Air Management System IO-Link compatible

CE UKCA cULus *1

RoHS

*1 Refer to the "How to Order" page of each series for details on compliant models.

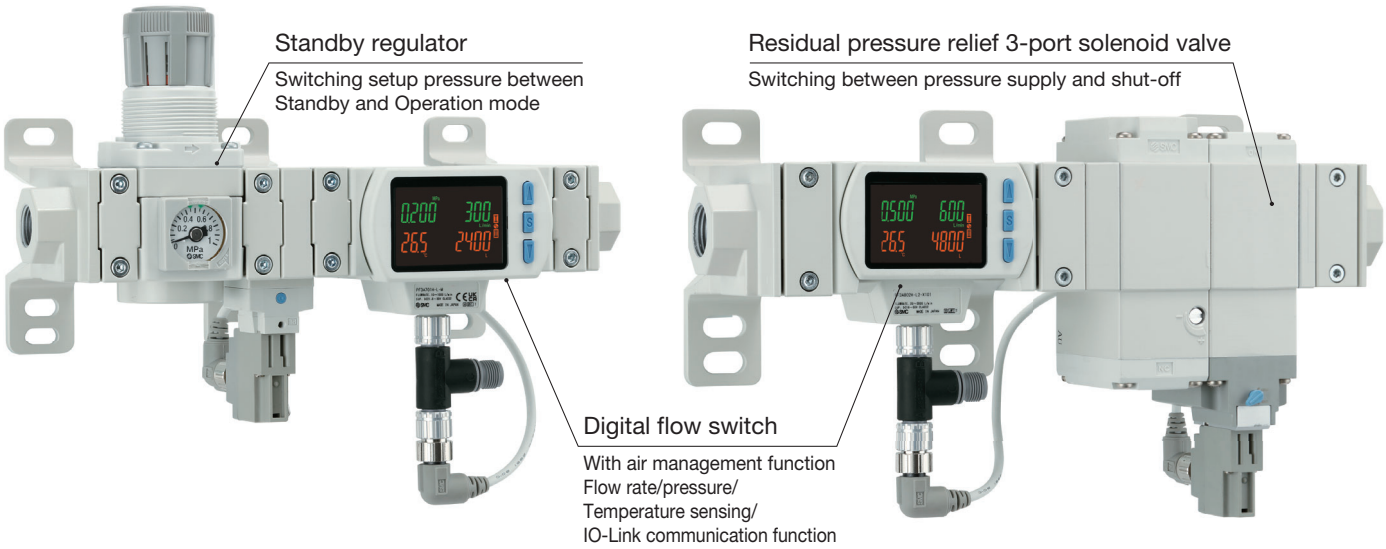
Monitoring compressed air condition via IO-Link and reduction of air consumption

Standby Regulator + **Digital Flow Switch**

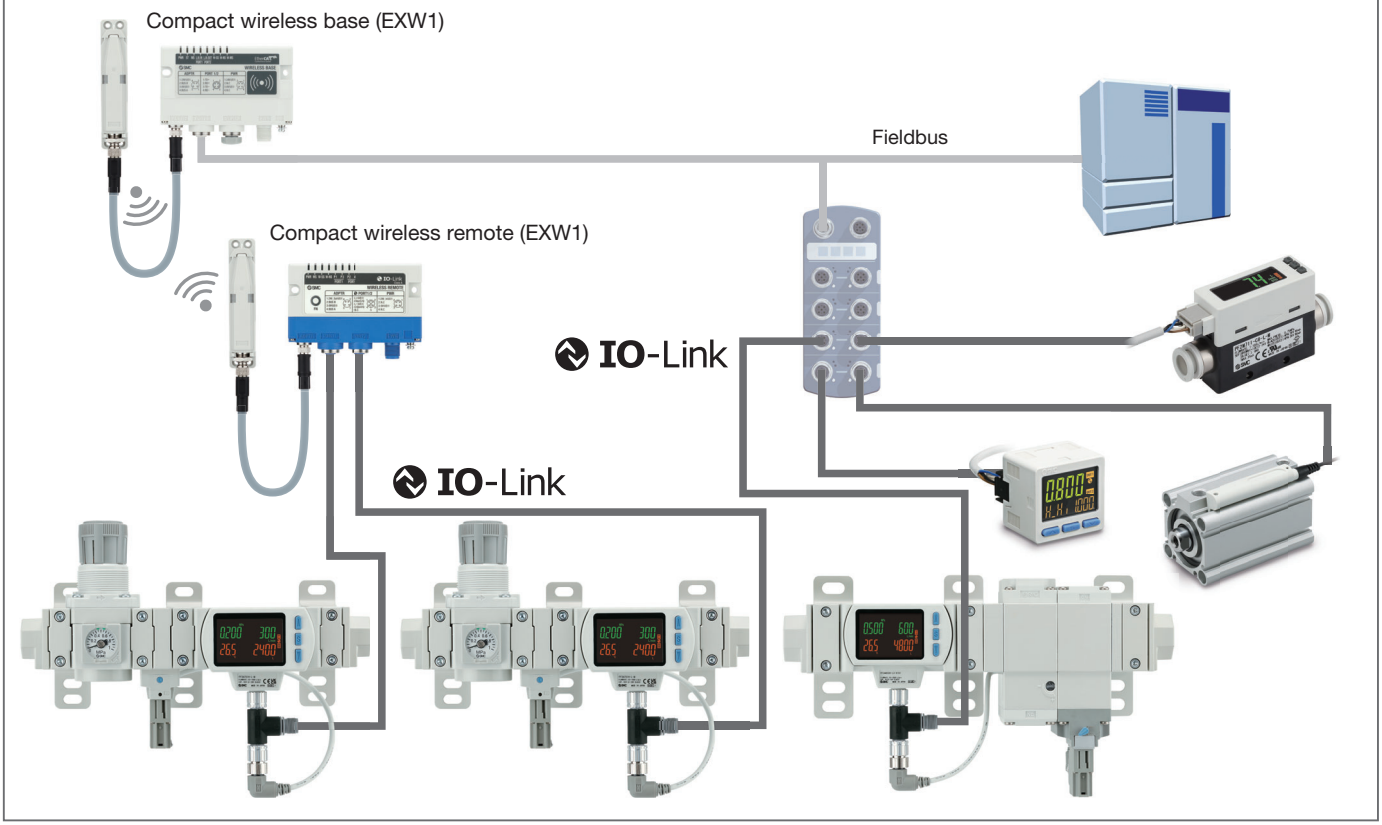
Suffix **-X2044** Operation mode ⇔ Standby mode

