw	0 ... 10000	[Hz]	
317 (0x13D)	Q2 minimum frequency	UInt	16 bits	rw	0 ... 10000	[Hz]	
318 (0x13E)	Q2 frequency simulation	UInt	8 bits	rw	255	0 = 1Hz 1 = 10Hz 2 = 100Hz 3 = 1kHz 4 = 10kHz 255 = simulation off	
319 (0x13F)	Q2 frequency mode	UInt	8 bits	rw	0 = volume flow		
380 (0x17C)	Qa analog mode	UInt	8 bits	rw	0 = 4-20mA volume flow 1 = 4-20mA pressure 2 = 4-20mA temperature		
383 (0x17F)	Qa analog polarity	UInt	8 bits	rw	0 = normal 1 = inverted signal		
384 (0x180)	Qa upper analog value (20mA)	Float	4 bytes	rw	-30.0...999 9.0	See index 386	
385 (0x181)	Qa lower analog value (4mA)	Float	4 bytes	rw	-30.0...999 9.0	See index 386	
386 (0x182)	Qa analog signal unit and range	String	32 bytes	ro	Unit and range for index 384 and 385		
390 (0x186)	Qa analog signal in case of error	UInt	8 bits	rw	0 = 3.5mA 1 = 21.5mA		

AVENTICS specific							
Index dec (hex)	Name	Format (offset)	Length	Access	Default value	Value range	Comment [unit]
391 (0x187)	Qa analog value simulation	UInt	8 bits	rw	255	35 = 3.5mA 38 = 3.8mA 40 = 4.0mA 100 = 10mA 120 = 12mA 180 = 18mA 200 = 20mA 205 = 20.5mA 215 = 21.5mA 255 = simulation off	
400 (0x190)	Q2 analog mode	UInt	8 bits	rw	0 = 4-20mA volume flow 1 = 4-20mA pressure 2 = 4-20mA temperature		
403 (0x193)	Q2 analog polarity	UInt	8 bits	rw	0 = normal 1 = inverted signal		
404 (0x194)	Q2 upper analog value (20mA)	Float	4 bytes	rw	- 30.0 ... 999 9.0	See index 406	
405 (0x195)	Q2 lower analog value (4mA)	Float	4 bytes	rw	- 30.0 ... 999 9.0	See index 406	
406 (0x196)	Q2 analog signal unit and range	String	32 bytes	ro	Unit and range for index 404 and 405		
410 (0x19A)	Q2 analog value in case of error	UInt	8 bits	rw	0 = 3.5mA 1 = 21.5mA		
411 (0x19B)	Q2 analog value simulation	UInt	8 bits	rw	255	35 = 3.5mA 38 = 3.8mA 40 = 4.0mA 100 = 10mA 120 = 12mA 180 = 18mA 200 = 20mA 205 = 20.5mA 215 = 21.5mA 255 = simulation off	
420 (0x1A4)	Display unit mass flow	UInt	8 bits	rw	0 = kg/h 1 = g/s 2 = kg/min		
421 (0x1A5)	Display unit gas speed	UInt	8 bits	rw	0 = m/s 1 = fps		
422 (0x1A6)	Display unit volume	UInt	8 bits	rw	0 = m <sup>3</sup> 1 = l 2 = ft <sup>3</sup>		
423 (0x1A7)	Display unit volume flow	UInt	8 bits	rw	0 = m <sup>3</sup> /h 1 = m <sup>3</sup> /min 2 = l/s 3 = l/min 4 = ft <sup>3</sup> /s 5 = ft <sup>3</sup> /min		
424 (0x1A8)	Display unit mass	UInt	8 bits	rw	0 = kg		
425 (0x1A9)	Display unit energy	UInt	8 bits	rw	0 = kWh		
426 (0x1AA)	Display unit temperature	UInt	8 bits	rw	0 = °C 1 = °F		
427 (0x1AB)	Display unit pressure	UInt	8 bits	rw	0 = bar 1 = psi		
428 (0x1AC)	Switch off display	UInt	8 bits	rw	0 = off 1 = 1min 2 = 2min 5 = 5min 10 = 10min 30 = 30min 60 = 60min		

AVENTICS specific							
Index dec (hex)	Name	Format (offset)	Length	Access	Default value	Value range	Comment [unit]
429 (0x1AD)	Rotate display	UInt	8 bits	rw	0 = 0° 1 = 90° 2 = 180° 3 = 270°		
430 (0x1AE)	Screensaver	UInt	8 bits	rw	0 = off 1 = 1min 2 = 2min 5 = 5min 10 = 10min 30 = 30min 60 = 60min		
431 (0x1AF)	Display brightness	UInt	8 bits	rw	2 = 40% 7 = 60% 10 = 80% 15 = 100%		
432 (0x1B0)	Display pin	UInt	16 bits	rw	0 ... 9999	Pin to protect the configuration, 0000 ==> no pin assigned	
433 (0x1B1)	Display 1 top	UInt	8 bits	rw	0 = mass flow 1 = flow speed 2 = volume 3 = volume flow 4 = mass 5 = energy 6 = temperature 7 = pressure		
434 (0x1B2)	Display 1 bottom	UInt	8 bits	rw	0 = mass flow 1 = flow speed 2 = volume 3 = volume flow 4 = mass 5 = energy 6 = temperature 7 = pressure		
435 (0x1B3)	Display 2 top	UInt	8 bits	rw	0 = mass flow 1 = flow speed 2 = volume 3 = volume flow 4 = mass 5 = energy 6 = temperature 7 = pressure		
436 (0x1B4)	Display 2 bottom	UInt	8 bits	rw	0 = mass flow 1 = flow speed 2 = volume 3 = volume flow 4 = mass 5 = energy 6 = temperature 7 = pressure		
437 (0x1B5)	Display 3 top	UInt	8 bits	rw	0 = mass flow 1 = flow speed 2 = volume 3 = volume flow 4 = mass 5 = energy 6 = temperature 7 = pressure		

AVENTICS specific							
Index dec (hex)	Name	Format (offset)	Length	Access	Default value	Value range	Comment [unit]
438 (0x1B6)	Display 3 bottom	UInt	8 bits	rw	0 = mass flow 1 = flow speed 2 = volume 3 = volume flow 4 = mass 5 = energy 6 = temperature 7 = pressure		
439 (0x1B7)	Display history	UInt	8 bits	rw	0 = mass flow 1 = flow speed 2 = volume 3 = volume flow 4 = mass 5 = energy 6 = temperature 7 = pressure		
440 (0x1B8)	Flow simulation	UInt	8 bits	rw	0 = 0% 10 = 10% 20 = 20% 30 = 30% 40 = 40% 50 = 50% 60 = 60% 70 = 70% 80 = 80% 90 = 90% 100 = 100% 255 = simulation off		
441 (0x1B9)	Temperature simulation	UInt	8 bits	rw	0 = 0% 10 = 10% 20 = 20% 30 = 30% 40 = 40% 50 = 50% 60 = 60% 70 = 70% 80 = 80% 90 = 90% 100 = 100% 255 = simulation off		
442 (0x1BA)	Pressure simulation	UInt	8 bits	rw	0 = 0% 10 = 10% 20 = 20% 30 = 30% 40 = 40% 50 = 50% 60 = 60% 70 = 70% 80 = 80% 90 = 90% 100 = 100% 255 = simulation off		
443 (0x1BB)	Flow medium	UInt	8 bits	rw	0 = air 1 = nitrogen 2 = carbon dioxide CO2 4 = argon		
444 (0x1BC)	Reference conditions for the flow	UInt	8 bits	rw	0 = ISO8778 1 = ISO6358 2 = DIN1343 3 = DIN1945-1 4 = ISO1217 5 = ISO2533 6 = customer-specific		

AVENTICS specific							
Index dec (hex)	Name	Format (offset)	Length	Access	Default value	Value range	Comment [unit]
445 (0x1BD)	Customer-specific reference pressure	Float	4 bytes	rw	-1.0 ... 16.0		
446 (0x1BE)	Customer-specific reference temperature	Float	4 bytes	rw	-20.0 ... 60.0		
447 (0x1BF)	Input zero point offset for flow	Float	4 bytes	rw	-10.0 ... 10.0		
448 (0x1C0)	Input low flow cut-off	Float	4 bytes	rw	0.0 ... 10.0		
449 (0x1C1)	Input smoothing filter for flow	UInt	8 bits	rw	0 = off 1 = 100ms 2 = 200ms 5 = 500ms 10 = 1sec 20 = 2sec 50 = 5sec 100 = 10sec		
450 (0x1C2)	Flow measuring mode	UInt	8 bits	rw	0 = standard		
453 (0x1C5)	Input zero point offset for pressure	Float	4 bytes	rw	-0.5 ... 0.5	[bar]	
454 (0x1C6)	Input smoothing filter for pressure	UInt	8 bits	rw	0 = off 1 = 100ms 2 = 200ms 5 = 500ms 10 = 1sec 20 = 2sec 50 = 5sec 100 = 10sec		
458 (0x1CA)	Input smoothing filter for temperature	UInt	8 bits	rw	0 = off 1 = 100ms 2 = 200ms 5 = 500ms 10 = 1sec 20 = 2sec 50 = 5sec 100 = 10sec		
481 (0x1E1)	Signal quality 1 (sensor robustness)	UInt	8 bits	ro	0 ... 100	[%]	
482 (0x1E2)	Signal quality 2	UInt	8 bits	ro	0 ... 100	[%]	
483 (0x1E3)	Signal quality 3	UInt	8 bits	ro	0 ... 100	[%]	
484 (0x1E4)	Signal quality 4	UInt	8 bits	ro	0 ... 100	[%]	
485 (0x1E5)	PowerUp counter	UInt	32 bits	ro			
486 (0x1E6)	Sensor power supply	Float	4 bytes	ro	[V]		
487 (0x1E7)	Sensor temperature	Float	4 bytes	ro	(Parameter in 0.1°C) [°C]		
488 (0x1E8)	Mass flow statistics	Record	12 bytes	ro			
1 (0x01)	Minimum	Bit (64)	4 bytes	ro			
2 (0x02)	Maximum	Bit (32)	4 bytes	ro			
3 (0x03)	Average value	Bit (0)	4 bytes	ro			
489 (0x1E9)	Flow speed statistics	Record	12 bytes	ro	See index 488		
490 (0x1EA)	Volume flow statistics	Record	12 bytes	ro	See index 488		
491 (0x1EB)	Temperature statistics	Record	12 bytes	ro	See index 488		

AVENTICS specific						
Index dec (hex)	Name	Format (offset)	Length	Access	Default value	Value range Comment [unit]
492 (0x1EC)	Pressure statistics	Record	12 bytes	ro	See index 488	
493 (0x1ED)	Statistics duration since reset	UInt	32 bits	ro	See index 488	
496 (0x1F0)	Counter status since reset	UInt	32 bits	ro	Reset process data rVolume, rMass, rEnergy	
502 (0x1F6)	Active messages	Record	140 bytes	ro	4 active messages with highest priority	
1 (0x01)	Message 1 number	Bit (1104)	16 bits	ro		
2 (0x02)	Message 1 level	Bit (1096)	8 bits	ro	0 = no message 1 = information 2 = warning 3 = error	
3 (0x03)	Message 1 description	Bit (840)	32 bytes	ro		
4 (0x04)	Message 2 number	Bit (824)	16 bits	ro		
5 (0x05)	Message 2 level	Bit (816)	8 bits	ro	0 = no message 1 = information 2 = warning 3 = error	
6 (0x06)	Message 2 description	Bit (560)	32 bytes	ro		
7 (0x07)	Message 3 number	Bit (544)	16 bits	ro		
8 (0x08)	Message 3 level	Bit (536)	8 bits	ro	0 = no message 1 = information 2 = warning 3 = error	
9 (0x09)	Message 3 description	Bit (280)	32 bytes	ro		
10 (0x0A)	Message 4 number	Bit (264)	16 bits	ro		
11 (0x0B)	Message 4 level	Bit (256)	8 bits	ro	0 = no message 1 = information 2 = warning 3 = error	
12 (0x0C)	Message 4 description	Bit (0)	32 bytes	ro		
17342 (0x43BE)	Hardware identification key	String	32 bytes	ro		

ro = read only, rw = read/write

Standard command					
Index dec (hex)	Name	Access	Value	Name	Comment [unit]
2 (0x02)	Standard command	wo	83	BM_ACTIVATE	
			128	Reset device	
			130	Restore state on delivery	
			210	Reset all statistics values	
			211	Reset all counter values	

wo = write only

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# 1 A propos de cette documentation

Les présentes instructions contiennent d'importantes informations pour une utilisation du produit en toute sécurité et conformité.

Cette documentation complète les instructions de montage également applicables. Lire intégralement les instructions de montage avant de travailler avec le produit.

## 1.1 Validité de la documentation

Cette documentation fournit des informations complémentaires pour le manie- ment des variantes de produit suivantes de la série AF2 et 652/653 :

Série	Variante de produit	Interface
AF2	Combinaison filtre/capteur (AS)	IO-Link
	Capteur High Flow (HF)	IO-Link
652	Variante de produit avec filtre	IO-Link (A)
	Variante de produit avec tuyau	IO-Link (A)
653	Variante de produit avec filtre	IO-Link (A)
	Variante de produit avec tuyau	IO-Link (A)

## 1.2 Documentation supplémentaire

Tenez compte de la documentation de référence obligatoire suivante :


- Documentation d'installation du fabricant
- Documentation des autres composants de l'installation
- Instructions de montage (R412026496 ou 549411)

# 2 Sécurité

## 2.1 À propos de ce chapitre

- Lire attentivement et intégralement le chapitre Sécurité des instructions de montage ainsi que toute la documentation avant de travailler avec le produit.
- Conserver la documentation de manière à ce qu'elle soit toujours accessible à tous les utilisateurs.

