

AMI / MIA / CIA Moisture / Liquid Indicators

Technical Bulletin

The **AMI / MIA / CIA** series of Moisture Indicators are designed to monitor the moisture content within the liquid line of a refrigeration system.

MIA and **CIA** series with stainless steel body and extended copper tube connections are fully hermetic products without the use of any gasket.

AMI is a highly serviceable product with exchangeable lens assembly and indicator element, available in various configurations including saddle type.

Features

- Maximum working Pressure PS:
 - AMI: 35 bar
 - MIA: 45 bar
 - CIA: 60 bar for subcritical CO₂ & R32
- Crystal indicator element for long lifetime and reliability
- Highest sensitivity moisture indicator available
- Indication of dryness according to ASERCOM recommendation
- Easy determination of moisture content with calibrated four colors
- Large clear viewing area
- AMI sight glass with grooves to distinguish between pure liquid and pure vapor



AMI









MIA/CIA

Selection table - MIA & CIA

For Tube Outside Diameter		Type	Part No.	Configuration	Medium Compatibility		Markings				Illustration
mm	inch				A1	A2L	UL	CSA	CE	EAC	
6		MIA M06	805880	Female solder x female solder ODF x ODF	R134a	R452B	√	√			
	1/4	MIA 014	805883								
10		MIA M10	805881								
	3/8	MIA 038	805884								
12		MIA M12	805882								
	1/2	MIA 012	805885								
16	5/8	MIA M16 / 058	805886								
22	7/8	MIA 078	805887								
28		MIA M28	805891	Female solder x male solder ODF x ODF	R513A	R410A	√	√			
	1 1/8	MIA 118	805892								
6		CIA M06	805914	Female solder x female solder ODF x ODF	CO ₂	R32	√	√			
	1/4	CIA 014	805910								
10		CIA M10	805915								
	3/8	CIA 038	805911								
12		CIA M12	805916								
	1/2	CIA 012	805912								
16	5/8	CIA M16 / 058	805913								

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Selection Table - AMI

For Tube Outside Diameter mm inch		Type	Part No.	Configuration	Medium Compatibility	Markings				Illustration			
						UL	CSA	CE	FAT				
					A1	SA4876	Canada	Cat. I PED					
6		AMI-1 TT2 MM	805697	Female solder x female solder ODF x ODF	A1	√	√						
	1/4	AMI-1 TT2	805655										
10		AMI-1 TT3 MM	805698										
	3/8	AMI-1 TT3	805654										
12		AMI-1 TT4 MM	805699										
	1/2	AMI-1 TT4	805653										
16	5/8	AMI-1 TT5	805652										
22	7/8	AMI-1 TT7	805656										
	1 1/8	AMI-1 TT9 MM	805700										
		AMI-1 TT9	805651										
6		AMI-1 SS2 MM	805732	Female solder x female solder ODF x ODF		A1	√	√					
	1/4	AMI-1 SS2	805713										
10		AMI-1 SS3 MM	805733										
	3/8	AMI-1 SS3	805714										
12		AMI-1 SS4 MM	805734										
	1/2	AMI-1 SS4	805715										
16	5/8	AMI-1 SS5	805716										
22	7/8	AMI-1 SS7	805717										
	1 1/8	AMI-1 SS9 MM	805703										
		AMI-1 SS9	805705										
6	1/4	AMI-1 MM2	805706	Male flare x male flare	A1		√	√					
10	3/8	AMI-1 MM3	805707										
12	1/2	AMI-1 MM4	805708										
16	5/8	AMI-1 MM5	805709										
6	1/4	AMI-1 FM2	805710	Female flare x male flare			A1	√	√				
10	3/8	AMI-1 FM3	805711										
12	1/2	AMI-1 FM4	805712										
35	1 3/8	AMI-2 S11	805704	Male solder ODM (for soldering into fittings)		A1		√	√	√			
42	1 5/8	AMI-2 S13	805659										
54	2 1/8	AMI-2 S17	805687										
22	7/8	AMI-3 S7	805650	Saddle type (for soldering onto the pipe)				A1	√	√			
28	1 1/8	AMI-3 S9	805649										
35	1 3/8	AMI-3 S11	805648										

