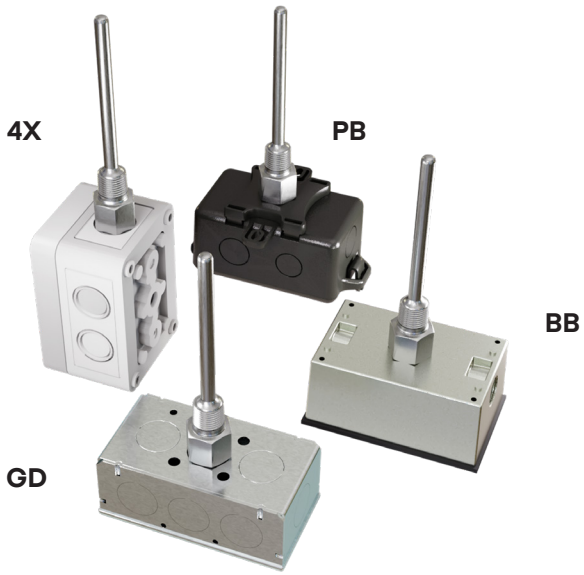
Immersion Series | Platinum RTD

Stainless Steel Immersion, Platinum RTD

Automation Components
a DwyerOmega brand

The ACI Platinum Immersion Series features a stainless steel probe with Etched Teflon colored lead wires to differentiate the different sensor types. The three-wire "-3W" option should be ordered when using with a 3-Wire temperature transmitter or sensor configuration on your building management system or PLC (Programmable Logic Controller). The purpose of the 3rd wire is to compensate for external lead wire resistance that affects the sensor output. ACI recommends the use of 1.02 mm (18 AWG) lead wires to reduce the external lead wire resistance when using a Platinum RTD. The sensors in this series are manufactured using ACI's proven double encapsulation process to eliminate the effects of moisture upon the sensors and to increase thermal response times using our high quality, thermally conductive epoxy. The immersion sensors "-I" include a welded thermowell but can be ordered without the thermowell "-INW" version. The "-INW" includes a standard ½ in NPS process thread to be used with an optional machined thermowell or an existing thermowell application. Optional NEMA/IP rated weather proof enclosures and NIST Certificates are available as referenced on this product data sheet.



Applications

Chilled Water Systems, Hot Water Systems, Boilers, Pumps, Compressors, Chillers, Cooling Towers

Warranty

The ACI Platinum Immersion Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website.

Disclaimer: Specification of any thermowell and the materials of construction are the sole responsibility of the designer of the system that incorporates the thermowell. Sole responsibility for ensuring compatibility of the process fluid with the system rests with the end user.

Specifications

Sensor Type: Platinum RTD

Sensor Curve: PTC (Positive Temperature Coefficient)

Number Sensing Points: One

Number Wires

A/100-2W-I Series and **A/1K-2W-I Series:** Two (Non-Polarity Sensitive)

A/100-3W-I Series and **A/1K-3W-I Series:** Three (Polarity Sensitive)

Sensor Output at 0 °C (32 °F)

A/100-xW-I Series: 100 Ω nominal
A/1K-xW-I Series: 1000 Ω nominal

Sensor Accuracy 0 °C (32 °F): ±0.06 % Class A (**Tolerance Formula:** ± °C = (0.15 °C + (0.002 * ltl)) where ltl is the absolute value of Temperature above or below 0 °C in °C)

-40 °C (-40 °F): ± 0.23 °C (± 0.414 °F)
0 °C (32 °F): ± 0.15 °C (± 0.27 °F)
200 °C (392 °F): ± 0.55°C (± 1.00 °F)

Din Standard: DIN EN 60751 (IEC 751)

Temperature Coefficient: 3850 ppm / °C

Sensor Stability: ± 0.03% after 1000 Hours at 300 °C (572 °F)

Response Time (63 % Step Change): 8 seconds nominal

Self-Heating | Maximum Operating Current

100 Ω RTD: 7 mW / °C (Still Air) | 5 mA
1 kΩ RTD: 4 mW / °C (Still Air) | 3 mA

Sensor Operating Temperature Range: -40 °C to 200 °C (-40 °F to 392 °F)

Enclosure Specifications (Temperature, Flammability, NEMA/IP Ratings)