# 3 Configurer le capteur de débit dans le système IO-Link


 Les fichiers IODD et les informations techniques sont disponibles en anglais et en allemand pour le capteur de débit IO-Link dans le Media Centre.

Pour la configuration IO-Link, les programmes de configuration de différents fa- bricants peuvent être utilisés.

Avant de pouvoir utiliser le capteur de débit, celui-ci doit être reconnu par le maître IO-Link. Cette opération peut être effectuée automatiquement ou ma- nuellement.

- Consulter pour cela la documentation du maître IO-Link utilisé.

# 4 Couche physique

 La puissance absorbée maximale de l'appareil IO-Link (courants de charge compris) ne doit pas dépasser le courant de sortie maximal du raccord maître.

Mode SIO	Oui
Durée min. du cycle	3,0 ms
Débit en bauds	COM3
Longueur de données de processus (IN)	32 octets

Les valeurs COM indiquent le débit en bauds (voir la spécification IO-Link) : COM3 (230,4 kbit/s)

# 5 Données de processus

Débit massique [kg/h]

Vitesse de débit [m/s]

Volume [m<sup>3</sup>]

Débit [m<sup>3</sup>/h]

Masse [kg]

Energie [kWh]

Température [°C]

Pression [bar]

Record : données de processus de 32 octets					
Décalage de bits	224				
Octet/Nom	0	1	2	Débit mas- sique	3
Type/Sous-in- dex				Float	8
Décalage de bits	192				
Octet/Nom	4	5	6	Vitesse de dé- bit	7
Type/Sous-in- dex				Float	7
Décalage de bits	160				
Octet/Nom	8	9	10	Volumes	11
Type/Sous-in- dex				Float	6
Décalage de bits	128				
Octet/Nom	12	13	14	Débit	15
Type/Sous-in- dex				Float	5
Décalage de bits	96				
Octet/Nom	16	17	18	Masse	19
Type/Sous-in- dex				Float	4
Décalage de bits	64				
Octet/Nom	20	21	22	Energie	23
Type/Sous-in- dex				Float	3
Décalage de bits	32				
Octet/Nom	24	25	26	Température	27
Type/Sous-in- dex				Float	2
Décalage de bits	0				
Octet/Nom	28	29	30	Pression	31
Type/Sous-in- dex				Float	1

# 6 Données de maintenance

Les ISDU suivants ne sont pas sécurisés par le stockage de données : paramètres directs 1, paramètres directs 2, nom propre au capteur, Q1 simulation sortie de commutation, Q2 simulation sortie de commutation, Q2 simulation fréquence, Qa simulation valeur analogique, Q2 simulation valeur analogique, simulation dé- bit, simulation température, simulation pression et fonction spéciale mémoire.

Propre à IO-Link					
Index déc. (hex)	Nom	Format (décalage)	Longueur	Accès	Valeur standard
12 (0x0C)	Verrouillage d'accès aux appareils	Record	2 octets	rw	
2 (0x02)	Verrouillage du stockage des données	Bit (1)	1 bit	rw	
4 (0x04)	Verrouillage local de l'interface utilisateur	Bit (3)	1 bit	rw	
16 (0x10)	Nom du fabricant	Chaîne	64 octets	ro	AVENTICS
17 (0x11)	Texte fabricant	Chaîne	64 octets	ro	Emerson – Consider It Solved
18 (0x12)	Nom du produit	Chaîne	64 octets	ro	AF2
19 (0x13)	ID produit	Chaîne	64 octets	ro	R412026761 R412026762 R412026763
20 (0x14)	Texte produit	Chaîne	64 octets	ro	Air Flow Sensor
21 (0x15)	Numéro de série	Chaîne	16 octets	ro	
22 (0x16)	Version matériel	Chaîne	64 octets	ro	
23 (0x17)	Version firmware	Chaîne	64 octets	ro	
24 (0x18)	Marquage spécifique à l'application	Chaîne	32 octets	rw	***
36 (0x24)	Statut de l'appareil	UInt	8 bits	ro	0 = appareil OK 1 = maintenance nécessaire 2 = hors de la spécification 3 = contrôle du fonctionnement 4 = défaut 5 à 255 = en réserve
40 (0x28)	Données de processus entrée	PD In	32 octets	ro	

Propre à AVENTICS							
Index déc. (hex)	Nom	Format (décalage)	Longueur	Accès	Valeur standard	Plage de valeurs	Remarque [Unité]
64 (0x40)	Nom spécifique au capteur	Chaîne	32 octets	rw	***		
66 (0x42)	Statut du système	UInt	8 bits	ro	0 = OK 1 = avertissement d'un défaut 2 = défaut		
190 (0xBE)	OpTimer	UInt	32 bits	ro	Durée de fonctionnement en secondes [s]		
260 (0x104)	Mode Q1	UInt	8 bits	rw	0 = débit hystérèse sortie de commutation 1 = débit fonction fenêtre sortie de commutation 2 = pression hystérèse sortie de commutation 3 = pression fonction fenêtre sortie de commutation 4 = température hystérèse sortie de commutation 5 = température fonction fenêtre sortie de commutation		
262 (0x106)	Type Q1	UInt	8 bits	rw	2 = NPN 3 = PNP 4 = DRV/Push-Pull		
270 (0x10E)	Q1 mettre point de commutation 1	Float	4 octets	rw	- 30.0 ... 999 9.0	Voir index 272	
271 (0x10F)	Q1 mettre point de commutation 2	Float	4 octets	rw	- 30.0 ... 999 9.0	Voir index 272	
272 (0x110)	Q1 unité et plage	Chaîne	32 octets	ro	Unité et plage pour index 270 et 271		

Propre à AVENTICS							
Index déc. (hex)	Nom	Format (décalage)	Longueur	Accès	Valeur standard	Plage de valeurs	Remarque [Unité]
278 (0x116)	Q1 Polarité	UInt	8 bits	rw	0 = contact d'arrêt 1 = contact de travail		
279 (0x117)	Q1 Simulation sortie de commutation	UInt	8 bits	rw	255	0 = inactif 1 = actif 255 = normal	
291 (0x123)	Q2 Fonction	UInt	8 bits	rw	0	0 = sortie de commutation 1 = fréquence 2 = sortie d'impulsions 3 = sortie analogique	
292 (0x124)	Type Q2	UInt	8 bits	rw	2 = NPN 3 = PNP 4 = DRV/push-pull	pour sortie de commutation, d'impulsions, de fréquence	
299 (0x12B)	Q2 Mode de commutation	UInt	8 bits	rw	0 = débit hystérèse sortie de commutation 1 = débit fonction fenêtre sortie de commutation 2 = pression hystérèse sortie de commutation 3 = pression fonction fenêtre sortie de commutation 4 = température hystérèse sortie de commutation 5 = température fonction fenêtre sortie de commutation		
300 (0x12C)	Q2 Mettre point de commutation 1	Float	4 octets	rw	- 30.0 ... 999 9.0	Voir index 302	
301 (0x12D)	Q2 Mettre point de commutation 2	Float	4 octets	rw	- 30.0 ... 999 9.0	Voir index 302	
302 (0x12E)	Q2 Sortie de commutation, unité et plage	Chaîne	32 octets	ro	Unité et plage pour index 300 et 301		
307 (0x133)	Q2 Simulation sortie de commutation	UInt	8 bits	rw	255	0 = inactif 1 = actif 255 = normal	
308 (0x134)	Q2 Polarité sortie de commutation	UInt	8 bits	rw	0 = contact d'arrêt 1 = contact de travail		
309 (0x135)	Qa Sortie d'impulsions, unité et plage	Chaîne	32 octets	ro	Unité et plage pour index 310		
310 (0x136)	Q2 Valence d'impulsion	Float	4 octets	rw	0.001 ... 10 0.0	Voir index 309	
311 (0x137)	Q2 Largeur d'impulsion	UInt	32 bits	rw	1 ... 2 000	[ms]	
312 (0x138)	Q2 Mode d'impulsion	UInt	8 bits	rw	0 = volume 1 = énergie		
313 (0x139)	Q2 Valeur de fréquence haute	Float	4 octets	rw	-30.0 ... 999 9.0	Voir index 315	
314 (0x13A)	Q2 Valeur de fréquence basse	Float	4 octets	rw	- 30.0 ... 999 9.0	Voir index 315	
315 (0x13B)	Q2 Fréquence, unité et plage	Chaîne	32 octets	ro	Unité et plage pour index 313 et 314		
316 (0x13C)	Q2 Fréquence maximale	UInt	16 bits	rw	0 ... 10000	[Hz]	
317 (0x13D)	Q2 Fréquence minimale	UInt	16 bits	rw	0 ... 10 000	[Hz]	
318 (0x13E)	Q2 Simulation fréquence	UInt	8 bits	rw	255	0 = 1 Hz 1 = 10 Hz 2 = 100 Hz 3 = 1 kHz 4 = 10 kHz 255 = simulation désactivée	



Propre à AVENTICS							
Index déc. (hex)	Nom	Format (décalage)	Longueur	Accès	Valeur standard	Plage de valeurs	Remarque [Unité]
319 (0x13F)	Q2 Mode fréquence	Ulnr	8 bits	rw	0 = débit		
380 (0x17C)	Qa Mode analogue	Ulnr	8 bits	rw	0 = 4-20 mA, débit 1 = 4-20 mA, pression 2 = 4-20 mA, température		
383 (0x17F)	Qa Polarité analogique	Ulnr	8 bits	rw	0 = normal 1 = signal inversé		
384 (0x180)	Qa Valeur analogique (20 mA)	Float	4 octets	rw	-30.0...999 9.0	Voir index 386	
385 (0x181)	Qa Valeur analogique basse (4 mA)	Float	4 octets	rw	-30.0...999 9.0	Voir index 386	
386 (0x182)	Qa Signal analogique, unité et plage	Chaîne	32 octets	ro	Unité et plage pour index 384 et 385		
390 (0x186)	Qa Signal analogique en cas de défaut	Ulnr	8 bits	rw	0 = 3,5 mA 1 = 21,5 mA		
391 (0x187)	Qa Simulation valeur analogique	Ulnr	8 bits	rw	255	35 = 3,5 mA 38 = 3,8 mA 40 = 4,0 mA 100 = 10 mA 120 = 12 mA 180 = 18 mA 200 = 20 mA 205 = 20,5 mA 215 = 21,5 mA 255 = simulation désactivée	
400 (0x190)	Q2 Mode analogique	Ulnr	8 bits	rw	0 = 4-20 mA, débit 1 = 4-20 mA, pression 2 = 4-20 mA, température		
403 (0x193)	Q2 Polarité analogique	Ulnr	8 bits	rw	0 = normal 1 = signal inversé		
404 (0x194)	Q2 Valeur analogique haute (20 mA)	Float	4 octets	rw	-30.0 ... 999 9.0	Voir index 406	
405 (0x195)	Q2 Valeur analogique basse (4 mA)	Float	4 octets	rw	-30.0 ... 999 9.0	Voir index 406	
406 (0x196)	Q2 Signal analogique, unité et plage	Chaîne	32 octets	ro	Unité et plage pour index 404 et 405		
410 (0x19A)	Q2 Valeur analogique en cas d'erreur	Ulnr	8 bits	rw	0 = 3,5 mA 1 = 21,5 mA		
411 (0x19B)	Q2 Simulation valeur analogique	Ulnr	8 bits	rw	255	35 = 3,5 mA 38 = 3,8 mA 40 = 4,0 mA 100 = 10 mA 120 = 12 mA 180 = 18 mA 200 = 20 mA 205 = 20,5 mA 215 = 21,5 mA 255 = simulation désactivée	
420 (0x1A4)	Affichage unité débit massique	Ulnr	8 bits	rw	0 = kg/h 1 = g/s 2 = kg/min		
421 (0x1A5)	Affichage unité vitesse du gaz	Ulnr	8 bits	rw	0 = m/s 1 = fps		
422 (0x1A6)	Affichage unité volume	Ulnr	8 bits	rw	0 = m <sup>3</sup> 1 = l 2 = ft <sup>3</sup>		

Propre à AVENTICS							
Index déc. (hex)	Nom	Format (décalage)	Longueur	Accès	Valeur standard	Plage de valeurs	Remarque [Unité]
423 (0x1A7)	Affichage unité débit	Ulnr	8 bits	rw	0 = m <sup>3</sup> /h 1 = m <sup>3</sup> /min 2 = l/s 3 = l/min 4 = ft <sup>3</sup> /s 5 = ft <sup>3</sup> /min		
424 (0x1A8)	Affichage unité masse	Ulnr	8 bits	rw	0 = kg		
425 (0x1A9)	Affichage unité énergie	Ulnr	8 bits	rw	0 = kWh		
426 (0x1AA)	Affichage unité température	Ulnr	8 bits	rw	0 = °C 1 = °F		
427 (0x1AB)	Affichage unité pression	Ulnr	8 bits	rw	0 = bar 1 = psi		
428 (0x1AC)	Désactiver l'affichage	Ulnr	8 bits	rw	0 = désactivé 1 = 1 min 2 = 2 min 5 = 5 min 10 = 10 min 30 = 30 min 60 = 60 min		
429 (0x1AD)	Rotation de l'affichage	Ulnr	8 bits	rw	0 = 0° 1 = 90° 2 = 180° 3 = 270°		
430 (0x1AE)	Écran de veille	Ulnr	8 bits	rw	0 = désactivé 1 = 1 min 2 = 2 min 5 = 5 min 10 = 10 min 30 = 30 min 60 = 60 min		
431 (0x1AF)	Affichage luminosité	Ulnr	8 bits	rw	2 = 40 % 7 = 60 % 10 = 80 % 15 = 100 %		
432 (0x1B0)	Affichage du pin	Ulnr	16 bits	rw	0 ... 9 999	Pin pour protéger la configuration, 0000 ==> n'attribuer aucun pin	
433 (0x1B1)	Affichage 1 en haut	Ulnr	8 bits	rw	0 = débit massique 1 = vitesse de débit 2 = volume 3 = débit 4 = masse 5 = énergie 6 = température 7 = pression		
434 (0x1B2)	Affichage 1 en bas	Ulnr	8 bits	rw	0 = débit massique 1 = vitesse de débit 2 = volume 3 = débit 4 = masse 5 = énergie 6 = température 7 = pression		
435 (0x1B3)	Affichage 2 en haut	Ulnr	8 bits	rw	0 = débit massique 1 = vitesse de débit 2 = volume 3 = débit 4 = masse 5 = énergie 6 = température 7 = pression		