Digital Flow Switch + **Residual Pressure Relief 3-Port Solenoid Valve** (With soft start-up function)

Suffix **-X2045** Operation mode ⇔ Isolation mode



System Example



AMS20X/30X/40X/60X -X2044 -X2045

SMC

Input Process Data

Bit offset	Item	Note
0	Standby SW (OUT1)*1	0: OFF 1: ON
1	Control output (OUT2)*2	0: OFF 1: ON
2	Isolation SW*3	0: OFF 1: ON
3	Accumulated pulse output	0: OFF 1: ON
8	Standby signal	0: OFF 1: ON
9	Force standby signal	0: OFF 1: ON
15	Force mode*4	0: OFF 1: ON
16	Accumulated flow SW1	0: OFF 1: ON
17	Accumulated flow SW2	0: OFF 1: ON
18	Flow rate SW1	0: OFF 1: ON
19	Flow rate SW2	0: OFF 1: ON
20	Temperature SW1	0: OFF 1: ON
21	Temperature SW2	0: OFF 1: ON
22	Pressure SW1	0: OFF 1: ON
23	Pressure SW2	0: OFF 1: ON

Bit offset	Item	Note
24	Flow rate unit	0: L 1: ft3
25	Flow rate criteria	0: STD 1: nor
26	Flow rate diagnosis	0: Normal 1: HHH
27	Temperature diagnosis	0: Normal 1: HHH/LLL
28	Pressure diagnosis	0: Normal 1: HHH/LLL
29	Fixed output	0: Normal output 1: Fixed output
30	Error	0: Normal 1: Abnormal
31	System error	0: Normal 1: Abnormal
32 to 47	Measured pressure value	Signed 16 bit
48 to 63	Measured temperature value	Signed 16 bit
64 to 79	Measured flow rate value	Signed 16 bit
80 to 95	Accumulated flow rate lower limit	Unsigned 32 bit
96 to 111	Accumulated flow rate upper limit	

*1 Judgment by Standby flow rate & Standby delay
*2 Judgment by Standby SW & Standby signal or Force Standby signal (Operational signal of Standby Regulator or Residual pressure exhaust valve)
AMS20X/30X/40X/60X-X2045: switch Operation mode and Isolation mode by Control output (OUT2)
*3 Judgment by Control output and Isolation delay
*4 During Force mode except [F41] AMS mode

Bit offset	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97	96
Item	Accumulated flow rate upper limit (PD)															

Bit offset	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81	80
Item	Accumulated flow rate lower limit (PD)															

Bit offset	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64
Item	Measured flow rate value (PD)															

Bit offset	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48
Item	Measured temperature value (PD)															

Bit offset	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	32
Item	Measured pressure value (PD)															

Bit offset	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16
Item	System error	Error	Fixed output	Pressure diagnosis	Temperature diagnosis	Flow rate diagnosis	Flow rate criteria	Flow rate unit	Pressure 2	Pressure 1	Temperature 2	Temperature 1	Flow rate 2	Flow rate 1	Accumulated flow 2	Accumulated flow 1

Bit offset	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Item	Force mode	Reservation					Force standby signal	Standby signal	Reservation				Accumulated pulse output	Isolation SW	Control output	Standby SW
															OUT2	OUT1

Output Process Data

Bit offset	Item	Note
0	Standby signal	0: OFF 1: ON
1	Force standby signal	0: OFF 1: ON

Bit offset	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Item	Reservation														Force standby signal	Standby signal

Air Management System
IO-Link compatible

AMS20X/30X/40X/60X -X2044 -X2045

How to Order

Standby Regulator + Digital Flow Switch

AMS ❶40 X – ❷F ❸04 – ❹M L ❺G – X2044

			Symbol	Description	❶ Body size 20	30	40	60
❷	Pipe thread type*1		R	Rc	●	●	●	●
			N	NPT	●	●	●	●
			F	G	●	●	●	●
			+					
❸	Port size		01	1/8	●	–	–	–
			02	1/4	●	●	–	–
			03	3/8	–	●	●	–
			04	1/2	–	–	●	–
			06	3/4	–	–	–	●
			10	1	–	–	–	●
			00	Without attachments	●	●	●	●
			+					
❹	Regulator, Flow switch	Unit	K*2	Pressure gauge: MPa/psi dual scale, PF3A: Units selection function	●	●	●	●
			M	Pressure gauge in SI units: MPa, PF3A: SI units only*3	●	●	●	●
			+					
❺	Regulator	Manual override	G	With non-locking push	●	●	●	●
			E	Push-turn locking type (Manual)	●	●	●	●

*1 For port size "00", specify thread of the standby regulator (ARS)
*2 Applies to overseas destinations only
*3 Fixed units/Instantaneous flow: l/min, Accumulated flow: L, Pressure: kPa, MPa, Temperature: °C
* Including the connection cable and Y connector for standby regulator

Digital Flow Switch + Residual Pressure Relief 3-Port Solenoid Valve (With soft start-up function)

AMS ❶40 X – ❷F ❸04 – ❹M L ❺G – X2045

			Symbol	Description	❶ Body size 20	30	40	60
❷	Pipe thread type*1		R	Rc	●	●	●	●
			N	NPT	●	●	●	●
			F	G	●	●	●	●
			+					
❸	Port size		01	1/8	●	–	–	–
			02	1/4	●	●	–	–
			03	3/8	–	●	●	–
			04	1/2	–	–	●	–
			06	3/4	–	–	–	●
			10	1	–	–	–	●
			00	Without attachments	●	●	●	●
			+					
❹	Flow switch	Unit	K*2	Units selection function	●	●	●	●
			M	SI units only*3	●	●	●	●
			+					
❺	Residual pressure relief valve	Manual override	G	With non-locking push	●	●	●	●
			E	Push-turn locking type (Manual)	●	●	●	●