"-GD" Enclosure: Galvanized Steel, -40 °C to 121 °C (-40 °F to 250 °F), NEMA 1 (IP10)

"-PB" Enclosure: ABS Plastic, -30 °C to 100 °C (-22 °F to 212 °F), UL94-5VB, Plenum Rated

"-BB" Enclosure: Aluminum, -40 °C to 121 °C (-40 °F to 250 °F), Plenum Rated, NEMA 3R

"-4X" Enclosure: Polystyrene Plastic, -40 °C to 70 °C (-40 °F to 158 °F), UL94-V2, NEMA 4X (IP 66)

Storage Temperature Range: -40 °C to 85 °C (-40 °F to 185 °F)

Operating Humidity Range: 10 % to 95 % RH, non-condensing

Probe Diameter: 6.35 mm (0.25 in)

Thermowell Bore Diameter: 6.6 mm (0.26 in)

Probe Material: 304 Stainless Steel

Thermowell Material: 304 Stainless Steel

Thermowell Instrument: ½ in NPS (National Pipe Straight) Female Thread

Process Thread Size: ½ in NPT (National Pipe Tapered) Male Thread

Fitting Material | Flammability Rating: Polyamide 66 (High Performance Nylon 66) | UL94-HB

Fitting Thread Size: ½ in NPS (National Pipe Straight) Male Thread

Foam Pad Material | Flammability Rating: Neoprene/EPDM/SBR Polymer | UL94-HBF; FMVSS-302; MIL-R-6130C

1.888.610.7664 www.calcert.com sales@calcert.com

Lead Length : 35.6 cm (14 in)
Conductor Size: 0.65 mm (22 AWG)
Lead Wire Insulation I Wire Rating: Etched Teflon (PTFE) Colored Leads I Mil Spec 16878/4 Type E)
Conductor Material: Silver Plated Copper
Product Dimensions I Product Weight: See table on this product data sheet
Agency Approvals: CE, UKCA, RoHS2, WEEE

Automation Components
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Maximum Velocity VS Thermowell Insertion Length Machined Thermowell

Straight Shank Insertion Length "U"					Stepped Shank Insertion Length "U"				
Material:	**Media Type:**	**25.4 mm (1.0 in)**	**63.5 mm (2.5 in)**	**203.2 mm (8.0 in)**	**101.6 mm (4.0 in)**	**152.4 mm (6.0 in)**	**304.8 mm (12.0 in)**	**457.2 mm (18.0 in)**	**609.6 mm (24 in)**
304/316 SS	Air/Gas/ Steam[1]	106.3 m/s (349 ft/s)	106.3 m/s (349 ft/s)	21.9 m/s (71.9 ft/s)	33.2 m/s (109 ft/s)	22.4 m/s (73.6 ft/s)	5.9 m/s (19.4 ft/s)	2.7 m/s (8.8 ft/s)	1.6 m/s (5.2 ft/s)
304/316 SS	Water	109.7 m/s (360 ft/s)	109.7 m/s (360 ft/s)	21.9 m/s (71.9 ft/s)	25.1 m/s (82.2 ft/s)	8.2 m/s (26.9 ft/s)	3.4 m/s (11.3 ft/s)	1.43 m/s (4.7 ft/s)	0.8 m/s (2.5 ft/s)

Note[1]: *Values are for Air/Gas/ Steam and similar density media based upon Max pressure of 200 bar (2900 PSI) at 537.8 °C (1000 °F)*
Note[2]: *Values are for Water (No Glycol or other Chemicals factored in) at 20 °C (68 °F) and max pressure of 393 bar (5700 PSI). (Calculated to ASME PTC 19.3 TW-2016 Code B31.1)*
Note[3]: *6 in to 24 in Machined Thermowells meet ASME PTC 19.3 TW-2016 Code B31.1.*