Propre à AVENTICS							
Index déc. (hex)	Nom	Format (décalage)	Longueur	Accès	Valeur standard	Plage de valeurs	Remarque [Unité]
436 (0x1B4)	Affichage 2 en bas	UInt	8 bits	rw	0 = débit massique 1 = vitesse de débit 2 = volume 3 = débit 4 = masse 5 = énergie 6 = température 7 = pression		
437 (0x1B5)	Affichage 3 en haut	UInt	8 bits	rw	0 = débit massique 1 = vitesse de débit 2 = volume 3 = débit 4 = masse 5 = énergie 6 = température 7 = pression		
438 (0x1B6)	Affichage 3 en bas	UInt	8 bits	rw	0 = débit massique 1 = vitesse de débit 2 = volume 3 = débit 4 = masse 5 = énergie 6 = température 7 = pression		
439 (0x1B7)	Affichage historique	UInt	8 bits	rw	0 = débit massique 1 = vitesse de débit 2 = volume 3 = débit 4 = masse 5 = énergie 6 = température 7 = pression		
440 (0x1B8)	Simulation débit	UInt	8 bits	rw	0 = 0 % 10 = 10 % 20 = 20 % 30 = 30 % 40 = 40 % 50 = 50 % 60 = 60 % 70 = 70 % 80 = 80 % 90 = 90 % 100 = 100 % 255 = simulation désactivée		
441 (0x1B9)	Simulation température	UInt	8 bits	rw	0 = 0 % 10 = 10 % 20 = 20 % 30 = 30 % 40 = 40 % 50 = 50 % 60 = 60 % 70 = 70 % 80 = 80 % 90 = 90 % 100 = 100 % 255 = simulation désactivée		

Propre à AVENTICS							
Index déc. (hex)	Nom	Format (décalage)	Longueur	Accès	Valeur standard	Plage de valeurs	Remarque [Unité]
442 (0x1BA)	Simulation pression	UInt	8 bits	rw	0 = 0 % 10 = 10 % 20 = 20 % 30 = 30 % 40 = 40 % 50 = 50 % 60 = 60 % 70 = 70 % 80 = 80 % 90 = 90 % 100 = 100 % 255 = simulation désactivée		
443 (0x1BB)	Fluide de débit	UInt	8 bits	rw	0 = air 1 = azote 2 = dioxyde de carbone CO2 4 = argon		
444 (0x1BC)	Conditions de référence pour le débit	UInt	8 bits	rw	0 = ISO 8778 1 = ISO 6358 2 = DIN 1343 3 = DIN 1945-1 4 = ISO 1217 5 = ISO 2533 6 = spécifique au client		
445 (0x1BD)	Pression de référence spécifique au client	Float	4 octets	rw	-1.0 ... 16.0		
446 (0x1BE)	Température de référence spécifique au client	Float	4 octets	rw	-20.0 ... 60.0		
447 (0x1BF)	Saisie décalage point zéro pour débit	Float	4 octets	rw	-10.0 ... 10.0		
448 (0x1C0)	Saisie suppression de l'écoulement de fuite	Float	4 octets	rw	0.0 ... 10.0		
449 (0x1C1)	Saisie filtre de régularisation pour débit	UInt	8 bits	rw	0 = désactivé 1 = 100 ms 2 = 200 ms 5 = 500 ms 10 = 1 s 20 = 2 s 50 = 5 s 100 = 10 s		
450 (0x1C2)	Mode de mesure de débit	UInt	8 bits	rw	0 = standard		
453 (0x1C5)	Saisie décalage point zéro pour pression	Float	4 octets	rw	-0.5 ... 0.5	[bar]	
454 (0x1C6)	Saisie filtre de régularisation pour pression	UInt	8 bits	rw	0 = désactivé 1 = 100 ms 2 = 200 ms 5 = 500 ms 10 = 1 s 20 = 2 s 50 = 5 s 100 = 10 s		
458 (0x1CA)	Saisie filtre de régularisation pour température	UInt	8 bits	rw	0 = désactivé 1 = 100 ms 2 = 200 ms 5 = 500 ms 10 = 1 s 20 = 2 s 50 = 5 s 100 = 10 s		

Propre à AVENTICS							
Index déc. (hex)	Nom	Format (décalage)	Longueur	Accès	Valeur standard	Plage de valeurs	Remarque [Unité]
481 (0x1E1)	Qualité du signal 1 (solidité du capteur)	UInt	8 bits	ro	0 ... 100	[%]	
482 (0x1E2)	Qualité du signal 2	UInt	8 bits	ro	0 ... 100	[%]	
483 (0x1E3)	Qualité du signal 3	UInt	8 bits	ro	0 ... 100	[%]	
484 (0x1E4)	Qualité du signal 4	UInt	8 bits	ro	0 ... 100	[%]	
485 (0x1E5)	Compteur PowerUp	UInt	32 bits	ro			
486 (0x1E6)	Alimentation électrique capteur	Float	4 octets	ro	[V]		
487 (0x1E7)	Capteur température	Float	4 octets	ro	(paramètre à 0,1 °C)	[°C]	
488 (0x1E8)	Statistique débit massique	Record	12 octets	ro			
1 (0x01)	Minimal	Bit (64)	4 octets	ro			
2 (0x02)	Maximal	Bit (32)	4 octets	ro			
3 (0x03)	Valeur moyenne	Bit (0)	4 octets	ro			
489 (0x1E9)	Statistique vitesse de débit	Record	12 octets	ro	Voir index 488		
490 (0x1EA)	Statistique débit	Record	12 octets	ro	Voir index 488		
491 (0x1EB)	Statistique température	Record	12 octets	ro	Voir index 488		
492 (0x1EC)	Statistique pression	Record	12 octets	ro	Voir index 488		
493 (0x1ED)	Durée de statistique depuis la réinitialisation	UInt	32 bits	ro	Voir index 488		
496 (0x1F0)	Etat du compteur depuis la réinitialisation	UInt	32 bits	ro	Réinitialisation données de processus rVolume, rMass, rEnergy		
502 (0x1F6)	Messages actifs	Record	140 octets	ro	4 messages actifs avec priorité maximale		
1 (0x01)	Message 1 Numéro	Bit (1104)	16 bits	ro			
2 (0x02)	Message 1 Niveau	Bit (1096)	8 bits	ro	0 = aucun message 1 = information 2 = avertissement 3 = défaut		
3 (0x03)	Message 1 Description	Bit (840)	32 octets	ro			
4 (0x04)	Message 2 Numéro	Bit (824)	16 bits	ro			
5 (0x05)	Message 2 Niveau	Bit (816)	8 bits	ro	0 = aucun message 1 = information 2 = avertissement 3 = défaut		
6 (0x06)	Message 2 Description	Bit (560)	32 octets	ro			
7 (0x07)	Message 3 Numéro	Bit (544)	16 bits	ro			
8 (0x08)	Message 3 Niveau	Bit (536)	8 bits	ro	0 = aucun message 1 = information 2 = avertissement 3 = défaut		
9 (0x09)	Message 3 Description	Bit (280)	32 octets	ro			
10 (0x0A)	Message 4 Numéro	Bit (264)	16 bits	ro			
11 (0x0B)	Message 4 Niveau	Bit (256)	8 bits	ro	0 = aucun message 1 = information 2 = avertissement 3 = défaut		

Propre à AVENTICS							
Index déc. (hex)	Nom	Format (décalage)	Longueur	Accès	Valeur standard	Plage de valeurs	Remarque [Unité]
12 (0x0C)	Message 4 Description	Bit (0)	32 octets	ro			
17342 (0x43BE)	Code d'identification du matériel	Chaîne	32 octets	ro			

ro = lecture seule, rw = lecture/écriture

Commande standard				
Index déc. (hex)	Accès	Valeur	Nom	Remarque [Unité]
2 (0x02)	Commande standard	wo	83	BM_ACTIVATE
			128	Réinitialiser l'appareil
			130	Remettre à l'état de livraison
			210	Réinitialisation de toutes les valeurs statistiques
			211	Réinitialisation de toutes les valeurs du compteur

wo = écriture seule

# Indice

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# 1 Sulla presente documentazione

Le presenti istruzioni contengono informazioni importanti per l'uso sicuro e corretto del prodotto.

Questa documentazione è un complemento alle istruzioni di montaggio valide. Leggere completamente le istruzioni di montaggio prima di utilizzare il prodotto.

## 1.1 Validità della documentazione

La presente documentazione fornisce informazioni supplementari sull'uso delle seguenti varianti di prodotto della serie AF2 e 652/653:

Serie	Variante di prodotto	Interfaccia
AF2	Combinazione di filtri sensori (AS)	IO-Link
	Sensore High Flow (HF)	IO-Link
652	Variante di prodotto con filtro	IO-Link (A)
	Variante di prodotto con tubo	IO-Link (A)
653	Variante di prodotto con filtro	IO-Link (A)
	Variante di prodotto con tubo	IO-Link (A)

## 1.2 Documentazione aggiuntiva

Osservare la seguente documentazione correlata:

- Documentazione dell'impianto del produttore
- Documentazione dei restanti componenti dell'impianto
- Istruzioni di montaggio (R412026496 o 549411)

# 2 Sicurezza

## 2.1 Sul presente capitolo

- Leggere il capitolo Sicurezza delle presenti istruzioni di montaggio e l'intera documentazione attentamente e completamente prima di utilizzare il prodotto.
- Conservare la documentazione in modo che sia sempre accessibile a tutti gli utenti.

# 3 Configurazione del flussometro nel sistema IO-Link



I file IODD e le informazioni tecniche con testi in inglese e in tedesco per il flussometro IO-Link si trovano nel Media Centre.

Per la configurazione IO-Link possono essere impiegati programmi di configurazione di diversi produttori.

Prima di poter utilizzare il flussometro, quest'ultimo deve essere riconosciuto dal master IO-Link. Il riconoscimento avviene in modo automatico oppure deve essere eseguito manualmente.

- ▶ Al riguardo rispettare la documentazione del master IO-Link utilizzato.

# 4 Strato fisico



La corrente assorbita massima dell'apparecchio IO-Link (incluse le correnti di carico) non deve superare la corrente in uscita massima della porta master.

Modalità SIO	si
Tempo di ciclo min.	3,0 ms
Baudrate	COM3
Lunghezza dati di processo (IN)	32 byte

I valori COM specificano la baudrate (v. specifica IO-Link): COM3 (230,4 kbit/s)

# 5 Dati di processo

Portata massica [kg/h]

Velocità di flusso [m/s]

Volume [m<sup>3</sup>]

Portata volumetrica [m<sup>3</sup>/h]

Massa [kg]

Energia [kWh]

Temperatura [°C]

Pressione [bar]

Record: 32 byte – dati di processo						
Bit offset						224
Byte/nome	0	1	2	Portata massica	3	
Tipo/sottoidice				Float	8	
Bit offset						192
Byte/nome	4	5	6	Velocità di flusso	7	
Tipo/sottoidice				Float	7	
Bit offset						160
Byte/nome	8	9	10	Volume	11	
Tipo/sottoidice				Float	6	
Bit offset						128
Byte/nome	12	13	14	Portata volumetrica	15	
Tipo/sottoidice				Float	5	
Bit offset						96
Byte/nome	16	17	18	Massa	19	
Tipo/sottoidice				Float	4	
Bit offset						64
Byte/nome	20	21	22	Energia	23	
Tipo/sottoidice				Float	3	
Bit offset						32
Byte/nome	24	25	26	Temperatura	27	
Tipo/sottoidice				Float	2	
Bit offset						0
Byte/nome	28	29	30	Pressione	31	
Tipo/sottoidice				Float	1	

# 6 Dati per l'assistenza

I seguenti ISDU non vengono salvati con l'archiviazione dati: parametri diretti 1, parametri diretti 2, nome specifico del sensore, Q1 simulazione uscita di commutazione, Q2 uscita di commutazione simulazione, Q2 simulazione frequenza, Qa simulazione valore analogico, Q2, simulazione valore analogico, simulazione portata, simulazione temperatura, simulazione pressione e funzione speciale accumulatore.