*1 For ❸ port size "00," the ❷ pipe thread type symbol will be "R."
*2 Applies to overseas destinations only
*3 Fixed units/Instantaneous flow: l/min, Accumulated flow: L, Pressure: kPa, MPa, Temperature: °C
* Including the connection cable and Y connector for residual pressure relief valve

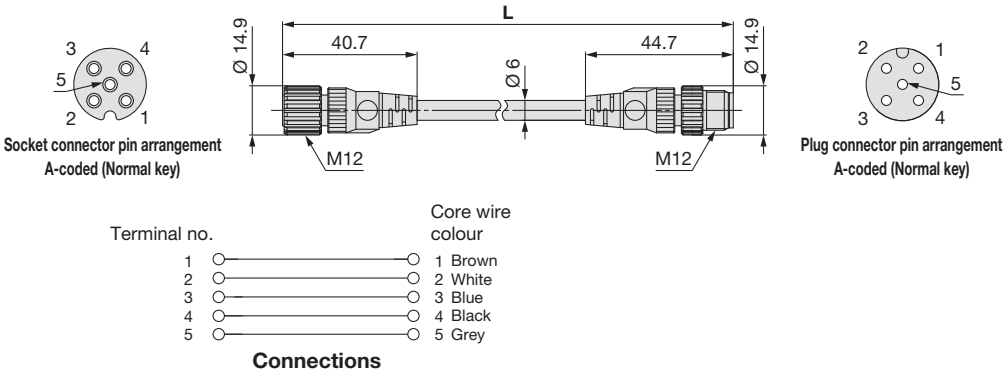
Accessories

Cable for connection component (For IO-Link Device)

EX9-AC 005 -SSPS (With connector on both sides (Socket/Plug))

Cable length (L)

005	500 mm
010	1000 mm
020	2000 mm
030	3000 mm
050	5000 mm
100	10000 mm



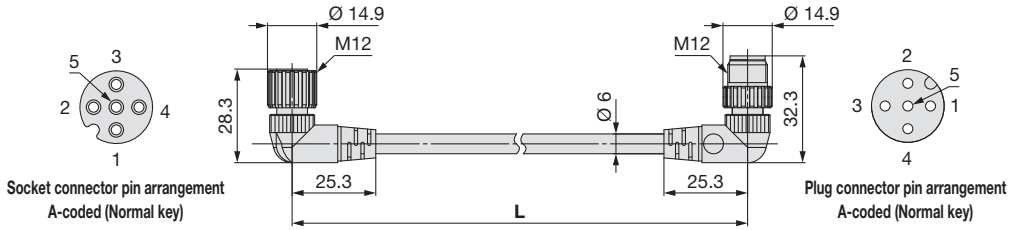
Connections

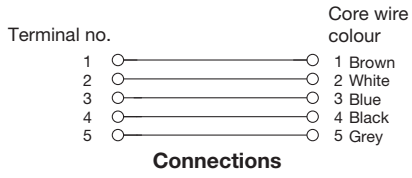
Item	Specifications
Cable O.D.	ø6 mm
Conductor nominal cross section	0.3 mm²/AWG22
Wire O.D. (Including conductor)	1.5 mm
Min. bending radius (Fixed)	40 mm

EX9-AC 005 -SAPA (With connector on both sides (Socket/Plug))

Cable length (L)

005	500 mm
010	1000 mm
020	2000 mm
030	3000 mm
050	5000 mm
100	10000 mm





Connections

Item	Specifications
Cable O.D.	Ø 6 mm
Conductor nominal cross section	0.3 mm²/AWG22
Wire O.D. (Including conductor)	1.5 mm
Min. bending radius (Fixed)	40 mm

Silencer

Part no.	Silencer	Compact resin type		Metal body type	High noise reduction type
	Model	**AN20-02**	**AN30-03**	**AN500-06**	**ANA1-06**
	Port size	1/4	3/8	3/4	3/4
AMS20X-R/N/F□-□L□-X2045	N.O. type	●	–	–	–
AMS30X-R/N/F□-□L□-X2045	N.O. type	–	●	–	–
AMS40X-R/N/F□-□L□-X2045	N.O. type	–	●	–	–
AMS60X-R/N/F□-□L□-X2045	N.O. type	–	–	●	●