Maximum Pressure VS Temperature Ratings Two-Part Fabricated I Welded Thermowell

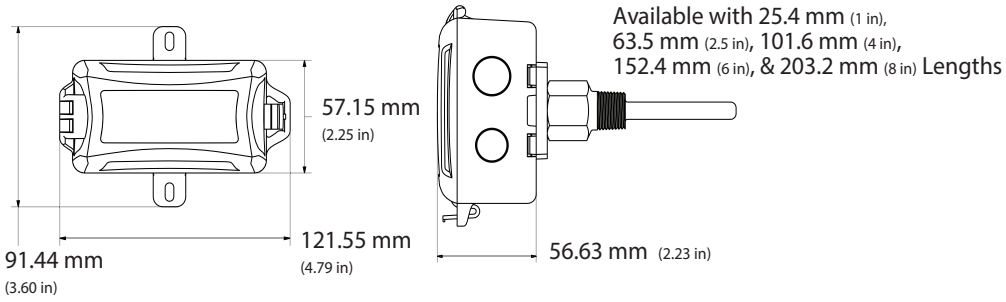
Material:	**21.1 °C (70 °F)**	**93.3 °C (200 °F)**	**204.4 °C (400 °F)**	**315.6 °C (600 °F)**	**426.7 °C (800 °F)**	**537.8 °C (1000 °F)**	**648.9 °C (1200 °F)**
304/316 SS	67.7 Bar (982 PSI)	56.6 Bar (820 PSI)	46.5 Bar (675 PSI)	41.6 Bar (604 PSI)	37.9 Bar (550 PSI)	35.1 Bar (510 PSI)	20.0 Bar (290 PSI)

Maximum Fluid Velocity Ratings Two-Part Fabricated I Welded Thermowell

Straight Shank Insertion Length "U"				
Material:	**Media Type:**	**63.5 mm (2.5 in)**	**101.6 mm (4.0 in)**	**152.4 mm (6.0 in)**
304/316 SS	Air/Gas/Steam[2]	51.5 m/s (169 ft/s)	18.6 m/s (61 ft/s)	6.1 m/s (20 ft/s)
304/316 SS	Water	26.8 m/s (88 ft/s)	6.1 m/s (20 ft/s)	3.05 m/s (10 ft/s)

Note[2]: *Values are for Air/Gas/ Steam and similar density media.*

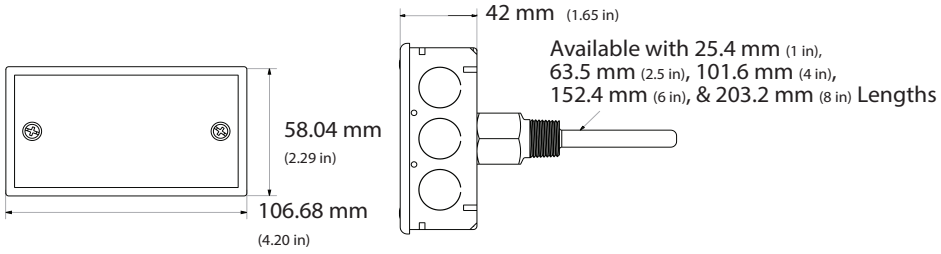
Plastic Box Enclosure (PB)



ACI Model #	25.4 mm (1 in)	63.5 mm (2.5 in)	101.6 mm (4 in)	152.4 mm (6 in)	203.2 mm (8 in)
A/xx-INW-yy-PB	0.091 kg (0.20 lb)	0.109 kg (0.24 lb)	0.127 kg (0.28 lb)	0.145 kg (0.32 lb)	0.163 kg (0.36 lb)
A/xx-I-yy-PB	N/A	0.109 kg (0.24 lb)	0.272 kg (0.60 lb)	0.290 kg (0.64 lb)	N/A
A/xx-IM-yy-PB	0.182 kg (0.40 lb)	0.263 kg (0.58 lb)	0.336 kg (0.74 lb)	0.417 kg (0.92 lb)	0.522 kg (1.15 lb)

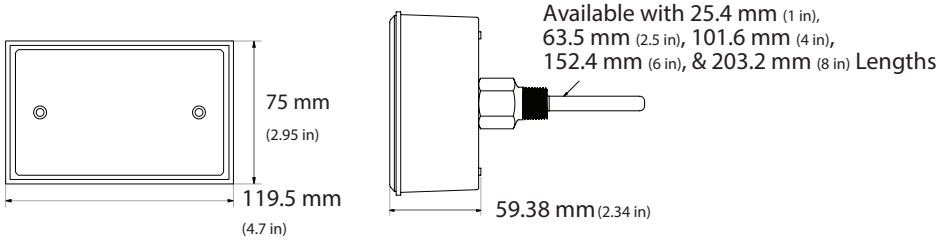
N/A = *Not Available* | **xx** = *Sensor Type* | **yy** = *Insertion Length*