Specifico IO-Link					
Indice dec (hex)	Nome	Formato (offset)	Lunghezza	Accesso	Valore standard
12 (0x0C)	Blocco di accesso apparecchio	Record	2 byte	rw	

Specifico IO-Link					
Indice dec (hex)	Nome	Formato (offset)	Lunghezza	Accesso	Valore standard
2 (0x02)	Blocco salvataggio dati	Bit (1)	1 bit	rw	
4 (0x04)	Blocco interfaccia utente locale	Bit (3)	1 bit	rw	
16 (0x10)	Nome del produttore	Stringa	64 byte	ro	AVENTICS
17 (0x11)	Testo del produttore	Stringa	64 byte	ro	Emerson – Consider It Solved
18 (0x12)	Nome prodotto	Stringa	64 byte	ro	AF2
19 (0x13)	ID prodotto	Stringa	64 byte	ro	R412026761 R412026762 R412026763
20 (0x14)	Testo prodotto	Stringa	64 byte	ro	Air Flow Sensor
21 (0x15)	Numero di serie	Stringa	16 byte	ro	
22 (0x16)	Versione hardware	Stringa	64 byte	ro	
23 (0x17)	Versione firmware	Stringa	64 byte	ro	
24 (0x18)	Contrassegno specifico dell'applicazione	Stringa	32 byte	rw	***
36 (0x24)	Stato apparecchio	UInt	8 bit	ro	0 = apparecchio OK 1 = manutenzione necessaria 2 = fuori specifica 3 = controllo delle funzioni 4 = errore 5...255 = riservati
40 (0x28)	Ingresso dati di processo	PD In	32 byte	ro	

Specifico AVENTICS						
Indice dec (hex)	Nome	Formato (offset)	Lunghezza	Accesso	Valore standard	Campo di valori [unità]
64 (0x40)	Nome specifico del sensore	Stringa	32 byte	rw	***	
66 (0x42)	Stato del sistema	UInt	8 bit	ro	0 = Ok 1 = avvertenza prima di un errore 2 = errore	
190 (0xBE)	OpTimer	UInt	32 bit	ro	Tempo di esercizio in secondi [s]	
260 (0x104)	Q1 Modalità	UInt	8 bit	rw	0 = isteresi uscita di commutazione portata volumetrica 1 = funzione finestra uscita di commutazione portata volumetrica 2 = isteresi uscita di commutazione pressione 3 = funzione finestra uscita di commutazione pressione 4 = isteresi uscita di commutazione temperatura 5 = funzione finestra uscita di commutazione temperatura	
262 (0x106)	Q1 Tipo	UInt	8 bit	rw	2 = NPN 3 = PNP 4 = DRV/Push-pull	
270 (0x10E)	Q1 Imposta punto di commutazione 1	Float	4 byte	rw	-30.0 ... 999 9.0	V. indice 272
271 (0x10F)	Q1 Imposta punto di commutazione 2	Float	4 byte	rw	-30.0 ... 999 9.0	V. indice 272
272 (0x110)	Q1 Unità e campo	Stringa	32 byte	ro	Unità e campo per indice 270 e 271	
278 (0x116)	Q1 Polarità	UInt	8 bit	rw	0 = contatto di chiusura 1 = contatto di apertura	
279 (0x117)	Q1 Simulazione uscita di commutazione	UInt	8 bit	rw	255	0 = inattivo 1 = attivo 255 = normale

Specifico AVENTICS							
Indice dec (hex)	Nome	Formato (offset)	Lunghezza	Accesso	Valore standard	Campo di valori	Nota [unità]
291 (0x123)	Q2 Funzione	UInt	8 bit	rw	0		0 = uscita di commutazione 1 = frequenza 2 = uscita a impulsi 3 = uscita analogica
292 (0x124)	Q2 Tipo	UInt	8 bit	rw	2 = NPN 3 = PNP 4 = DRV/Push-pull		Per uscita di commutazione, a impulsi e frequenza
299 (0x12B)	Q2 Modalità di commutazione	UInt	8 bit	rw			0 = isteresi uscita di commutazione portata volumetrica 1 = funzione finestra uscita di commutazione portata volumetrica 2 = isteresi uscita di commutazione pressione 3 = funzione finestra uscita di commutazione pressione 4 = isteresi uscita di commutazione temperatura 5 = funzione finestra uscita di commutazione temperatura
300 (0x12C)	Q2 Imposta punto di commutazione 1	Float	4 byte	rw	-30.0 ... 999 9.0		V. indice 302
301 (0x12D)	Q2 Imposta punto di commutazione 2	Float	4 byte	rw	-30.0 ... 999 9.0		V. indice 302
302 (0x12E)	Q2 Uscita di commutazione unità e campo	Stringa	32 byte	ro			Unità e campo per indice 300 e 301
307 (0x133)	Q2 Simulazione uscita di commutazione	UInt	8 bit	rw	255		0 = inattivo 1 = attivo 255 = normale
308 (0x134)	Q2 Uscita di commutazione polarità	UInt	8 bit	rw			0 = contatto di chiusura 1 = contatto di apertura
309 (0x135)	Qa Uscita a impulsi unità e campo	Stringa	32 byte	ro			Unità e campo per indice 310
310 (0x136)	Q2 Valore impulso	Float	4 byte	rw	0.001 ... 10 0.0		V. indice 309
311 (0x137)	Q2 Ampiezza impulso	UInt	32 bit	rw	1 ... 2000		[ms]
312 (0x138)	Q2 Modalità impulsi	UInt	8 bit	rw			0 = volume 1 = energia
313 (0x139)	Q2 Valore frequenza superiore	Float	4 byte	rw	-30.0 ... 999 9.0		V. indice 315
314 (0x13A)	Q2 Valore frequenza inferiore	Float	4 byte	rw	-30.0 ... 999 9.0		V. indice 315
315 (0x13B)	Q2 Frequenza unità e campo	Stringa	32 byte	ro			Unità e campo per indice 313 e 314
316 (0x13C)	Q2 Frequenza massima	UInt	16 bit	rw	0 ... 10000		[Hz]
317 (0x13D)	Q2 Frequenza minima	UInt	16 bit	rw	0 ... 10000		[Hz]
318 (0x13E)	Q2 Simulazione frequenza	UInt	8 bit	rw	255		0 = 1 Hz 1 = 10 Hz 2 = 100 Hz 3 = 1 kHz 4 = 10 kHz 255 = simulazione OFF
319 (0x13F)	Q2 Modalità frequenza	UInt	8 bit	rw			0 = portata volumetrica
380 (0x17C)	Qa Modalità analogica	UInt	8 bit	rw			0 = 4-20 mA portata volumetrica 1 = 4-20 mA pressione 2 = 4-20 mA temperatura

Specifico AVENTICS						
Indice dec (hex)	Nome	Forma- to (off- set)	Lun- ghez- za	Ac- ces- so	Valore standard	Campo di valori [unità]
383 (0x17F)	Qa Polarità ana- logica	UInt	8 bit	rw	0 = normale 1 = segnale invertito	
384 (0x180)	Qa Valore analo- gico superiore (20 mA)	Float	4 byte	rw	- 30.0...999 9.0	V. indice 386
385 (0x181)	Qa Valore analo- gico inferiore (4 mA)	Float	4 byte	rw	- 30.0...999 9.0	V. indice 386
386 (0x182)	Qa Segnale ana- logico unità e campo	Stringa	32 by- te	ro	Unità e campo per indice 384 e 385	
390 (0x186)	Qa Segnale ana- logico in caso di errore	UInt	8 bit	rw	0 = 3.5 mA 1 = 21.5 mA	
391 (0x187)	Qa Simulazione valore analogico	UInt	8 bit	rw	255	35 = 3.5 mA 38 = 3.8 mA 40 = 4.0 mA 100 = 10 mA 120 = 12 mA 180 = 18 mA 200 = 20 mA 205 = 20,5 mA 215 = 21,5 mA 255 = simulazione OFF
400 (0x190)	Q2 Modalità ana- logica	UInt	8 bit	rw	0 = 4-20 mA portata volumetrica 1 = 4-20 mA pressione 2 = 4-20 mA temperatura	
403 (0x193)	Q2 Polarità ana- logica	UInt	8 bit	rw	0 = normale 1 = segnale invertito	
404 (0x194)	Q2 Valore analo- gico superiore (20 mA)	Float	4 byte	rw	- 30.0 ... 999 9.0	V. indice 406
405 (0x195)	Q2 Valore analo- gico inferiore (4 mA)	Float	4 byte	rw	- 30.0 ... 999 9.0	V. indice 406
406 (0x196)	Q2 Segnale ana- logico unità e campo	Stringa	32 by- te	ro	Unità e campo per indice 404 e 405	
410 (0x19A)	Q2 Valore analo- gico in caso di errore	UInt	8 bit	rw	0 = 3.5 mA 1 = 21.5 mA	
411 (0x19B)	Q2 Simulazione valore analogico	UInt	8 bit	rw	255	35 = 3.5 mA 38 = 3.8 mA 40 = 4.0 mA 100 = 10 mA 120 = 12 mA 180 = 18 mA 200 = 20 mA 205 = 20,5 mA 215 = 21,5 mA 255 = simulazione OFF
420 (0x1A4)	Indicazione unità portata massica	UInt	8 bit	rw	0 = kg/h 1 = g/s 2 = kg/min	
421 (0x1A5)	Indicazione unità velocità gas	UInt	8 bit	rw	0 = m/s 1 = fps	
422 (0x1A6)	Indicazione unità volume	UInt	8 bit	rw	0 = m <sup>3</sup> 1 = l 2 = ft <sup>3</sup>	
423 (0x1A7)	Indicazione unità portata volume- trica	UInt	8 bit	rw	0 = m <sup>3</sup> /h 1 = m <sup>3</sup> /min 2 = l/s 3 = l/min 4 = ft <sup>3</sup> /s 5 = ft <sup>3</sup> /min	

Specifico AVENTICS						
Indice dec (hex)	Nome	Forma- to (off- set)	Lun- ghez- za	Ac- ces- so	Valore standard	Campo di valori [unità]
424 (0x1A8)	Indicazione unità massa	UInt	8 bit	rw	0 = kg	
425 (0x1A9)	Indicazione unità energia	UInt	8 bit	rw	0 = kWh	
426 (0x1AA)	Indicazione unità temperatura	UInt	8 bit	rw	0 = °C 1 = °F	
427 (0x1AB)	Indicazione unità pressione	UInt	8 bit	rw	0 = bar 1 = psi	
428 (0x1AC)	Disattiva visua- lizzazione	UInt	8 bit	rw	0 = OFF 1 = 1 min 2 = 2 min 5 = 5 min 10 = 10 min 30 = 30 min 60 = 60 min	
429 (0x1AD)	Ruota visualizza- zione	UInt	8 bit	rw	0 = 0° 1 = 90° 2 = 180° 3 = 270°	
430 (0x1AE)	Salvaschermo	UInt	8 bit	rw	0 = OFF 1 = 1 min 2 = 2 min 5 = 5 min 10 = 10 min 30 = 30 min 60 = 60 min	
431 (0x1AF)	Indicazione lumi- nosità	UInt	8 bit	rw	2 = 40 % 7 = 60 % 10 = 80 % 15 = 100 %	
432 (0x1B0)	Indicazione PIN	UInt	16 bit	rw	0 ... 9999	PIN per protegge- re la configura- zione, 0000 ==> nessun PIN assegnato
433 (0x1B1)	Indicazione 1 in alto	UInt	8 bit	rw	0 = portata massica 1 = velocità di flusso 2 = volume 3 = portata volumetrica 4 = massa 5 = energia 6 = temperatura 7 = pressione	
434 (0x1B2)	Indicazione 1 in basso	UInt	8 bit	rw	0 = portata massica 1 = velocità di flusso 2 = volume 3 = portata volumetrica 4 = massa 5 = energia 6 = temperatura 7 = pressione	
435 (0x1B3)	Indicazione 2 in alto	UInt	8 bit	rw	0 = portata massica 1 = velocità di flusso 2 = volume 3 = portata volumetrica 4 = massa 5 = energia 6 = temperatura 7 = pressione	

Specifico AVENTICS						
Indice dec (hex)	Nome	Forma- to (off- set)	Lun- ghez- za	Ac- ces- so	Valore standard	Campo di valori [unità]
436 (0x1B4)	Indicazione 2 in basso	UInt	8 bit	rw	0 = portata massica 1 = velocità di flusso 2 = volume 3 = portata volumetrica 4 = massa 5 = energia 6 = temperatura 7 = pressione	
437 (0x1B5)	Indicazione 3 in alto	UInt	8 bit	rw	0 = portata massica 1 = velocità di flusso 2 = volume 3 = portata volumetrica 4 = massa 5 = energia 6 = temperatura 7 = pressione	
438 (0x1B6)	Indicazione 3 in basso	UInt	8 bit	rw	0 = portata massica 1 = velocità di flusso 2 = volume 3 = portata volumetrica 4 = massa 5 = energia 6 = temperatura 7 = pressione	
439 (0x1B7)	Indicazione cronologia	UInt	8 bit	rw	0 = portata massica 1 = velocità di flusso 2 = volume 3 = portata volumetrica 4 = massa 5 = energia 6 = temperatura 7 = pressione	
440 (0x1B8)	Simulazione portata	UInt	8 bit	rw	0 = 0 % 10 = 10 % 20 = 20 % 30 = 30 % 40 = 40 % 50 = 50 % 60 = 60 % 70 = 70 % 80 = 80 % 90 = 90 % 100 = 100 % 255 = simulazione OFF	
441 (0x1B9)	Simulazione temperatura	UInt	8 bit	rw	0 = 0 % 10 = 10 % 20 = 20 % 30 = 30 % 40 = 40 % 50 = 50 % 60 = 60 % 70 = 70 % 80 = 80 % 90 = 90 % 100 = 100 % 255 = simulazione OFF	