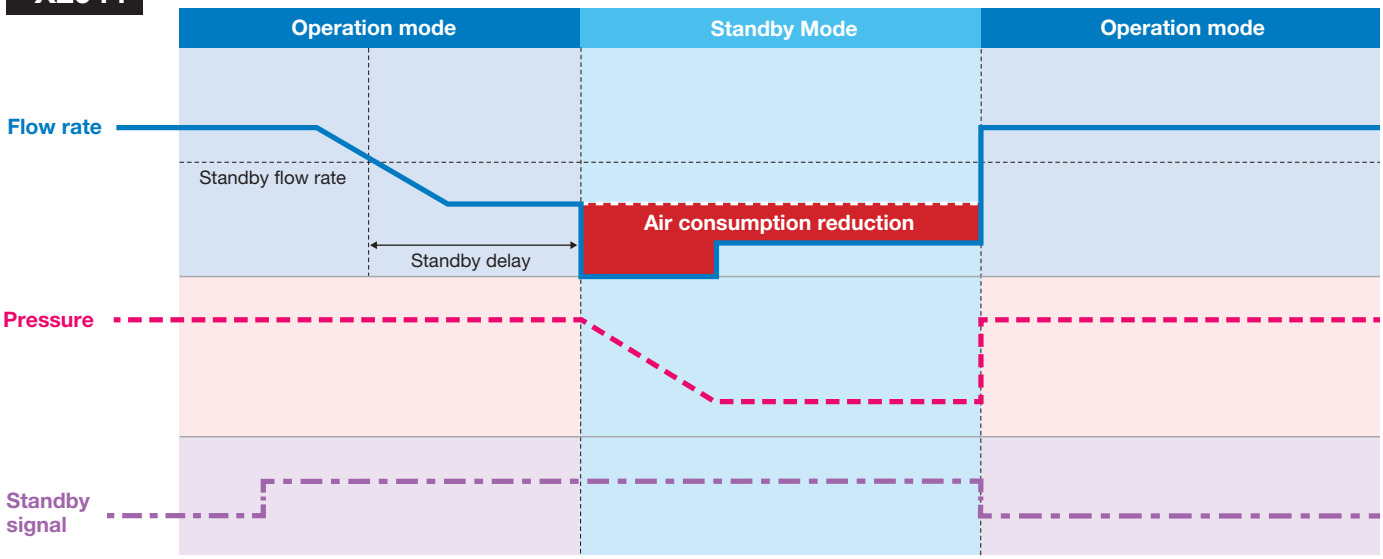
Specifications: -X2044

Standby Regulator + Digital Flow Switch

Model		AMS20X-X2044	AMS30X-X2044	AMS40X-X2044	AMS60X-X2044
Component	Standby regulator	AR20S	AR30S	AR40S	AR60S
	Digital flow switch	PF3A8R5H-X105	PF3A801H-X105	PF3A802H-X105	PF3A804H-X105
Port size		1/8, 1/4	1/4, 3/8	3/8, 1/2	3/4, 1
Fluid*1		Air			
Rated flow range		5 to 500 l/min	10 to 1000 l/min	20 to 2000 l/min	40 to 4000 l/min
Ambient and fluid temperatures		0 to 50 °C (No freezing and condensation)			
Proof pressure		1.0 MPa			
Max. operating pressure		0.7 MPa			
Supply pressure range		0.3 to 0.7 MPa			
Standby pressure range		0.2 to 0.4 MPa			
Power supply voltage		24 VDC ±10 %			
Current consumption		170 mA or less			
Input/Output		IO-Link, output for standby regulator			
Type of actuation		N.O. (Normally open)			
Enclosure		IP65 (Electrical equipment part only)			
Weight		1000 g	1400 g	2000 g	3500 g

*1 Air quality grade is JIS B 8392-1:2012 [6:6:4] and ISO 8573-1:2010 [6:6:4].
Mount an air filter with a nominal filtration rating of 5 µm or less on the inlet side of the product.

-X2044 Transition of equipment operating status



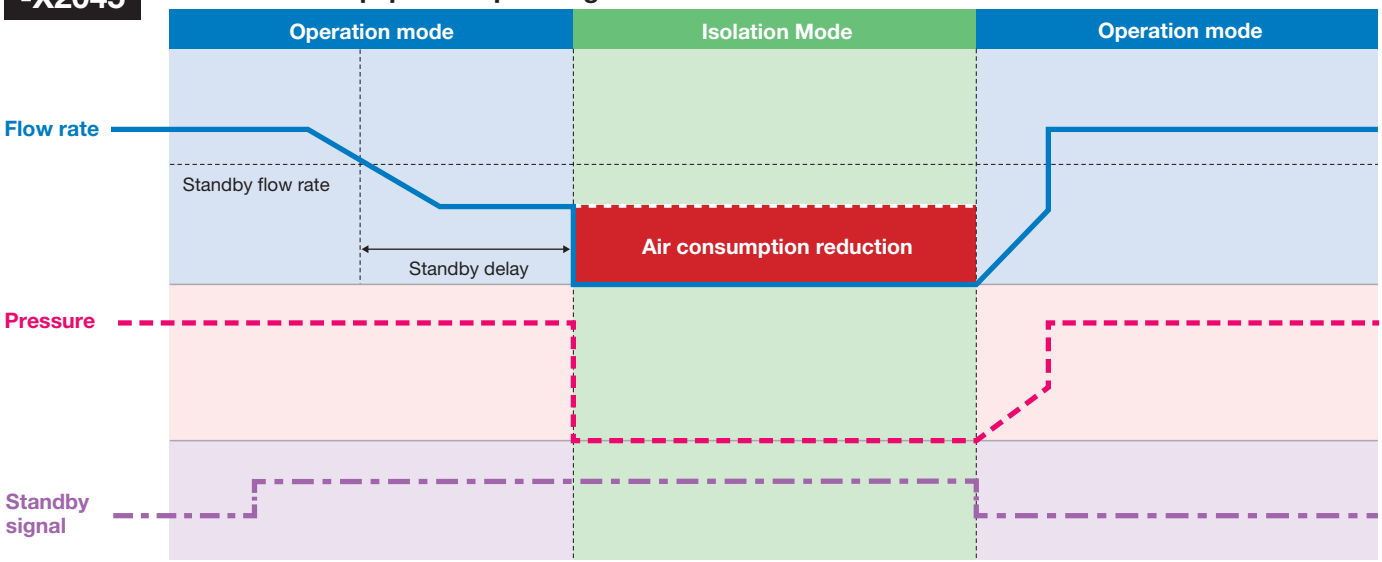
Specifications: -X2045

Digital Flow Switch + Residual Pressure Relief 3-Port Solenoid Valve (With soft start-up function)

Model		AMS20X-X2045	AMS30X-X2045	AMS40X-X2045	AMS60X-X2045
Component	Digital flow switch	PF3A8R5H-X105	PF3A801H-X105	PF3A802H-X105	PF3A804H-X105
	Residual pressure relief valve	VP346E-X661	VP546E-X661	VP746E-X661	VP946E-X661
Port size		1/8, 1/4	1/4, 3/8	3/8, 1/2	3/4, 1
Fluid*1		Air			
Rated flow range		5 to 500 l/min	10 to 1000 l/min	20 to 2000 l/min	40 to 4000 l/min
Ambient and fluid temperatures		0 to 50 °C (No freezing and condensation)			
Proof pressure		1.0 MPa			
Max. operating pressure		0.7 MPa			
Supply pressure range		0.2 to 0.7 MPa			
Power supply voltage		24 VDC ±10 %			
Current consumption		170 mA or less			
Input/Output		IO-Link, output for residual pressure relief valve			
Type of actuation		N.O. (Normally open)			
Enclosure		IP65 (Electrical equipment part only)			
Weight		1000 g	1500 g	2400 g	4300 g