Galvanized Enclosure (GD)



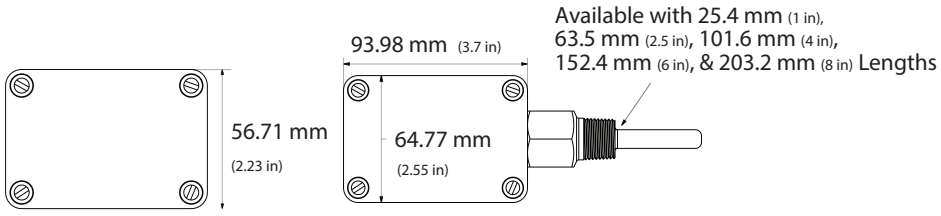
ACI Model #	25.4 mm (1 in)	63.5 mm (2.5 in)	101.6 mm (4 in)	152.4 mm (6 in)	203.2 mm (8 in)
A/xx-INWyy-GD	0.281 kg (0.62 lb)	0.299 kg (0.66 lb)	0.318 kg (0.7 lb)	0.336 kg (0.74 lb)	0.354 kg (0.78 lb)
A/xx-I-yy-GD	N/A	0.399 kg (0.88 lb)	0.454 kg (1 lb)	0.472 kg (1.04 lb)	N/A
A/xx-IM-yy-GD	0.367 kg (0.81 lb)	0.454 kg (1 lb)	0.526 kg (1.16 lb)	0.599 kg (1.32 lb)	0.703 kg (1.55 lb)

Bell Box Enclosure (BB)



ACI Model #	25.4 mm (1 in)	63.5 mm (2.5 in)	101.6 mm (4 in)	152.4 mm (6 in)	203.2 mm (8 in)
A/xx-INW-yy-BB	0.29 kg (0.64 lb)	0.308 kg (0.68 lb)	0.318 kg (0.7 lb)	0.336 kg (0.74 lb)	0.363 kg (0.8 lb)
A/xx-I-yy-BB	N/A	0.463 kg (1.02 lb)	0.454 kg (1 lb)	0.472 kg (1.04 lb)	N/A
A/xx-IM-yy-BB	0.376 kg (0.83 lb)	0.463 kg (1.02 lb)	0.526 kg (1.16 lb)	0.599 kg (1.32 lb)	0.721 kg (1.59 lb)

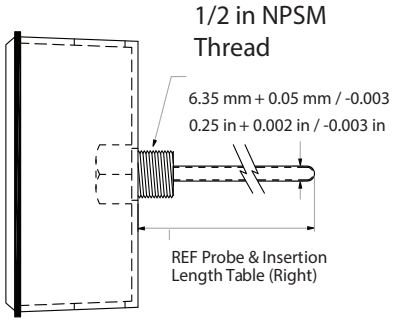
NEMA 4X Enclosure (4X)



ACI Model #	25.4 mm (1 in)	63.5 mm (2.5 in)	101.6 mm (4 in)	152.4 mm (6 in)	203.2 mm (8 in)
A/xx-INW-yy-4X	0.127 kg (0.28 lb)	0.145 kg (0.32 lb)	0.163 kg (0.36 lb)	0.181 kg (0.40 lb)	0.2 kg (0.44 lb)
A/xx-I-yy-4X	N/A	0.290 kg (0.64 lb)	0.308 kg (0.68 lb)	0.327 kg (0.72 lb)	N/A
A/xx-IM-yy-4X	0.218 kg (0.48 lb)	0.299 kg (0.66 lb)	0.372 kg (0.82 lb)	0.454 kg (1 lb)	0.576 kg (1.27 lb)

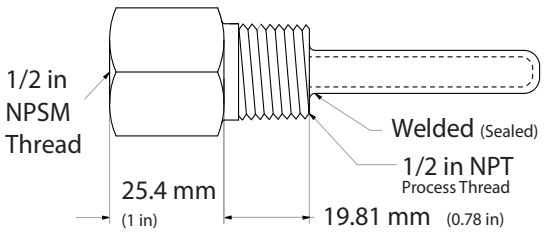
N/A = *Not Available* | **xx** = *Sensor Type* | **yy** = *Insertion Length*

Probe and Insertion Length Immersion No Well



Pictured Above: immersion no well (INW) sensor in Bell Box Enclosure (BB).