Accessories for AMI

Type	Part No.	Description
X 12978-1	805742	Lens assembly kit
x 99995	805643	O-Ring

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Technical Data

Max. Allowable Pressure PS	AMI: 35 bar CIA: 60 bar	MIA: 45 bar	Operating Temperature TS	-40...+100 °C
Test Pressure PT	AMI: 39 bar CIA: 66 bar	MIA: 49.5 bar	Installation / Location	In any position
Medium Compatibility	<u>A1 (Fluid group II):</u> AMI/MIA: R134a, R22, R404A, R407C, R507, R513A MIA only: R410A CIA only: R744 <u>A2L (Fluid group I):</u> MIA only: R452B, R454A, R454B, R123yf CIA only: R32 (Not released for use with caustic, poisonous or flammable substances)		Pressure Drop	negligible
			Standards	EN 12178
			Markings	UL: see SA 4876 CSA for Canada: AMI series except AMI-3 MIA series except MIA-078 CE (Cat. I of the PED 2014/68/EU) AMI with connection >32 mm, MIA with connection > 25 mm

Crystal Indicator

Where many products in the market use insensitive and technically simple paper indicators. Emerson has retained the long-established crystal moisture indicators in all existing product series because of its known advantages. This guarantees system performance by providing a sensitive and durable monitoring of the systems moisture content. enabling the indicator to react to a minimum moisture level of 50 ppm specified by leading compressor manufacturers (see Asercom statement: www.asercom.org).

Moisture Contents by Indicator Color

CIA	Refrigerants	A1 (CIA only)						A2L (CIA only)					
		R744									R32		
		Liquid temperature (°C)									Liquid temperature (°C)		
	Color code	-40	-20	-10	0	+5	+20	25	38	52			
ppm	Blue/ Dry	3	6	8	11	13	20	6	8	12			
	Purple	5	10	14	19	22	34	9	13	19			
	Fuchsia/ Caution	10	20	29	39	46	72	21	29	43			
	Rose/ Caution WET!	16	32	46	63	75	116	34	46	69			



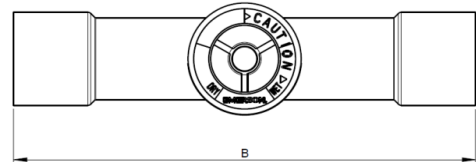
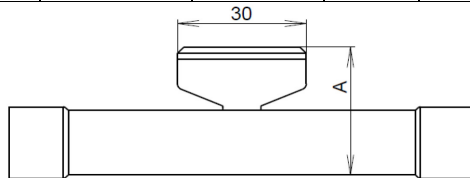
AMI/MIA	Refrigerants	A1 (AMI /MIA)						A2L (MIA only)					
		Liquid Temp. (°C)											
		R22	R404A R507	R134a	R407C	R410A	R513A	R452B	R454B	R454A	R454C	R123yf	
ppm	Blue/ Dry	25	25	15	20	26	30	15	22	24	22	22	12
		38	35	25	35	40	55	20	34	34	30	28	14
		52	50	45	50	64	75	24	46	46	38	35	16
	Purple	25	40	33	35	42	50	19	28	28	27	27	14
		38	65	50	55	68	85	25	42	42	37	35	17
		52	90	60	85	109	120	30	58	58	48	44	20
	Fuchsia/ Caution	25	80	60	90	94	110	44	66	68	64	64	34
		38	130	110	120	144	190	58	99	101	87	82	40
		52	185	140	150	230	270	71	136	138	122	105	46
	Rose/ Caution WET!	25	145	120	130	151	165	75	112	119	108	108	58
		38	205	150	160	232	290	98	168	170	148	138	68
		52	290	180	190	371	420	121	230	232	190	177	78

Note: In area "Caution" and "Caution wet" filter drier should be changed.