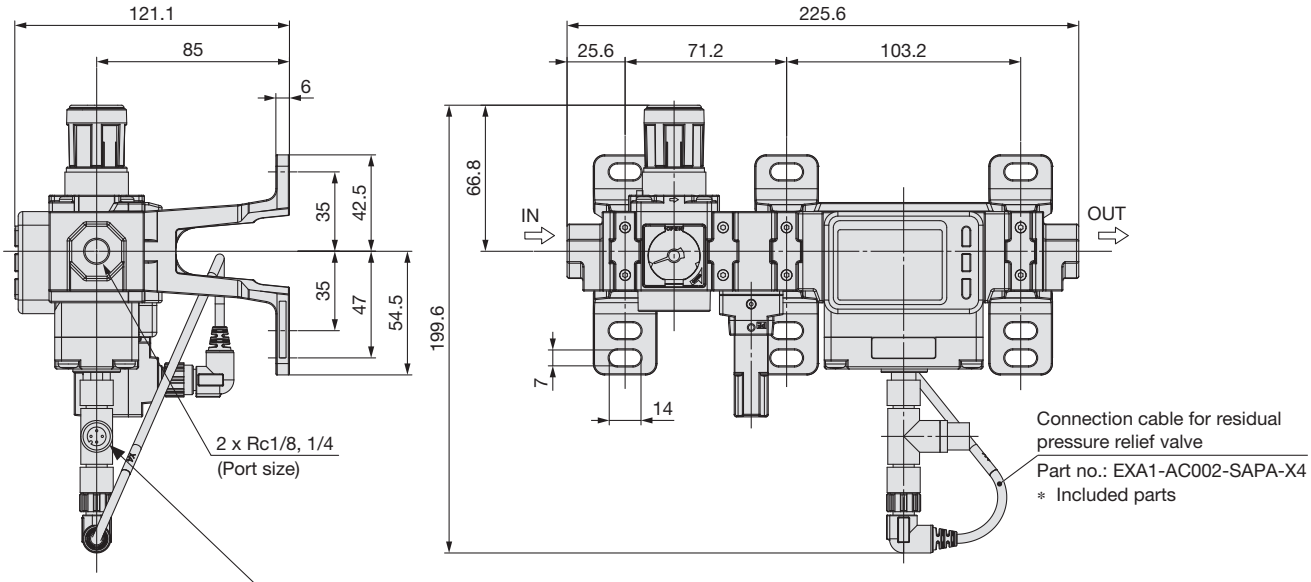
*1 Air quality grade is JIS B 8392-1:2012 [6:6:4] and ISO 8573-1:2010 [6:6:4].
Mount an air filter with a nominal filtration rating of 5 µm or less on the inlet side of the product.

-X2045 Transition of equipment operating status

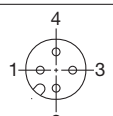


Dimensions: Combination of Standby Regulator + Digital Flow Switch

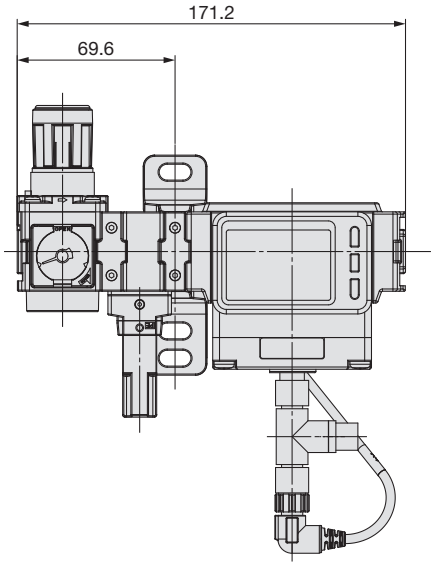
N.O. (Normally open)
AMS20X-R/N/F□-□L□-X2044



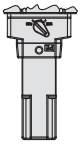
Branch connector
Part no.: LEC-CGD
* Included parts

Pin no.	Description	M12, 4-pin, plug, A-coded
1	24 VDC	
2	OUT2	
3	0 VDC	
4	OUT1 (C/Q)	

AMS20X-□00-□L□-X2044
(Without attachments)

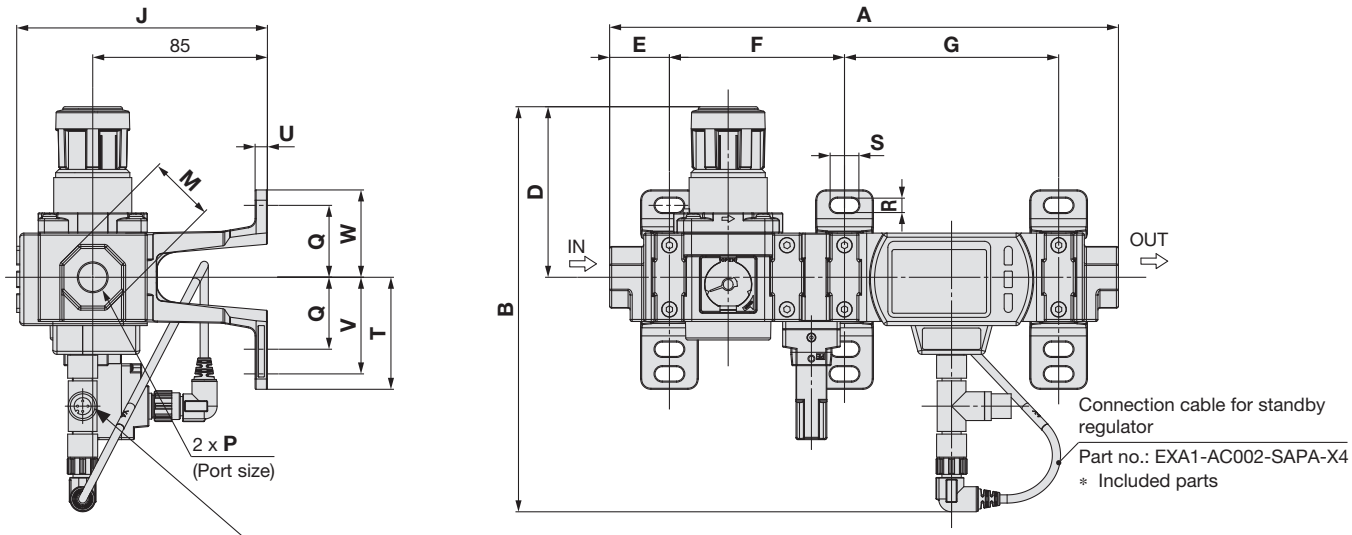


E: Push-turn locking type

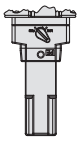


Dimensions: Combination of Standby Regulator + Digital Flow Switch

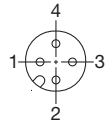
N.O. (Normally open)
AMS30/40X-R/N/F□-□L□-X2044