Specifico AVENTICS						
Indice dec (hex)	Nome	Forma- to (off- set)	Lun- ghez- za	Ac- ces- so	Valore standard	Campo di valori [unità]
442 (0x1-BA)	Simulazione pressione	UInt	8 bit	rw	0 = 0 % 10 = 10 % 20 = 20 % 30 = 30 % 40 = 40 % 50 = 50 % 60 = 60 % 70 = 70 % 80 = 80 % 90 = 90 % 100 = 100 % 255 = simulazione OFF	
443 (0x1BB)	Mezzo fluido	UInt	8 bit	rw	0 = aria 1 = nitrogeno 2 = anidride carbonica CO2 4 = argon	
444 (0x1BC)	Condizioni di riferimento portata	UInt	8 bit	rw	0 = ISO 8778 1 = ISO 6358 2 = DIN 1343 3 = DIN 1945-1 4 = ISO 1217 5 = ISO 2533 6 = specifico del cliente	
445 (0x1BD)	Pressione di riferimento specifica del cliente	Float	4 byte	rw	-1.0 ... 16.0	
446 (0x1-BE)	Temperatura di riferimento specifica del cliente	Float	4 byte	rw	-20.0 ... 60.0	
447 (0x1BF)	Immissione offset punto zero per portata	Float	4 byte	rw	-10.0 ... 10.0	
448 (0x1C0)	Immissione taglio bassa portata	Float	4 byte	rw	0.0 ... 10.0	
449 (0x1C1)	Immissione filtro livellamento per portata	UInt	8 bit	rw	0 = OFF 1 = 100 ms 2 = 200 ms 5 = 500 ms 10 = 1 sec 20 = 2 sec 50 = 5 sec 100 = 10 sec	
450 (0x1C2)	Modalità di misura portata	UInt	8 bit	rw	0 = standard	
453 (0x1C5)	Immissione offset punto zero per pressione	Float	4 byte	rw	-0.5 ... 0.5	[bar]
454 (0x1C6)	Immissione filtro livellamento per pressione	UInt	8 bit	rw	0 = OFF 1 = 100 ms 2 = 200 ms 5 = 500 ms 10 = 1 sec 20 = 2 sec 50 = 5 sec 100 = 10 sec	
458 (0x1-CA)	Immissione filtro livellamento per temperatura	UInt	8 bit	rw	0 = OFF 1 = 100 ms 2 = 200 ms 5 = 500 ms 10 = 1 sec 20 = 2 sec 50 = 5 sec 100 = 10 sec	



Specifico AVENTICS						
Indice dec (hex)	Nome	Formato (offset)	Lunghezza	Accesso	Valore standard	Campo di valori [unità]
481 (0x1E1)	Qualità del segnale 1 (stabilità sensore)	UInt	8 bit	ro	0 ... 100	[%]
482 (0x1E2)	Qualità del segnale 2	UInt	8 bit	ro	0 ... 100	[%]
483 (0x1E3)	Qualità del segnale 3	UInt	8 bit	ro	0 ... 100	[%]
484 (0x1E4)	Qualità del segnale 4	UInt	8 bit	ro	0 ... 100	[%]
485 (0x1E5)	Contatore PowerUp	UInt	32 bit	ro		
486 (0x1E6)	Alimentazione di tensione sensore	Float	4 byte	ro	[V]	
487 (0x1E7)	Sensore temperatura	Float	4 byte	ro	(Parametri in 0.1 °C) [°C]	
488 (0x1E8)	Statistica portata massica	Record	12 byte	ro		
1 (0x01)	Minimo	Bit (64)	4 byte	ro		
2 (0x02)	Massimo	Bit (32)	4 byte	ro		
3 (0x03)	Valore medio	Bit (0)	4 byte	ro		
489 (0x1E9)	Statistica velocità di flusso	Record	12 byte	ro	V. indice 488	
490 (0x1EA)	Statistica portata volumetrica	Record	12 byte	ro	V. indice 488	
491 (0x1EB)	Statistica temperatura	Record	12 byte	ro	V. indice 488	
492 (0x1EC)	Statistica pressione	Record	12 byte	ro	V. indice 488	
493 (0x1ED)	Durata statistica dal reset	UInt	32 bit	ro	V. indice 488	
496 (0x1F0)	Valore contatore dal reset	UInt	32 bit	ro	Reset dati di processo rVolume, rMass, rEnergy	
502 (0x1F6)	Messaggi attivi	Record	140 byte	ro	4 messaggi attivi con massima priorità	
1 (0x01)	Messaggio 1 numero	Bit (1104)	16 bit	ro		
2 (0x02)	Messaggio 1 livello	Bit (1096)	8 bit	ro	0 = nessun messaggio 1 = informazione 2 = avvertenza 3 = errore	
3 (0x03)	Messaggio 1 descrizione	Bit (840)	32 byte	ro		
4 (0x04)	Messaggio 2 numero	Bit (824)	16 bit	ro		
5 (0x05)	Messaggio 2 livello	Bit (816)	8 bit	ro	0 = nessun messaggio 1 = informazione 2 = avvertenza 3 = errore	
6 (0x06)	Messaggio 2 descrizione	Bit (560)	32 byte	ro		
7 (0x07)	Messaggio 3 numero	Bit (544)	16 bit	ro		
8 (0x08)	Messaggio 3 livello	Bit (536)	8 bit	ro	0 = nessun messaggio 1 = informazione 2 = avvertenza 3 = errore	
9 (0x09)	Messaggio 3 descrizione	Bit (280)	32 byte	ro		
10 (0x0A)	Messaggio 4 numero	Bit (264)	16 bit	ro		
11 (0x0B)	Messaggio 4 livello	Bit (256)	8 bit	ro	0 = nessun messaggio 1 = informazione 2 = avvertenza 3 = errore	
12 (0x0C)	Messaggio 4 descrizione	Bit (0)	32 byte	ro		
17342 (0x43BE)	Chiave di identificazione hardware	Stringa	32 byte	ro		

ro = solo lettura, rw = lettura/scrittura

Comando standard				
Indice dec (hex)	Comando standard	Accesso	Valore	Nome
2 (0x02)		wo	83	BM_ACTIVATE
			128	Resetta apparecchio
			130	Ripristina stato alla consegna
			210	Resetta tutti i valori statistici
			211	Resetta tutti i valori contatore

wo = solo scrittura

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# 1 Acerca de esta documentación

Estas instrucciones contienen información importante para la manipulación segura y adecuada del producto.

Esta documentación es un complemento de las instrucciones de montaje aplicables. Lea completamente las instrucciones de montaje antes de trabajar con el producto.

## 1.1 Validez de la documentación

Esta documentación proporciona información complementaria para la manipulación de las siguientes variantes de la serie AF2 y 652/653:

Serie	Variante de producto	Interfaz
AF2	Combinaciones de filtros de sensores (AS)	IO-Link
	Sensor High Flow (HF)	IO-Link
652	Variante de producto de filtro	IO-Link (A)
	Variante de producto de manguera	IO-Link (A)
653	Variante de producto de filtro	IO-Link (A)
	Variante de producto de manguera	IO-Link (A)

## 1.2 Documentación adicional

Tenga en cuenta la siguiente documentación aplicable:

- Documentación de la instalación del fabricante
- Documentación de otros componentes de la instalación
- Instrucciones de montaje (R412026496 o 549411)

# 2 Seguridad

## 2.1 Acerca de este capítulo

- Lea el capítulo sobre seguridad de las instrucciones de montaje y toda la documentación a fondo y por completo antes de trabajar con el producto.
- Conserve la documentación para que sea accesible a todos los usuarios en todo momento.

# 3 Configuración del sensor de medición de caudal en el sistema IO-Link



Los archivos IODD y la información técnica con los textos en inglés y alemán para el sensor de medición de caudal IO-Link se encuentran en el Media Centre.

Para realizar la configuración IO-Link puede utilizar programas de configuración de distintos fabricantes.

Para poder utilizar el sensor de caudal, es necesario que el maestro IO-Link lo haya detectado previamente. Esto se produce de forma automática o se puede realizar manualmente.

- ▶ Para ello, tenga en cuenta la documentación del maestro IO-Link utilizado.

# 4 Capa física



El consumo de corriente máximo del dispositivo IO-Link (incl. corrientes de carga) no deben sobrepasar la corriente de salida máxima de la conexión maestra.

Modo SIO	sí
Duración mín. del ciclo	3,0 ms
Velocidad en baudios	COM3
Longitud de datos de proceso (IN)	32 bytes

Los valores COM especifican la tasa de baudios (ver especificación del IO-Link): COM 3 (230,4 kbit/s)

# 5 Datos de proceso

Flujo másico [kg/h]

Velocidad de flujo [m/s]

Volumen [m<sup>3</sup>]

Flujo volumétrico [m<sup>3</sup>/h]

Masa [kg]

Energía [kWh]

Temperatura [°C]

Presión [bar]

Record: 32 Byte – datos de proceso					
Offset de bits					224
Byte/Nombre	0	1	2	Flujo másico	3
Tipo/Subíndice				Float	8
Offset de bits					192
Byte/Nombre	4	5	6	Velocidad de flujo	7
Tipo/Subíndice				Float	7
Offset de bits					160
Byte/Nombre	8	9	10	Volumen	11
Tipo/Subíndice				Float	6
Offset de bits					128
Byte/Nombre	12	13	14	Flujo volumétrico	15
Tipo/Subíndice				Float	5
Offset de bits					96
Byte/Nombre	16	17	18	Masa	19
Tipo/Subíndice				Float	4
Offset de bits					64
Byte/Nombre	20	21	22	Energía	23
Tipo/Subíndice				Float	3
Offset de bits					32
Byte/Nombre	24	25	26	Temperatura	27
Tipo/Subíndice				Float	2
Offset de bits					0
Byte/Nombre	28	29	30	Presión	31
Tipo/Subíndice				Float	1

# 6 Datos de servicio

Los siguientes ISDU no se aseguran mediante Data-Storage: parámetro directo 1, parámetro directo 2, nombre específico del sensor, simulación de salida de conmutación Q1, simulación de salida de conmutación Q2, simulación de frecuencia Q2, simulación de valor analógico Qa, Q2, simulación de valor analógico, simulación de caudal, simulación de temperatura, simulación de presión y función especial de acumulador.

Específicos de IO-Link						
Índice decimal (hex)	Nombre	Formato (Offset)	Longitud	Acceso	Valor estándar	
12 (0x0C)	Bloqueo de acceso al aparato	Record	2 bytes	rw		
2 (0x02)	Bloqueo de almacenamiento de datos	Bit (1)	1 bit	rw		
4 (0x04)	Bloqueo de la interfaz de usuario local	Bit (3)	1 bit	rw		
16 (0x10)	Nombre del fabricante	Cadena de caracteres	64 bytes	ro	Aventics	
17 (0x11)	Texto del fabricante	Cadena de caracteres	64 bytes	ro	Emerson – Consider It Solved	
18 (0x12)	Nombre de producto	Cadena de caracteres	64 bytes	ro	AF2	
19 (0x13)	ID del producto	Cadena de caracteres	64 bytes	ro	R412026761 R412026762 R412026763	
20 (0x14)	Texto del producto	Cadena de caracteres	64 bytes	ro	Air Flow Sensor	
21 (0x15)	Número de serie	Cadena de caracteres	16 bytes	ro		
22 (0x16)	Versión de hardware	Cadena de caracteres	64 bytes	ro		
23 (0x17)	Versión de firmware	Cadena de caracteres	64 bytes	ro		
24 (0x18)	Marcación específica de la aplicación	Cadena de caracteres	32 bytes	rw	***	
36 (0x24)	Estado del aparato	UInt	8 bits	ro	0 = Aparato OK 1 = Se necesita mantenimiento 2 = Fuera de la especificación 3 = Comprobación del funcionamiento 4 = Error 5...255 = reservado	
40 (0x28)	Datos de proceso entrada	PD In	32 bytes	ro		

Específico de AVENTICS							
Índice decimal (hex)	Nombre	Formato (Offset)	Longitud	Acceso	Valor estándar	Rango de valores:	Observación [Unidad]
64 (0x40)	Nombre específico del sensor	Cadena de caracteres	32 bytes	rw	***		
66 (0x42)	Estado del sistema	UInt	8 bits	ro	0 = Ok 1 = Advertencia de error 2 = Error		
190 (0xBE)	OpTimer	UInt	32 bits	ro	Tiempo de funcionamiento en segundos [s]		
260 (0x104)	Modo Q1	UInt	8 bits	rw	0 = Salida de conmutación-Histéresis-Flujo volumétrico 1 = Salida de conmutación-Función ventana-Flujo volumétrico 2 = Salida de conmutación-Histéresis-Presión 3 = Salida de conmutación-Función ventana-Presión 4 = Salida de conmutación-Histéresis-Temperatura 5 = Salida de conmutación-Función ventana-Temperatura		