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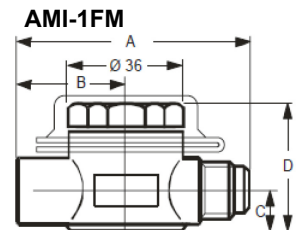
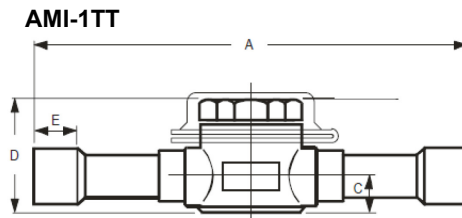
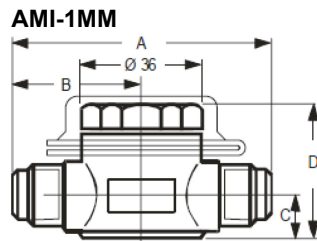
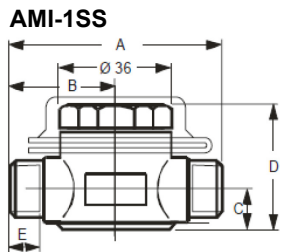
Dimensions - MIA / CIA

Type MIA	Type CIA	For Tube Outside Diameter	Height A (mm)	Lenght B (mm)	Weight (g)	Type MIA	Type CIA	For Tube Outside Diameter	Height A (mm)	Lenght B (mm)	Weight (g)
MIA 014	CIA 014	1/4"	25.7	98.0	60	MIA M06	CIA M06	6 mm	25.9	98.0	60
MIA 038	CIA 038	3/8"	28.5	109.0	70	MIA M10	CIA M10	10 mm	28.5	109.0	70
MIA 012	CIA 012	1/2"	31.8	113.0	75	MIA M12	CIA M12	12 mm	28.5	113.0	75
MIA 058	CIA 058	5/8"	31.8	108.5	85	MIA M16	CIA M16	16 mm	31.8	108.5	85
MIA 078		7/8"	37.8	122.5	150	MIA M28		28 mm	43.5	122.5	190
MIA 118		1 1/8"	43.5	122.5	190	MIA M10 S		10 mm	28.7	119	75
						MIA M12 S		12 mm	28.5	113	75



Dimensions - AMI-1...

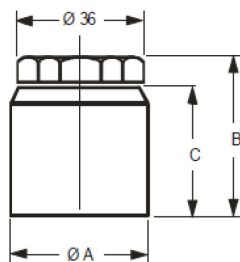
Type AMI-1...	Ø mm	Ø inch	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	Type AMI-1...	Ø mm	Ø inch	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)
AMI-1 SS 2	6	¼	57	29	9	30	8	AMI-1 TT 2	6	¼	124	62	9	30	8
AMI-1 SS 3	10	3/8	57	29	9	30	8	AMI-1 TT 3	10	3/8	124	62	9	30	8
AMI-1 SS 4	12	½	67	33	12	37	10	AMI-1 TT 4	12	½	126	63	12	37	10
AMI-1 SS 5	16	5/8	67	33	12	37	13	AMI-1 TT 5	16	5/8	126	63	12	37	13
AMI-1 SS 7	22	7/8	80	40	15	44	20	AMI-1 TT 7	22	7/8	164	82	15	44	19
AMI-1 SS 9	28	1-1/8	86	43	17	49	22	AMI-1 TT 9	28	1-1/8	170	85	17	49	22
AMI-1 MM 2	6	¼	79	40	9	30		AMI-1 FM 2	6	¼	70	30	9	30	
AMI-1 MM 3	10	3/8	86	43	9	30		AMI-1 FM 3	10	3/8	76	33	12	37	
AMI-1 MM 4	12	½	92	46	12	37		AMI-1 FM 4	12	½	82	36	12	37	
AMI-1 MM 5	16	5/8	98	49	12	37									



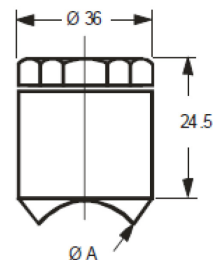
Dimensions - AMI-2... / AMI-3...

Type AMI-2...	Ø mm	Ø inch	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	Type AMI-3...	Ø mm	Ø inch	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)
AMI-2 S 11	35	1-3/8	35	40	34			AMI-3 S7	35	1-3/8	Ø 22.4				
AMI-2 S 13	42	1-5/8	42	43	37			AMI-3 S9	42	1-5/8	Ø 28.8				
AMI-2 S 17	54	2-1/8	54	50	43			AMI-3 S11	54	2-1/8	Ø 35.2				

AMI-2...



AMI-3...



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