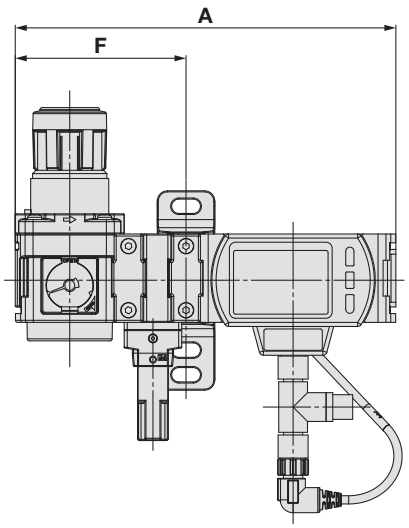
E: Push-turn locking type



Branch connector
Part no.: LEC-CGD
∗ Included parts

Pin no.	Description	M12, 4-pin, plug, A-coded
1	24 VDC	
2	OUT2	
3	0 VDC	
4	OUT1(C/Q)	

AMS30/40X-□00-□L□-X2044
(Without attachments)



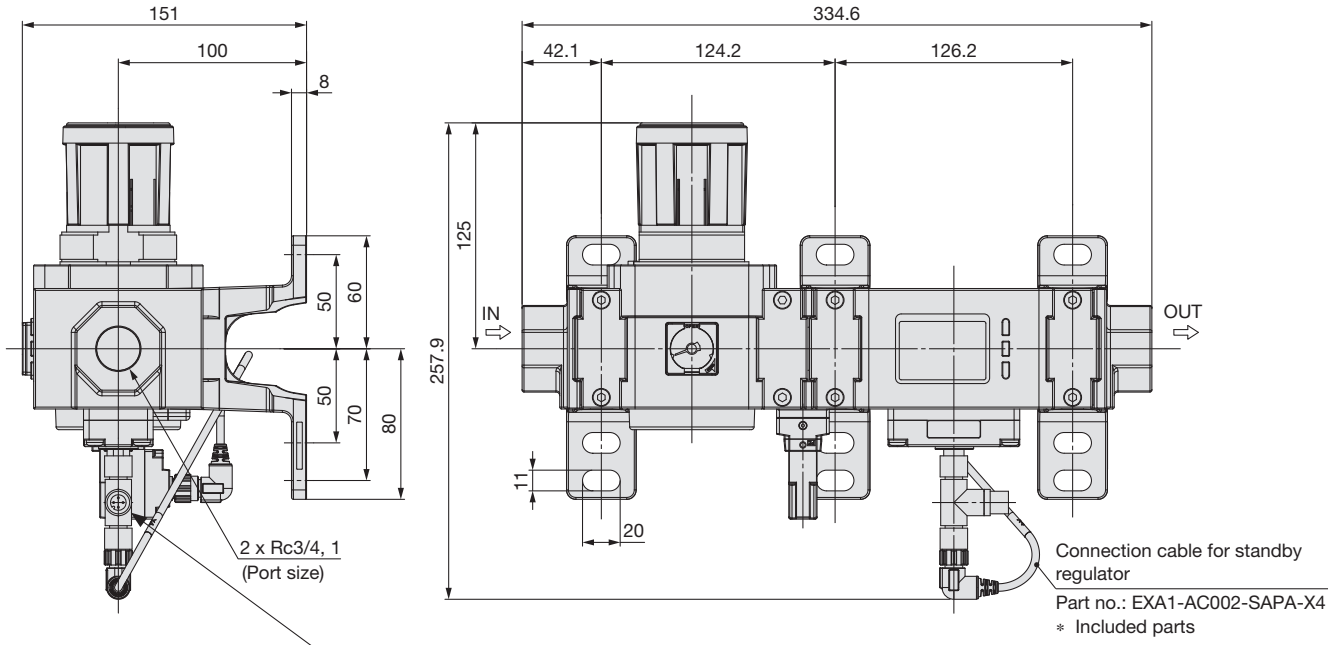
Model	P	A	B∗1	D∗1	E	J	M	Bracket dimensions								
								F	G	Q	R	S	T	U	V	W
AMS30X-□□-□L□-X2044	1/4·3/8	247,6	201,2	86,5	29,1	122	30	85,2	104,2	35	7	14	54,5	6	47	42,5
AMS40X-□□-□L□-X2044	3/8·1/2	273,6	206,2	91,5	32,6	126,5	36	103,2	105,2	40	9	18	65	7	55	50

Model	P	A	F
AMS30X-□00-□L□-X2044	—	185.2	83.1
AMS40X-□00-□L□-X2044	—	203.2	100.6

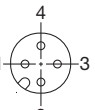
∗1 The dimension of B and D is the length when the regulator knob is unlocked.

Dimensions: Combination of Standby Regulator + Digital Flow Switch

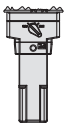
N.O. (Normally open)
AMS60X-R/N/F□-□L□-X2044



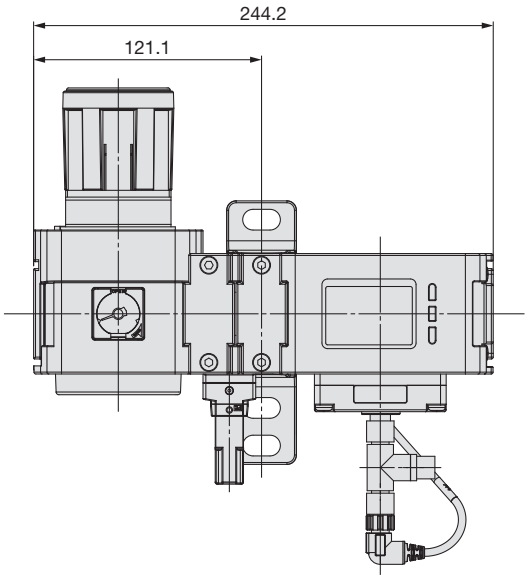
Branch connector
Part no.: LEC-CGD
* Included parts