Específico de AVENTICS							
Índice decimal (hex)	Nombre	Formato (Offset)	Longitud	Acceso	Valor estándar	Rango de valores:	Observación [Unidad]
262 (0x106)	Q1 Modelo	UInt	8 bits	rw	2 = NPN 3 = PNP 4 = DRV/Push-Pull		
270 (0x10E)	Q1 Ajustar punto de conmutación 1	Float	4 bytes	rw	-30.0 ... 999 9.0	ver índice 272	
271 (0x10F)	Q1 Ajustar punto de conmutación 2	Float	4 bytes	rw	-30.0 ... 999 9.0	ver índice 272	
272 (0x110)	Q1 Unidad y área	Cadena de caracteres	32 bytes	ro	Unidad y área para índice 270 y 271		
278 (0x116)	Q1 Polaridad	UInt	8 bits	rw	0 = contacto de trabajo 1 = contacto de reposo		
279 (0x117)	Q1 Simulación de salida de conmutación	UInt	8 bits	rw	255	0 = inactivo 1 = activo 255 = normal	
291 (0x123)	Q2 Función	UInt	8 bits	rw	0	0 = Salida de conmutación 1 = Frecuencia 2 = Salida de impulsos 3 = Salida analógica	
292 (0x124)	Q2 Modelo	UInt	8 bits	rw	2 = NPN 3 = PNP 4 = DRV/Push-Pull		
299 (0x12B)	Q2 Modo de conmutación	UInt	8 bits	rw	0 = Salida de conmutación-Histéresis-Flujo volumétrico 1 = Salida de conmutación-Función ventana-Flujo volumétrico 2 = Salida de conmutación-Histéresis-Presión 3 = Salida de conmutación-Función ventana-Presión 4 = Salida de conmutación-Histéresis-Temperatura 5 = Salida de conmutación-Función ventana-Temperatura		
300 (0x12C)	Q2 Ajustar punto de conmutación 1	Float	4 bytes	rw	-30.0 ... 999 9.0	ver índice 302	
301 (0x12D)	Q2 Ajustar punto de conmutación 2	Float	4 bytes	rw	-30.0 ... 999 9.0	ver índice 302	
302 (0x12E)	Q2 Salida de conmutación unidad y área	Cadena de caracteres	32 bytes	ro	Unidad y área para índice 300 y 301		
307 (0x133)	Q2 Simulación de salida de conmutación	UInt	8 bits	rw	255	0 = inactivo 1 = activo 255 = normal	
308 (0x134)	Q2 Salida de conmutación polaridad	UInt	8 bits	rw	0 = contacto de trabajo 1 = contacto de reposo		
309 (0x135)	Qa Salidas de pulsos unidad y área	Cadena de caracteres	32 bytes	ro	Unidad y área para índice 310		
310 (0x136)	Q2 Valor de pulso	Float	4 bytes	rw	0.001 ... 10 0.0	ver índice 309	
311 (0x137)	Q2 Amplitud de pulso	UInt	32 bits	rw	1 ... 2000	[ms]	
312 (0x138)	Q2 Modo de pulsos	UInt	8 bits	rw	0 = Volumen 1 = Energía		
313 (0x139)	Q2 Valor de frecuencia superior	Float	4 bytes	rw	-30.0 ... 999 9.0	ver índice 315	
314 (0x13A)	Q2 Valor de frecuencia inferior	Float	4 bytes	rw	-30.0 ... 999 9.0	ver índice 315	

Específico de AVENTICS						
Índice decimal (hex)	Nombre	Formato (Offset)	Longitud	Acceso	Valor estándar	Rango de valores: Observación [Unidad]
315 (0x13B)	Q2 Frecuencia unidad y área	Cadena de caracteres	32 bytes	ro	Unidad y área para índice 313 y 314	
316 (0x13C)	Q2 Frecuencia máxima	UInt	16 bits	rw	0 ... 10000	[Hz]
317 (0x13D)	Q2 Frecuencia mínima	UInt	16 bits	rw	0 ... 10000	[Hz]
318 (0x13E)	Q2 Frecuencia simulación	UInt	8 bits	rw	255	0 = 1 Hz 1 = 10 Hz 2 = 100 Hz 3 = 1 kHz 4 = 10 kHz 255 = Simulación off
319 (0x13F)	Q2 Modo de frecuencia	UInt	8 bits	rw	0 = Flujo volumétrico	
380 (0x17C)	Qa Modo analógico	UInt	8 bits	rw	0 = Flujo volumétrico 4-20 mA 1 = Presión 4-20 mA 2 = Temperatura 4-20 mA	
383 (0x17F)	Qa Polaridad analógica	UInt	8 bits	rw	0 = Normal 1 = Señal invertida	
384 (0x180)	Qa Valor analógico superior (20 mA)	Float	4 bytes	rw	- 30.0...999 9.0	ver índice 386
385 (0x181)	Qa Valor analógico inferior (4 mA)	Float	4 bytes	rw	- 30.0...999 9.0	ver índice 386
386 (0x182)	Qa Señal analógica unidad y área	Cadena de caracteres	32 bytes	ro	Unidad y área para índice 384 y 385	
390 (0x186)	Qa Señal analógica en caso de error	UInt	8 bits	rw	0 = 3,5 mA 1 = 21,5 mA	
391 (0x187)	Qa Valor analógico simulación	UInt	8 bits	rw	255	35 = 3,5 mA 38 = 3,8 mA 40 = 4,0 mA 100 = 10 mA 120 = 12 mA 180 = 18 mA 200 = 20 mA 205 = 20,5 mA 215 = 21,5 mA 255 = Simulación off
400 (0x190)	Q2 Modo analógico	UInt	8 bits	rw	0 = Flujo volumétrico 4-20 mA 1 = Presión 4-20 mA 2 = Temperatura 4-20 mA	
403 (0x193)	Q2 Polaridad analógica	UInt	8 bits	rw	0 = Normal 1 = Señal invertida	
404 (0x194)	Q2 Valor analógico superior (20 mA)	Float	4 bytes	rw	- 30.0 ... 999 9.0	ver índice 406
405 (0x195)	Q2 Valor analógico inferior (4 mA)	Float	4 bytes	rw	- 30.0 ... 999 9.0	ver índice 406
406 (0x196)	Q2 Señal analógica unidad y área	Cadena de caracteres	32 bytes	ro	Unidad y área para índice 404 y 405	
410 (0x19A)	Q2 Valor analógico en caso de error	UInt	8 bits	rw	0 = 3,5 mA 1 = 21,5 mA	

Específico de AVENTICS						
Índice decimal (hex)	Nombre	Formato (Offset)	Longitud	Acceso	Valor estándar	Rango de valores: Observación [Unidad]
411 (0x19B)	Q2 Valor analógico simulación	UInt	8 bits	rw	255	35 = 3,5 mA 38 = 3,8 mA 40 = 4,0 mA 100 = 10 mA 120 = 12 mA 180 = 18 mA 200 = 20 mA 205 = 20,5 mA 215 = 21,5 mA 255 = Simulación off
420 (0x1A4)	Indicación unidad flujo másico	UInt	8 bits	rw	0 = kg/h 1 = g/s 2 = kg/min	
421 (0x1A5)	Indicación unidad velocidad de gas	UInt	8 bits	rw	0 = m/s 1 = fps	
422 (0x1A6)	Indicación unidad volumen	UInt	8 bits	rw	0 = m³ 1 = l 2 = ft³	
423 (0x1A7)	Indicación unidad flujo volumétrico	UInt	8 bits	rw	0 = m³/h 1 = m³/min 2 = l/s 3 = l/min 4 = ft³/s 5 = ft³/min	
424 (0x1A8)	Indicación unidad masa	UInt	8 bits	rw	0 = kg	
425 (0x1A9)	Indicación unidad energía	UInt	8 bits	rw	0 = kWh	
426 (0x1AA)	Indicación unidad temperatura	UInt	8 bits	rw	0 = °C 1 = °F	
427 (0x1AB)	Indicación unidad presión	UInt	8 bits	rw	0 = bar 1 = psi	
428 (0x1AC)	Desconectar indicador	UInt	8 bits	rw	0 = off 1 = 1 min 2 = 2 min 5 = 5 min 10 = 10 min 30 = 30 min 60 = 60 min	
429 (0x1AD)	Girar indicador	UInt	8 bits	rw	0 = 0° 1 = 90° 2 = 180° 3 = 270°	
430 (0x1AE)	Protector del indicador	UInt	8 bits	rw	0 = off 1 = 1 min 2 = 2 min 5 = 5 min 10 = 10 min 30 = 30 min 60 = 60 min	
431 (0x1AF)	Luminosidad del indicador	UInt	8 bits	rw	2 = 40 % 7 = 60 % 10 = 80 % 15 = 100 %	
432 (0x1B0)	Indicación Pin	UInt	16 bits	rw	0 ... 9999	Pin para protección de la configuración, 0000 ==> no hay pin adjudicado

Específico de AVENTICS						
Índice decimal (hex)	Nombre	Formato (Offset)	Longitud	Acceso	Valor estándar	Rango de valores: Observación [Unidad]
433 (0x1B1)	Indicador 1 superior	UInt	8 bits	rw	0 = Flujo másico 1 = Velocidad de flujo 2 = Volumen 3 = Flujo volumétrico 4 = Masa 5 = Energía 6 = Temperatura 7 = Presión	
434 (0x1B2)	Indicador 1 inferior	UInt	8 bits	rw	0 = Flujo másico 1 = Velocidad de flujo 2 = Volumen 3 = Flujo volumétrico 4 = Masa 5 = Energía 6 = Temperatura 7 = Presión	
435 (0x1B3)	Indicador 2 superior	UInt	8 bits	rw	0 = Flujo másico 1 = Velocidad de flujo 2 = Volumen 3 = Flujo volumétrico 4 = Masa 5 = Energía 6 = Temperatura 7 = Presión	
436 (0x1B4)	Indicador 2 inferior	UInt	8 bits	rw	0 = Flujo másico 1 = Velocidad de flujo 2 = Volumen 3 = Flujo volumétrico 4 = Masa 5 = Energía 6 = Temperatura 7 = Presión	
437 (0x1B5)	Indicador 3 superior	UInt	8 bits	rw	0 = Flujo másico 1 = Velocidad de flujo 2 = Volumen 3 = Flujo volumétrico 4 = Masa 5 = Energía 6 = Temperatura 7 = Presión	
438 (0x1B6)	Indicador 3 inferior	UInt	8 bits	rw	0 = Flujo másico 1 = Velocidad de flujo 2 = Volumen 3 = Flujo volumétrico 4 = Masa 5 = Energía 6 = Temperatura 7 = Presión	
439 (0x1B7)	Indicación histórica	UInt	8 bits	rw	0 = Flujo másico 1 = Velocidad de flujo 2 = Volumen 3 = Flujo volumétrico 4 = Masa 5 = Energía 6 = Temperatura 7 = Presión	

Específico de AVENTICS						
Índice decimal (hex)	Nombre	Formato (Offset)	Longitud	Acceso	Valor estándar	Rango de valores: Observación [Unidad]
440 (0x1B8)	Simulación caudal	UInt	8 bits	rw	0 = 0 % 10 = 10 % 20 = 20 % 30 = 30 % 40 = 40 % 50 = 50 % 60 = 60 % 70 = 70 % 80 = 80 % 90 = 90 % 100 = 100 % 255 = Simulación off	
441 (0x1B9)	Simulación temperatura	UInt	8 bits	rw	0 = 0 % 10 = 10 % 20 = 20 % 30 = 30 % 40 = 40 % 50 = 50 % 60 = 60 % 70 = 70 % 80 = 80 % 90 = 90 % 100 = 100 % 255 = Simulación off	
442 (0x1BA)	Simulación presión	UInt	8 bits	rw	0 = 0 % 10 = 10 % 20 = 20 % 30 = 30 % 40 = 40 % 50 = 50 % 60 = 60 % 70 = 70 % 80 = 80 % 90 = 90 % 100 = 100 % 255 = Simulación off	
443 (0x1BB)	Medio en circulación	UInt	8 bits	rw	0 = Aire 1 = Nitrógeno 2 = Dióxido de carbono CO2 4 = Argón	
444 (0x1BC)	Condiciones de referencia para el caudal	UInt	8 bits	rw	0 = ISO 8778 1 = ISO 6358 2 = DIN 1343 3 = DIN 1945-1 4 = ISO 1217 5 = ISO 2533 6 = específico del cliente	
445 (0x1BD)	Presión de referencia específica del cliente	Float	4 bytes	rw	-1.0 ... 16.0	
446 (0x1BE)	Temperatura de referencia específica del cliente	Float	4 bytes	rw	-20.0 ... 60.0	
447 (0x1BF)	Entrada desalineación del punto 0 para caudal	Float	4 bytes	rw	-10.0 ... 10.0	
448 (0x1C0)	Entrada supresión de valores ínfimos	Float	4 bytes	rw	0.0 ... 10.0	

Específico de AVENTICS						
Índice decimal (hex)	Nombre	Formato (Offset)	Longitud	Acceso	Valor estándar	Observación [Unidad]
449 (0x1C1)	Entrada filtro alimentación para caudal	Ulnr	8 bits	rw	0 = off 1 = 100 ms 2 = 200 ms 5 = 500 ms 10 = 1 s 20 = 2 s 50 = 5 s 100 = 10 s	
450 (0x1C2)	Caudal del modo de medición	Ulnr	8 bits	rw	0 = Estándar	
453 (0x1C5)	Entrada desalineación del punto 0 para presión	Float	4 bytes	rw	-0.5 ... 0.5	[bar]
454 (0x1C6)	Entrada filtro alimentación para presión	Ulnr	8 bits	rw	0 = off 1 = 100 ms 2 = 200 ms 5 = 500 ms 10 = 1 s 20 = 2 s 50 = 5 s 100 = 10 s	
458 (0x1CA)	Entrada filtro alimentación para temperatura	Ulnr	8 bits	rw	0 = off 1 = 100 ms 2 = 200 ms 5 = 500 ms 10 = 1 s 20 = 2 s 50 = 5 s 100 = 10 s	
481 (0x1E1)	Calidad de señal 1 (solidez del sensor)	Ulnr	8 bits	ro	0 ... 100	[%]
482 (0x1E2)	Calidad de la señal 2	Ulnr	8 bits	ro	0 ... 100	[%]
483 (0x1E3)	Calidad de la señal 3	Ulnr	8 bits	ro	0 ... 100	[%]
484 (0x1E4)	Calidad de la señal 4	Ulnr	8 bits	ro	0 ... 100	[%]
485 (0x1E5)	Contador PowerUp	Ulnr	32 bits	ro		
486 (0x1E6)	Alimentación de tensión del sensor	Float	4 bytes	ro	[V]	
487 (0x1E7)	Sensor de temperatura	Float	4 bytes	ro	(Parámetro en 0,1 °C) [°C]	
488 (0x1E8)	Estadística flujo másico	Record	12 bytes	ro		
1 (0x01)	mínimo	Bit (64)	4 bytes	ro		
2 (0x02)	Máximo	Bit (32)	4 bytes	ro		
3 (0x03)	Valor medio	Bit (0)	4 bytes	ro		
489 (0x1E9)	Estadística velocidad de flujo	Record	12 bytes	ro	ver índice 488	
490 (0x1EA)	Estadística flujo volumétrico	Record	12 bytes	ro	ver índice 488	
491 (0x1EB)	Estadística temperatura	Record	12 bytes	ro	ver índice 488	
492 (0x1EC)	Estadística presión	Record	12 bytes	ro	ver índice 488	
493 (0x1ED)	Duración estadística desde reset	Ulnr	32 bits	ro	ver índice 488	
496 (0x1F0)	Estado de contador desde reset	Ulnr	32 bits	ro	Reset datos de proceso rVolume, rMass, rEnergy	
502 (0x1F6)	Avisos activos	Record	140 bytes	ro	4 avisos activos con máxima prioridad	