Pictured Below: welded two piece thermowell to show connection and depth reference. Thermowell not included with immersion no well (INW).



Probe Length	Insertion Length	ACI Part #	Thermowell Part #
7.62 cm (3 in)	7.14 cm ± 0.33 cm (2.81 in ± 0.13 in)	A/xx-INW-1"-yy-zz	A/M1"
11.43 cm (4.5 in)	10.95 cm ± 0.33 cm (4.31 in ± 0.13 in)	A/xx-INW-2.5"-yy-zz	A/2.5" or A/M2.5"
15.24 cm (6 in)	14.76 cm ± 0.33 cm (5.81 in ± 0.13 in)	A/xx-INW-4"-yy-zz	A/4" or A/M4"
20.32 cm (8 in)	19.84 cm ± 0.33 cm (7.81 in ± 0.13 in)	A/xx-INW-6"-yy-zz	A/6" or A/M6"
25.4 cm (10 in)	24.92 cm ± 0.33 cm (9.81 in ± 0.13 in)	A/xx-INW-8"-yy-zz	A/M8"
33.02 cm (13 in)	32.39 cm ± 0.13 cm (12.75 in ± 0.13 in)	A/xx-INW-12"-yy-zz	A/M12"
48.26 cm (19 in)	47.63 cm ± 0.33 cm (18.75 in ± 0.13 in)	A/xx-INW-18"-yy-zz	A/M18"
63.5 cm (25 in)	62.87 cm ± 0.33 cm (24.75 in ± 0.13 in)	A/xx-INW-24"-yy-zz	A/M24"

Custom Ordering Welded Thermowell

Automation Components
a DwyerOmega brand

		Options and Descriptions				Model #
A.	**Sensor Series** *No Selection Required*	**A/** ⟶				A/
B.	**Model Series** *Select One (1)*	**100** = 100 Ω Platinum RTD		**1K** = 1 kΩ Platinum RTD		
C.	**Number of Wires** *Select One (1)*	**2W** = Two Wires		**3W** = Three Wires		
D.	**Configuration** *Select One (1)*	**I** = Immersion with Welded Thermowell				
E.	**Insertion Length** *Select One (1)*	**2.5"** = 63.5 mm (2.5 in) insertion	**4"** = 101.6 mm (4 in) insertion		**6"** = 152.4 mm (6 in) insertion	
F.	**Enclosure** *Select One (1)*	**GD** = Galvanized	**PB** = Plastic	**BB** = Aluminum, NEMA 3R	**4X** = NEMA 4X	
G.	**NIST** *Select One (1)*	**----** = No NIST Certificate		**NIST** = NIST Certificate (3 Points)		

Model # Example:	A/	1K	2W	I	2.5"	GD	NIST
	A.	**B.**	**C.**	**D.**	**E.**	**F.**	**G.**

Custom Ordering Machined Thermowell

		Options and Descriptions					Model #
A.	**Sensor Series** *No Selection Required*	**A/** ⟶					A/
B.	**Model Series** *Select One (1)*	**100** = 100 Ω Platinum RTD			**1K** = 1 kΩ Platinum RTD		
C.	**Number of Wires** *Select One (1)*	**2W** = Two Wires			**3W** = Three Wires		
D.	**Configuration** *Select One (1)*	**IM** = Immersion with Machined Thermowell					
E.	**Insertion Length** *Select One (1)*	**1"** = 25.4 mm (1 in) insertion	**2.5"** = 63.5 mm (2.5 in) insertion	**4"** = 101.6 mm (4 in) insertion	**6"** = 152.4 mm (6 in) insertion	**8"** = 203.2 mm (8 in) insertion	
F.	**Enclosure** *Select One (1)*	**GD** = Galvanized	**PB** = Plastic	**BB** = Aluminum, NEMA 3R	**4X** = NEMA 4X		
G.	**NIST** *Select One (1)*	**----** = No NIST Certificate		**NIST** = NIST Certificate (3 Points)			