Pin no.	Description	M12, 4-pin, plug, A-coded
1	24 VDC	
2	OUT2	
3	0 VDC	
4	OUT1 (C/Q)	

E: Push-turn locking type

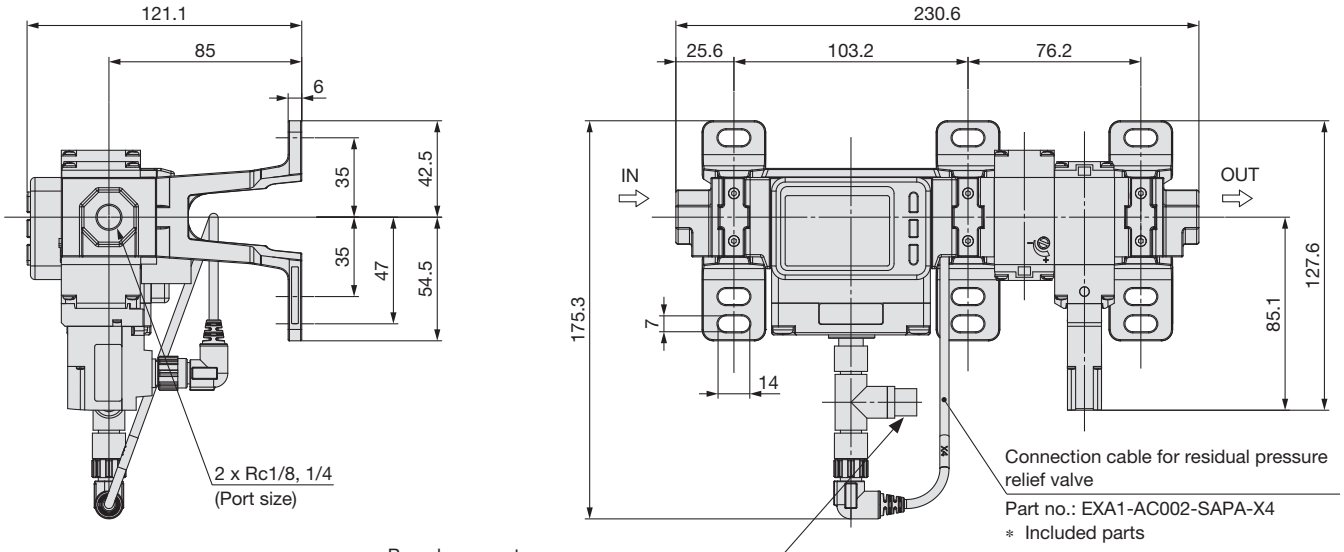


AMS60X-□00-□L□-X2044
(Without attachments)



Dimensions: Combination of Digital Flow Switch + Residual Pressure Relief 3-Port Solenoid Valve (With soft start-up function)

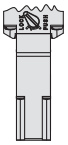
N.O. (Normally open)
AMS20X-R/N/F□-□L□-X2045



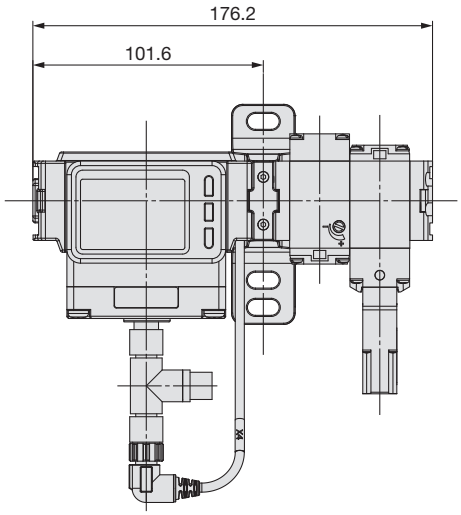
Branch connector
Part no.: LEC-CGD
* Included parts

Pin no.	Description	M12, 4-pin, plug, A-coded
1	24 VDC	4 / 1 3 / 2
2	OUT2	
3	0 VDC	
4	OUT1 (C/Q)	

E: Push-turn locking type

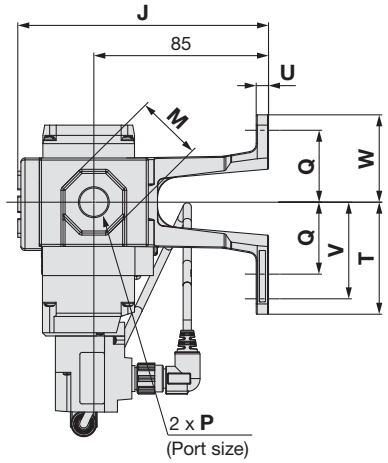


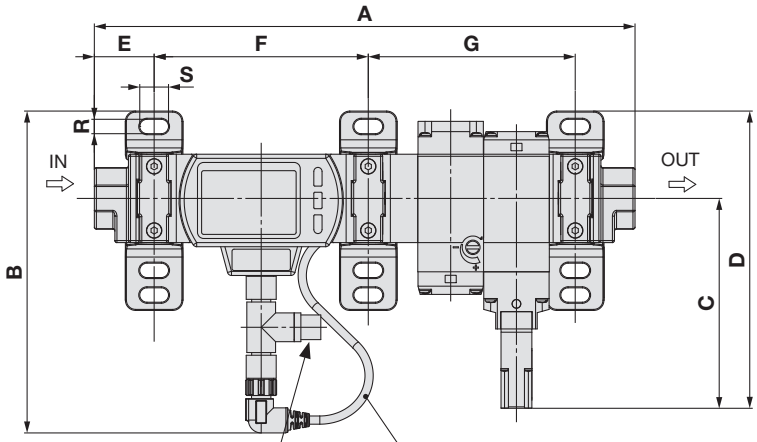
AMS20X-R00-□L□-X2045
(Without attachments)



Dimensions: Combination of Digital Flow Switch + Residual Pressure Relief 3-Port Solenoid Valve (With soft start-up function)