Específico de AVENTICS						
Índice decimal (hex)	Nombre	Formato (Offset)	Longitud	Acceso	Valor estándar	Observación [Unidad]
1 (0x01)	Mensaje 1 número	Bit (1104)	16 bits	ro		
2 (0x02)	Mensaje 1 nivel	Bit (1096)	8 bits	ro	0 = No hay avisos 1 = Información 2 = Aviso 3 = Error	
3 (0x03)	Aviso 1 descripción	Bit (840)	32 bytes	ro		
4 (0x04)	Mensaje 2 número	Bit (824)	16 bits	ro		
5 (0x05)	Mensaje 2 nivel	Bit (816)	8 bits	ro	0 = No hay avisos 1 = Información 2 = Aviso 3 = Error	
6 (0x06)	Aviso 2 descripción	Bit (560)	32 bytes	ro		
7 (0x07)	Mensaje 3 número	Bit (544)	16 bits	ro		
8 (0x08)	Mensaje 3 nivel	Bit (536)	8 bits	ro	0 = No hay avisos 1 = Información 2 = Aviso 3 = Error	
9 (0x09)	Aviso 3 descripción	Bit (280)	32 bytes	ro		
10 (0x0A)	Mensaje 4 número	Bit (264)	16 bits	ro		
11 (0x0B)	Mensaje 4 nivel	Bit (256)	8 bits	ro	0 = No hay avisos 1 = Información 2 = Aviso 3 = Error	
12 (0x0C)	Aviso 4 descripción	Bit (0)	32 bytes	ro		
17342 (0x43BE)	Código de identificación hardware	Cadena de caracteres	32 bytes	ro		

ro = solo lectura, rw = lectura/escritura

Comando estándar				
Índice decimal (hex)	Acceso	Valor	Nombre	Observación [Unidad]
2 (0x02)	Comando estándar	83	BM_ACTIVATE	
		128	Restablecer aparato	
		130	Recuperar estado de suministro	
		210	Restablecer todos los valores estadísticos	
		211	Restablecer todos los valores del contador	

wo = solo escritura

## Innehållsförteckning

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# 1 Om denna dokumentation

Dessa anvisningar innehåller viktig information för säker och korrekt hantering av produkten.

Den här dokumentationen är ett tillägg till de gällande monteringsanvisningarna. Läs monteringsanvisningarna fullständigt innan du arbetar med produkten.

## 1.1 Dokumentationens giltighet

Den här dokumentationen innehåller kompletterande information om följande produktvarianter i serien AF2 och 652/653:

Serie	Produktvariant	Gränssnitt
AF2	Sensorfilterkombination (AS)	IO-Link
	Sensor High Flow (HF)	IO-Link
652	Filterproduktvariant	IO-Link (A)
	Rörproduktvariant	IO-Link (A)
653	Filterproduktvariant	IO-Link (A)
	Rörproduktvariant	IO-Link (A)

## 1.2 Ytterligare dokumentation

Beakta följande kompletterande dokumentation:

- Tillverkarens anläggningsdokumentation
- Dokumentation av övriga anläggningskomponenter
- Monteringsanvisning (R412026496 eller 549411)

# 2 Säkerhet

## 2.1 Om detta kapitel

- Läs kapitlet Säkerhet i monteringsanvisningen och hela dokumentationen noggrant innan du arbetar med produkten.
- Förvara dokumentation på en plats där den är tillgänglig för alla användare.

# 3 Konfigurera flödessensor i IO-Link-systemet



IODD-filer och teknisk information med engelsk och tysk text för flödessensor IO-Link återfinns i mediacentret.

Man kan använda konfigurationsprogram från olika tillverkare vid konfigurering av IO-Link.

Innan du kan använda flödessensorn måste den kunna identifieras av IO-Link-mastern. Detta görs antingen automatiskt eller måste göras manuellt.

- ▶ Se dokumentationen för den IO-Link-master som används.

# 4 Fysikalisk nivå



Den maximala strömförbrukningen för IO-Link mastern (inkl. lastström) får inte överskrida den maximala utgångsströmmen på master-porten.

SIO mode	ja
Min.cykeltid	3,0 ms
Datahastighet	COM3
Processdatalängd (IN)	32 Byte

COM-värden specificerar datahastigheten (s. IO-Link specifikation): COM3 (230,4 kbit/s)

# 5 Processdata

Massaflöde [kg/h]

Flödeshastighet [m/s]

Volym [m<sup>3</sup>]

Volymflöde [m<sup>3</sup>/h]

Massa [kg]

Energi [kWh]

Temperatur [°C]

Tryck [bar]

Record: 32 Byte – processdata						
Bitoffset						224
Byte/Namn	0	1	2	Massaflöde	3	
Typ/Subindex				Float	8	
Bitoffset						192
Byte/Namn	4	5	6	Flödeshastighet	7	
Typ/Subindex				Float	7	
Bitoffset						160
Byte/Namn	8	9	10	Volym	11	
Typ/Subindex				Float	6	
Bitoffset						128
Byte/Namn	12	13	14	Volymflöde	15	
Typ/Subindex				Float	5	
Bitoffset						96
Byte/Namn	16	17	18	Massa	19	
Typ/Subindex				Float	4	
Bitoffset						64
Byte/Namn	20	21	22	Energi	23	
Typ/Subindex				Float	3	
Bitoffset						32
Byte/Namn	24	25	26	Temperatur	27	
Typ/Subindex				Float	2	
Bitoffset						0
Byte/Namn	28	29	30	Tryck	31	
Typ/Subindex				Float	1	

# 6 Servicedata

Följande ISDU:er säkerhetskopieras inte via datalagring: Direktparameter 1, direktparameter 2, sensorspecifikt namn, Q1-simulering kopplingsutgång, Q2 kopplingsutgång simulering, Q2-frekvens simulering, Qa-analogvärde simulering, Q2, analogvärde simulering, simulering flöde, simulering temperatur, simulering tryck och specialfunktion minne.

IO-Link specifik					
Index dec (hex)	Namn	Format (Offset)	Längd	Åtkomst	Standardvärde
12 (0x0C)	Åtkomstspärr	Record	2 byte	rw	
2 (0x02)	Datasäkringsspärr	Bit (1)	1 Bit	rw	
4 (0x04)	Lokal användargränssnittspärr	Bit (3)	1 Bit	rw	
16 (0x10)	Tillverkarnamn	String	64 byte	ro	AVENTICS
17 (0x11)	Tillverkartext	String	64 byte	ro	Emerson – Consider It Solved
18 (0x12)	Produktnamn	String	64 byte	ro	AF2
19 (0x13)	Produkt-id	String	64 byte	ro	R412026761 R412026762 R412026763
20 (0x14)	Produkttext	String	64 byte	ro	Air Flow Sensor
21 (0x15)	Serienummer	String	16 byte	ro	

IO-Link specifik					
Index dec (hex)	Namn	Format (Offset)	Längd	Åtkomst	Standardvärde
22 (0x16)	Hårdvaruversion	String	64 byte	ro	
23 (0x17)	Firmwareversion	String	64 byte	ro	
24 (0x18)	Användningsspecifik markering	String	32 byte	rw	***
36 (0x24)	Enhetsstatus	UInt	8 Bit	ro	0 = Apparat är OK 1 = Underhåll krävs 2 = Utanför specifikationen 3 = Funktionskontroll 4 = Fel 5...255 = reserverad
40 (0x28)	Processdata ingång	PD In	32 byte	ro	

AVENTICS specifik							
Index dec (hex)	Namn	Format (Offset)	Längd	Åtkomst	Standardvärde	Värdeområde	Kommentar [enhet]
64 (0x40)	Sensorspecifikt namn	String	32 byte	rw	***		
66 (0x42)	Systemstatus	UInt	8 Bit	ro	0 = Ok 1 = Varning för fel 2 = Fel		
190 (0xBE)	OpTimer	UInt	32 Bit	ro	Drifttid i sekunder [s]		
260 (0x104)	Q1 Läge	UInt	8 Bit	rw	0 = Kopplingsutgång-hysteres-volymlöde 1 = Kopplingsutgång-fönsterfunktion-volymlöde 2 = Kopplingsutgång-hysteres-tryck 3 = Kopplingsutgång-fönsterfunktion-tryck 4 = Kopplingsutgång-hysteres-temperatur 5 = Kopplingsutgång-fönsterfunktion-temperatur		
262 (0x106)	Q1 Typ	UInt	8 Bit	rw	2 = NPN 3 = PNP 4 = DRV/Push-Pull		
270 (0x10E)	Q1 Sätta inkopplingsläge 1	Float	4 byte	rw	-30.0 ... 999.0	se Index 272	
271 (0x10F)	Q1 Sätta inkopplingsläge 2	Float	4 byte	rw	-30.0 ... 999.0	se Index 272	
272 (0x110)	Q1 Enhet och område	String	32 byte	ro	Enhet och område för Index 270 och 271		
278 (0x116)	Q1 Polaritet	UInt	8 Bit	rw	0 = Slutande 1 = Öppnande		
279 (0x117)	Q1 Simulering kopplingsutgång	UInt	8 Bit	rw	255	0 = inaktiv 1 = aktiv 255 = normal	
291 (0x123)	Q2 Funktion	UInt	8 Bit	rw	0	0 = Kopplingsutgång 1 = Frekvens 2 = Pulsutgång 3 = Analog utgång	
292 (0x124)	Q2 Typ	UInt	8 Bit	rw	2 = NPN 3 = PNP 4 = DRV/Push-Pull	för kopplings-, puls- och frekvensutgång	

AVENTICS specifik							
Index dec (hex)	Namn	Format (Offset)	Längd	Åtkomst	Standardvärde	Värdeområde	Kommentar [enhet]
299 (0x12B)	Q2 Kopplingsläge	UInt	8 Bit	rw			0 = Kopplingsutgång-hysteres-volymlöde 1 = Kopplingsutgång-fönsterfunktion-volymlöde 2 = Kopplingsutgång-hysteres-tryck 3 = Kopplingsutgång-fönsterfunktion-tryck 4 = Kopplingsutgång-hysteres-temperatur 5 = Kopplingsutgång-fönsterfunktion-temperatur
300 (0x12C)	Q2 Sätta inkopplingsläge 1	Float	4 byte	rw	-30.0 ... 999.0	se Index 302	
301 (0x12D)	Q2 Sätta inkopplingsläge 2	Float	4 byte	rw	-30.0 ... 999.0	se Index 302	
302 (0x12E)	Q2 Kopplingsutgång enhet och område	String	32 byte	ro	Enhet och område för Index 300 och 301		
307 (0x133)	Q2 Kopplingsutgång simulering	UInt	8 Bit	rw	255	0 = inaktiv 1 = aktiv 255 = normal	
308 (0x134)	Q2 Kopplingsutgång polaritet	UInt	8 Bit	rw	0 = Slutande 1 = Öppnande		
309 (0x135)	Qa Pulsutgång enhet och område	String	32 byte	ro	Enhet och område för index 310		
310 (0x136)	Q2 Pulsvärdighet	Float	4 byte	rw	0.001 ... 10.0	se Index 309	
311 (0x137)	Q2 Pulsbredd	UInt	32 Bit	rw	1 ... 2000	[ms]	
312 (0x138)	Q2 Pulsläge	UInt	8 Bit	rw	0 = Volym 1 = Energi		
313 (0x139)	Q2 övre frekvensvärde	Float	4 byte	rw	-30.0 ... 999.0	se Index 315	
314 (0x13A)	Q2 undre frekvensvärde	Float	4 byte	rw	-30.0 ... 999.0	se Index 315	
315 (0x13B)	Q2 Frekvens enhet och område	String	32 byte	ro	Enhet och område för Index 313 och 314		
316 (0x13C)	Q2 max. frekvens	UInt	16 Bit	rw	0 ... 10000	[Hz]	
317 (0x13D)	Q2 min. frekvens	UInt	16 Bit	rw	0 ... 10000	[Hz]	
318 (0x13E)	Q2 Frekvens simulering	UInt	8 Bit	rw	255	0 = 1 Hz 1 = 10 Hz 2 = 100 Hz 3 = 1 kHz 4 = 10 kHz 255 = Simulering av	
319 (0x13F)	Q2 Frekvensläge	UInt	8 Bit	rw	0 = Volymlöde		
380 (0x17C)	Qa Analogläge	UInt	8 Bit	rw	0 = 4-20 mA volymflöde 1 = 4-20 mA tryck 2 = 4-20 mA temperatur		
383 (0x17F)	Qa Analogpolaritet	UInt	8 Bit	rw	0 = Normal 1 = Inverterad signal		
384 (0x180)	Qa övre analogvärde (20 mA)	Float	4 byte	rw	-30.0...999.0	se Index 386	
385 (0x181)	Qa undre analogvärde (4 mA)	Float	4 byte	rw	-30.0...999.0	se Index 386	
386 (0x182)	Qa Analogsignal enhet och område	String	32 byte	ro	Enhet och område för Index 384 och 385		