Model # Example:	A/	1K	2W	IM	1"	GD	NIST
	A.	**B.**	**C.**	**D.**	**E.**	**F.**	**G.**

Note: *Machined Thermowells with lengths of 304.8 mm (12 in), 457.2 mm (18 in) and 609.6 mm (24 in) are available and must be ordered separately | See the Machined Thermowells Data Sheet (Accessories)*

Custom Ordering Sensor Only No Thermowell

Automation Components
a DwyerOmega brand

		Options and Descriptions					Model #
A.	**Sensor Series** *No Selection Required*	A/ →					A/
B.	**Model Series** *Select One (1)*	**100** = 100 Ω Platinum RTD			**1K** = 1 kΩ Platinum RTD		
C.	**Number of Wires** *Select One (1)*	**2W** = Two Wires			**3W** = Three Wires		
D.	**Configuration** *Select One (1)*	**INW** = Immersion without Thermowell					
E.	**Insertion Length** *Select One (1)*	**1"** = 25.4 mm (1 in) insertion	**2.5"** = 63.5 mm (2.5 in) insertion	**4"** = 101.6 mm (4 in) insertion	**6"** = 152.4 mm (6 in) insertion	**8"** = 203.2 mm (8 in) insertion	
		12" = 304.8 mm (12 in) insertion	**18"** = 457.2 mm (18 in) insertion	**24"** = 609.6 mm (24 in) insertion			
F.	**Enclosure** *Select One (1)*	**GD** = Galvanized	**PB** = Plastic	**BB** = Aluminum, NEMA 3R	**4X** = NEMA 4X		
G	**NIST** *Select One (1)*	**----** = No NIST Certificate		**NIST** = NIST Certificate (3 Points)			

Model # Example:	A/	1K	2W	INW	1"	GD	NIST
	A.	**B.**	**C.**	**D.**	**E.**	**F.**	**G.**

Accessories Ordering

Model #	Item #	Description
NSG Heat Transfer Paste 2 oz.	102595	Thermal Grease, 59.1 ml (2 oz) Tube, Silicone Free, -40 °C to 160 °C (-40 °F to 320 °F)
NSG Heat Transfer Paste 16 oz.	140574	Thermal Grease, 473.1 ml (16 oz) Jar, Silicon Free, -40 °C to 198 °C (-40 °F to 390 °F)
A/2.5"	128349	63.5 mm (2.5 in) Insertion, 304 Stainless, Welded, ½ in NPT Thermowell
A/4"	128350	101.6 mm (4 in) Insertion, 304 Stainless, Welded, ½ in NPT Thermowell
A/6"	128351	152.4 mm (6 in) Insertion, 304 Stainless, Welded, ½ in NPT Thermowell
A/M1"	128337	25.4 mm (1 in) Insertion, 304 Stainless, Machined, ½ in NPT Thermowell
A/M2.5"	128338	63.5 mm (2.5 in) Insertion, 304 Stainless, Machined , ½ in NPT Thermowell
A/M4"	128343	101.6 mm (4 in) Insertion, 304 Stainless, Machined, ½ in NPT Thermowell
A/M6"	128344	152.4 mm (6 in) Insertion, 304 Stainless, Machined, ½ in NPT Thermowell
A/M8"	138725	203.2 mm (8 in) Insertion, 304 Stainless, Machined, ½ in NPT Thermowell
A/M12"	128339	304.80 mm (12 in) Insertion, 304 Stainless, Machined, ½ in NPT Thermowell
A/M18"	128341	457.20 mm (18 in) Insertion, 304 Stainless, Machined, ½ in NPT Thermowell
A/M24"	128342	609.6 mm (24 in) Insertion, 304 Stainless, Machined, ½ in NPT Thermowell
A/M2.5" - 316SS	128352	63.5 mm (2.5 in) Insertion, 316 Stainless, Machined, ½ in NPT Thermowell
A/M4" - 316SS	128353	101.6 mm (4 in) Insertion, 316 Stainless, Machined, ½ in NPT Thermowell
A/M6" - 316SS	128354	152.4 mm (6 in) Insertion, 316 Stainless, Machined, ½ in NPT Thermowell

Model # Example: **NSG Heat Transfer Paste 2 oz.** or **102595**

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