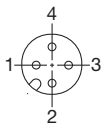
N.O. (Normally open)
AMS30/40X-R/N/F□-□L□-X2045



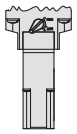


Connection cable for residual pressure relief valve
Part no.: EXA1-AC002-SAPA-X4
* Included parts

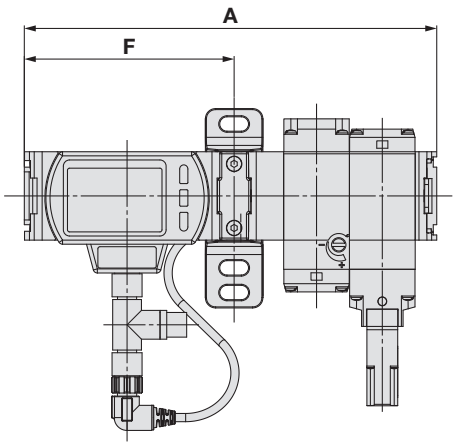
Branch connector
Part no.: LEC-CGD
* Included parts

Pin no.	Description	M12, 4-pin, plug, A-coded
1	24 VDC	
2	OUT2	
3	0 VDC	
4	OUT1 (C/Q)	

E: Push-turn locking type



AMS30/40X-R00-□L□-X2045
(Without attachments)

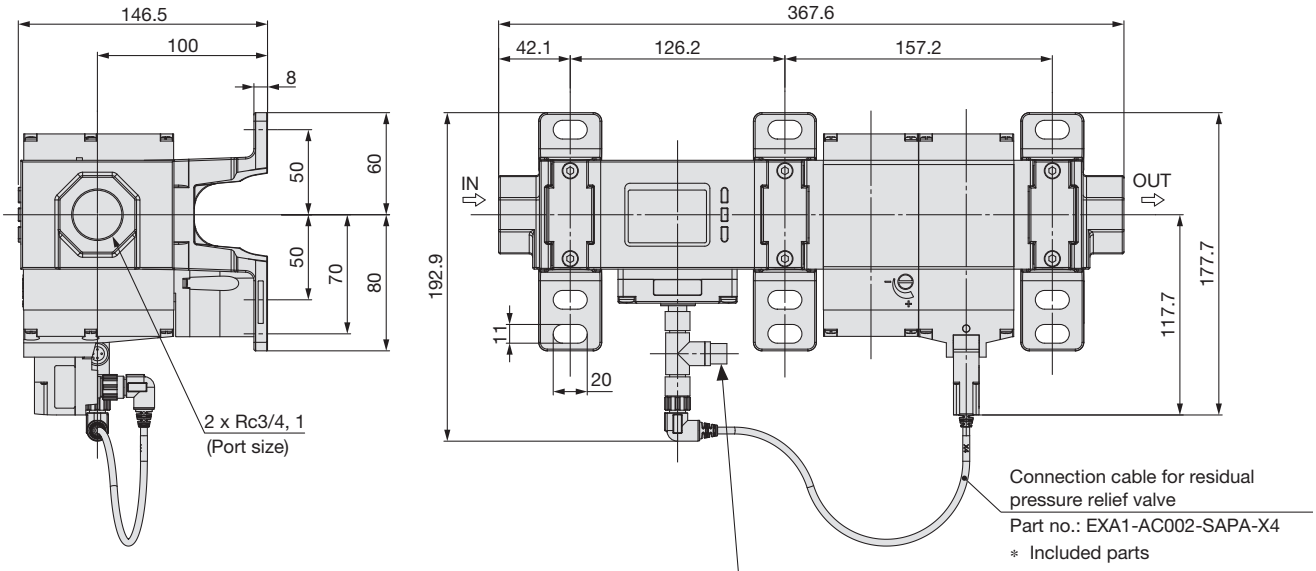


Model	P	A	B	C	D	E	J	M	Bracket dimensions								
									F	G	Q	R	S	T	U	V	W
AMS30X-□□-□L□-X2045	1/4·3/8	263.1	157.2	102.1	144.6	29.1	122	30	104.2	100.7	35	7	14	54.5	6	47	42.5
AMS40X-□□-□L□-X2045	3/8·1/2	292.6	164.7	119.4	169.4	32.6	124	36	105.2	122.2	40	9	18	65	7	55	50

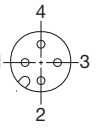
Model	P	A	F
AMS30X-R00-□L□-X2045	—	200.7	102.1
AMS40X-R00-□L□-X2045	—	222.1	102.5

Dimensions: Combination of Digital Flow Switch + Residual Pressure Relief 3-Port Solenoid Valve (With soft start-up function)

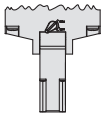
N.O. (Normally open)
AMS60X-R/N/F□-□L□-X2045



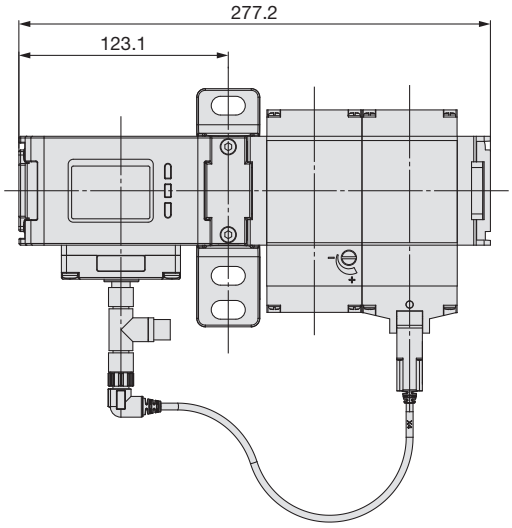
Branch connector
Part no.: LEC-CGD
∗ Included parts

Pin no.	Description	M12, 4-pin, plug, A-coded
1	24 VDC	
2	OUT2	
3	0 VDC	
4	OUT1 (C/Q)	

E: Push-turn locking type



AMS60X-R00-□L□-X2045
(Without attachments)



⚠ Safety Instructions | Be sure to read the “Handling Precautions for SMC Products” (M-E03-3) and “Operation Manual” before use.

SMC Corporation

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Specifications are subject to change without prior notice and any obligation on the part of the manufacturer.