AVENTICS specifik							
Index dec (hex)	Namn	Format (Offset)	Längd	Åtkomst	Standardvärde	Värdeområde	Kommentar [enhet]
390 (0x186)	Qa Analogsignal i felläge	UInt	8 Bit	rw	0 = 3.5 mA 1 = 21.5 mA		
391 (0x187)	Qa Analogvärde simulering	UInt	8 Bit	rw	255	35 = 3.5 mA 38 = 3.8 mA 40 = 4.0 mA 100 = 10 mA 120 = 12 mA 180 = 18 mA 200 = 20 mA 205 = 20,5 mA 215 = 21,5 mA 255 = Simulering av	
400 (0x190)	Q2 Analogläge	UInt	8 Bit	rw	0 = 4-20 mA volymflöde 1 = 4-20 mA tryck 2 = 4-20 mA temperatur		
403 (0x193)	Q2 Analogpolaritet	UInt	8 Bit	rw	0 = Normal 1 = Inverterad signal		
404 (0x194)	Q2 övre analogvärde (20mA)	Float	4 byte	rw	- 30.0 ... 999 9.0	se Index 406	
405 (0x195)	Q2 undre analogvärde (4mA)	Float	4 byte	rw	- 30.0 ... 999 9.0	se Index 406	
406 (0x196)	Q2 Analogsignal enhet och område	String	32 byte	ro	Enhet och område för Index 404 och 405		
410 (0x19A)	Q2 Analogvärde i felläge	UInt	8 Bit	rw	0 = 3.5 mA 1 = 21.5 mA		
411 (0x19B)	Q2 Analogvärde simulering	UInt	8 Bit	rw	255	35 = 3.5 mA 38 = 3.8 mA 40 = 4.0 mA 100 = 10 mA 120 = 12 mA 180 = 18 mA 200 = 20 mA 205 = 20,5 mA 215 = 21,5 mA 255 = Simulering av	
420 (0x1A4)	Indikering enhet massaflöde	UInt	8 Bit	rw	0 = kg/h 1 = g/s 2 = kg/min		
421 (0x1A5)	Indikering enhet gashastighet	UInt	8 Bit	rw	0 = m/s 1 = fps		
422 (0x1A6)	Indikering enhet volym	UInt	8 Bit	rw	0 = m <sup>3</sup> 1 = l 2 = ft <sup>3</sup>		
423 (0x1A7)	Indikering enhet volymflöde	UInt	8 Bit	rw	0 = m <sup>3</sup> /h 1 = m <sup>3</sup> /min 2 = l/s 3 = l/min 4 = ft <sup>3</sup> /s 5 = ft <sup>3</sup> /min		
424 (0x1A8)	Indikering enhet massa	UInt	8 Bit	rw	0 = kg		
425 (0x1A9)	Indikering enhet energi	UInt	8 Bit	rw	0 = kWh		
426 (0x1AA)	Indikering enhet temperatur	UInt	8 Bit	rw	0 = °C 1 = °F		
427 (0x1AB)	Indikering enhet tryck	UInt	8 Bit	rw	0 = bar 1 = psi		

AVENTICS specifik							
Index dec (hex)	Namn	Format (Offset)	Längd	Åtkomst	Standardvärde	Värdeområde	Kommentar [enhet]
428 (0x1AC)	Koppla bort indikering	UInt	8 Bit	rw	0 = Släckt 1 = 1 min 2 = 2 min 5 = 5 min 10 = 10 min 30 = 30 min 60 = 60 min		
429 (0x1AD)	Rotera display	UInt	8 Bit	rw	0 = 0° 1 = 90° 2 = 180° 3 = 270°		
430 (0x1AE)	Skärmsläckare	UInt	8 Bit	rw	0 = Släckt 1 = 1 min 2 = 2 min 5 = 5 min 10 = 10 min 30 = 30 min 60 = 60 min		
431 (0x1AF)	Indikering ljusstyrka	UInt	8 Bit	rw	2 = 40 % 7 = 60 % 10 = 80 % 15 = 100 %		
432 (0x1B0)	Indikering pinkod	UInt	16 Bit	rw	0 ... 9999	Pin för skydd av konfigurationen, 0000 ==> ingen pin angiven	
433 (0x1B1)	Indikering 1 uppe	UInt	8 Bit	rw	0 = Massaflöde 1 = Flödeshastighet 2 = Volym 3 = Volymflöde 4 = Massa 5 = Energi 6 = Temperatur 7 = Tryck		
434 (0x1B2)	Indikering 1 nere	UInt	8 Bit	rw	0 = Massaflöde 1 = Flödeshastighet 2 = Volym 3 = Volymflöde 4 = Massa 5 = Energi 6 = Temperatur 7 = Tryck		
435 (0x1B3)	Indikering 2 uppe	UInt	8 Bit	rw	0 = Massaflöde 1 = Flödeshastighet 2 = Volym 3 = Volymflöde 4 = Massa 5 = Energi 6 = Temperatur 7 = Tryck		
436 (0x1B4)	Indikering 2 nere	UInt	8 Bit	rw	0 = Massaflöde 1 = Flödeshastighet 2 = Volym 3 = Volymflöde 4 = Massa 5 = Energi 6 = Temperatur 7 = Tryck		

AVENTICS specifik							
Index dec (hex)	Namn	Format (Offset)	Längd	Åtkomst	Standardvärde	Värdeområde	Kommentar [enhet]
437 (0x1B5)	Indikering 3 uppe	UInt	8 Bit	rw	0 = Massaflöde 1 = Flödeshastighet 2 = Volym 3 = Volymflöde 4 = Massa 5 = Energi 6 = Temperatur 7 = Tryck		
438 (0x1B6)	Indikering 3 nere	UInt	8 Bit	rw	0 = Massaflöde 1 = Flödeshastighet 2 = Volym 3 = Volymflöde 4 = Massa 5 = Energi 6 = Temperatur 7 = Tryck		
439 (0x1B7)	Indikering historik	UInt	8 Bit	rw	0 = Massaflöde 1 = Flödeshastighet 2 = Volym 3 = Volymflöde 4 = Massa 5 = Energi 6 = Temperatur 7 = Tryck		
440 (0x1B8)	Simulering flöde	UInt	8 Bit	rw	0 = 0 % 10 = 10 % 20 = 20 % 30 = 30 % 40 = 40 % 50 = 50 % 60 = 60 % 70 = 70 % 80 = 80 % 90 = 90 % 100 = 100 % 255 = Simulering av		
441 (0x1B9)	Simulering temperatur	UInt	8 Bit	rw	0 = 0 % 10 = 10 % 20 = 20 % 30 = 30 % 40 = 40 % 50 = 50 % 60 = 60 % 70 = 70 % 80 = 80 % 90 = 90 % 100 = 100 % 255 = Simulering av		
442 (0x1BA)	Simulering tryck	UInt	8 Bit	rw	0 = 0 % 10 = 10 % 20 = 20 % 30 = 30 % 40 = 40 % 50 = 50 % 60 = 60 % 70 = 70 % 80 = 80 % 90 = 90 % 100 = 100 % 255 = Simulering av		

AVENTICS specifik							
Index dec (hex)	Namn	Format (Offset)	Längd	Åtkomst	Standardvärde	Värdeområde	Kommentar [enhet]
443 (0x1BB)	Flödesmedium	UInt	8 Bit	rw	0 = Luft 1 = Kväve 2 = Koldioxid CO2 4 = Argon		
444 (0x1BC)	Referensvillkor för flödet	UInt	8 Bit	rw	0 = ISO8778 1 = ISO6358 2 = DIN1343 3 = DIN1945-1 4 = ISO1217 5 = ISO2533 6 = kundspecifikt		
445 (0x1BD)	Kundspecifikt referenstryck	Float	4 byte	rw	-1.0 ... 16.0		
446 (0x1BE)	Kundspecifikt referens-temperatur	Float	4 byte	rw	-20.0 ... 60.0		
447 (0x1BF)	Inmatning nollförskjutning för flöde	Float	4 byte	rw	-10.0 ... 10.0		
448 (0x1C0)	Inmatning deaktivering av lågt flöde	Float	4 byte	rw	0.0 ... 10.0		
449 (0x1C1)	Inmatning utjämningsfilter för flöde	UInt	8 Bit	rw	0 = Släckt 1 = 100 ms 2 = 200 ms 5 = 500 ms 10 = 1 sec 20 = 2 sec 50 = 5 sec 100 = 10 sec		
450 (0x1C2)	Flödes-måtläge	UInt	8 Bit	rw	0 = Standard		
453 (0x1C5)	Inmatning nollförskjutning för tryck	Float	4 byte	rw	-0.5 ... 0.5	[bar]	
454 (0x1C6)	Inmatning utjämningsfilter för tryck	UInt	8 Bit	rw	0 = Släckt 1 = 100 ms 2 = 200 ms 5 = 500 ms 10 = 1 sec 20 = 2 sec 50 = 5 sec 100 = 10 sec		
458 (0x1CA)	Inmatning utjämningsfilter för temperatur	UInt	8 Bit	rw	0 = Släckt 1 = 100 ms 2 = 200 ms 5 = 500 ms 10 = 1 sec 20 = 2 sec 50 = 5 sec 100 = 10 sec		
481 (0x1E1)	Signalkvalitet 1 (sensortålighet)	UInt	8 Bit	ro	0 ... 100	[%]	
482 (0x1E2)	Signalkvalitet 2	UInt	8 Bit	ro	0 ... 100	[%]	
483 (0x1E3)	Signalkvalitet 3	UInt	8 Bit	ro	0 ... 100	[%]	
484 (0x1E4)	Signalkvalitet 4	UInt	8 Bit	ro	0 ... 100	[%]	
485 (0x1E5)	PowerUp räknare	UInt	32 Bit	ro			
486 (0x1E6)	Spänningsmatning sensor	Float	4 byte	ro	[V]		
487 (0x1E7)	Sensor temperatur	Float	4 byte	ro	(Parameter i 0,1 °C)	[°C]	
488 (0x1E8)	Statistiskt massaflöde	Record	12 byte	ro			

AVENTICS specifik							
Index dec (hex)	Namn	Format (Offset)	Längd	Åtkomst	Standardvärde	Värdeområde	Kommentar [enhet]
1 (0x01)	Minimum	Bit (64)	4 byte	ro			
2 (0x02)	Maximum	Bit (32)	4 byte	ro			
3 (0x03)	Genomsnittligt värde	Bit (0)	4 byte	ro			
489 (0x1E9)	Statistisk flödes-hastighet	Record	12 byte	ro	se Index 488		
490 (0x1EA)	Statistiskt volymflöde	Record	12 byte	ro	se Index 488		
491 (0x1EB)	Statistisk temperatur	Record	12 byte	ro	se Index 488		
492 (0x1EC)	Statistiskt tryck	Record	12 byte	ro	se Index 488		
493 (0x1ED)	Statistisk varaktighet efter återställning	UInt	32 Bit	ro	se Index 488		
496 (0x1F0)	Räknarstatus efter återställning	UInt	32 Bit	ro	Återställning processdata rVolume, rMass, rEnergy		
502 (0x1F6)	aktiva meddelanden	Record	140 byte	ro	4 aktiva meddelanden med högsta prioritet		
1 (0x01)	Meddelande 1 Nummer	Bit (1104)	16 Bit	ro			
2 (0x02)	Meddelande 1 Level	Bit (1096)	8 Bit	ro	0 = Inget meddelande 1 = Information 2 = Varning 3 = Fel		
3 (0x03)	Meddelande 1 Beskrivning	Bit (840)	32 byte	ro			
4 (0x04)	Meddelande 2 Nummer	Bit (824)	16 Bit	ro			
5 (0x05)	Meddelande 2 Level	Bit (816)	8 Bit	ro	0 = Inget meddelande 1 = Information 2 = Varning 3 = Fel		
6 (0x06)	Meddelande 2 Beskrivning	Bit (560)	32 byte	ro			
7 (0x07)	Meddelande 3 Nummer	Bit (544)	16 Bit	ro			
8 (0x08)	Meddelande 3 Level	Bit (536)	8 Bit	ro	0 = Inget meddelande 1 = Information 2 = Varning 3 = Fel		
9 (0x09)	Meddelande 3 Beskrivning	Bit (280)	32 byte	ro			
10 (0x0A)	Meddelande 4 Nummer	Bit (264)	16 Bit	ro			
11 (0x0B)	Meddelande 4 Level	Bit (256)	8 Bit	ro	0 = Inget meddelande 1 = Information 2 = Varning 3 = Fel		
12 (0x0C)	Meddelande 4 Beskrivning	Bit (0)	32 byte	ro			
17342 (0x43BE)	Identifikationskod för hårdvara	String	32 byte	ro			

ro = endast läsning, rw = läsa/skriva

Standardkommando				
Index dec (hex)		Åtkomst	Värde	Kommentar [enhet]
2 (0x02)	Standardkommando	wo	83	BM_ACTIVATE
			128	Återställ enheten
			130	Återställ till fabriksinställning
			210	Återställning av alla statistikvärden

Standardkommando				
Index dec (hex)		Åtkomst	Värde	Kommentar [enhet]
			211	Återställning av alla räknarvärden

wo = endast skriva

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An example configuration is depicted on the title page. The delivered product may thus vary from that in the illustration.

Translation of the original operating instructions. The original operating instructions were created in the German language.

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