Blancett®
Turbine Flow Meters

Flow Monitor

B3000 Series

DESCRIPTION

The B3000 Series flow monitor is a flexible, durable, easy-to-use platform for your flow metering applications. Our trusted flow metering technology now offers a new flow monitor with more options and features than ever before with the B3000 Series.

OPERATION

This monitor is capable of accepting low-level frequency input signals typically found in turbine flow sensors. The output signal for these type of sensors is a frequency proportional to the rate of flow. The B3000 monitor uses the frequency information to calculate flow rate and total flow. Through the use of the programming buttons, you can select rate units, total units and unit time intervals among other functions. If required, the flow monitor can easily be reconfigured in the field. Finally, you can choose between simultaneously showing rate and total, or alternating between rate and grand total.

The monitor is available in three levels of functionality and two packaging options. The base model provides all the functions necessary for the most common flow metering applications. The advanced version adds communications capabilities over an RS485 bus using Modbus RTU and control outputs. The third version is a solar-powered model (NEMA 4X only).

Packaging options include a polycarbonate, NEMA 4X version and an aluminum explosion proof enclosure.

APPLICATIONS

The B3000 monitor is suitable for application in a wide variety of metering needs. A few of the more common industries are:

- Secondary oil recovery applications
- Remediation and reclamation
- Fracture/refracture
- Coal bed methane
- Regulatory compliance and environmental accountability
- Industrial chemicals
- Aggressive chemical processing applications
- Semiconductor manufacturing
- Fertilizer production and dispensing
- Pesticide manufacture
- Liquid batching and water cooling

FEATURES

- Robust alarm parameters provide faster warning when something changes in the process or pipeline.
- Greater control and greater visibility of batch operations.
- Advanced connectivity options allow you to connect meters to your network for remote monitoring and process automation capabilities.
- Solar, battery, and 4…20 milliamperes loop power options provide the ability to install in a remote location and be up and running immediately, maintain readings and settings during power loss, and a battery life up to 8 years.
- Updated display and totalization options provide more flow information, including simultaneous display of rate and total as well as standard, batch and grand totals.
- Various mounting and enclosure options provide a B3000 model for your operation.

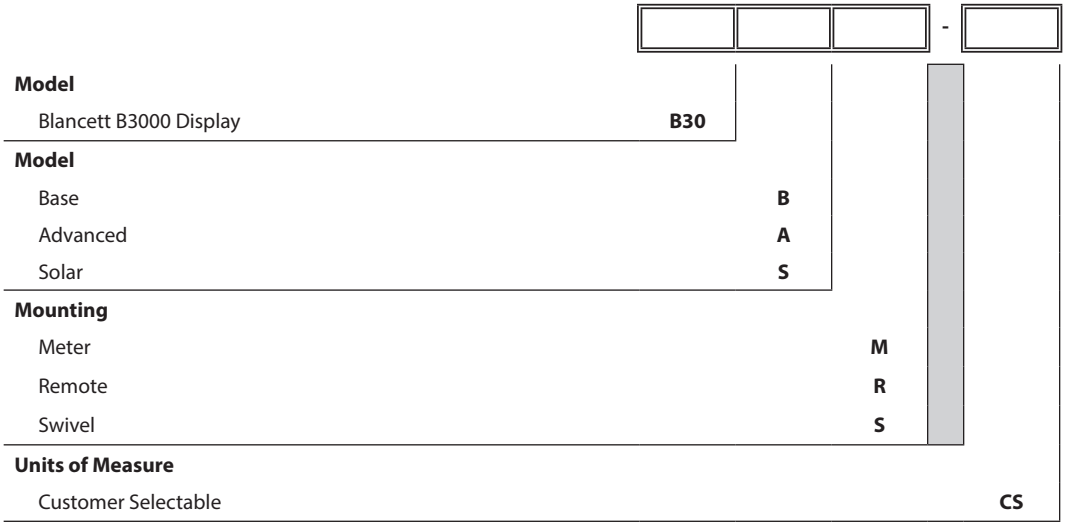
Badger Meter

DSY-DS-00691-EN-08 (April 2018)

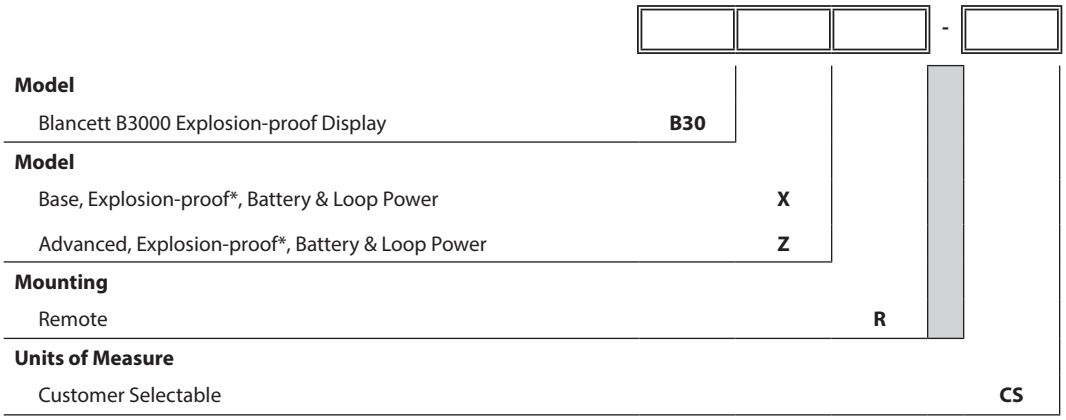
Product Data Sheet

PART NUMBER CONSTRUCTION

Blancett B3000 Display



Blancett B3000 Explosion-proof Display



*For hazardous locations, the monitor must be installed on an explosion-proof rated meter. To maintain compliance, kit P/N B280-737 for meter mounting is required.

SPECIFICATIONS

Display	Common	Simultaneously shows Rate and Total	
		5 x 7 Dot Matrix LCD, STN Fluid	
	B30A/B/S	6 Digit Rate, 0.5 inch (12.7 mm) numeric	
		7 Digit Total, 0.5 inch (12.7 mm) numeric	
		Engineering Unit Labels 0.34 inch (8.6 mm)	
	B30X/Z	6 Digit Rate, 0.37 inch (9.4 mm) numeric	
		7 Digit Total, 0.37 inch (13 mm) numeric	
		Engineering Unit Labels 0.24 inch (6.1 mm)	
	Annunciators	Alarm 1(1), Alarm 2 (2), Battery Level (▮▮▮▮), RS485 Communications (COM)	
Power	B30A/B/X/Z	Auto switching between internal battery and external loop power; B30A/Z includes isolation between loop power and other I/O	
		Battery	3.6V DC lithium D Cell gives up to 6 years of service life
		Loop	4…20 mA, two wire, 25 mA limit, reverse polarity protected, 7V DC loop loss
	B30S	Internal battery (3.6V DC Nicd) provides up to 30 days of power after 6…8 hours exposure of the integrated photovoltaic cell to direct sunlight.	
Inputs	Magnetic Pickup	Frequency Range	1…3500 Hz
		Frequency Measurement Accuracy	±0.1%
		Over Voltage Protection	28V DC
		Trigger Sensitivity	30 mV_{p-p} (High) or 60 mV_{p-p} (Low) - (selected by circuit board jumper)
	Amplified Pulse	Direct connection to amplified signal (pre-amp output from sensor)	
Outputs	Analog 4…20 mA	4…20 mA, two-wire current loop. 25 mA current limit	
	Totalizing Pulse	One pulse for each **L**east **S**ignificant **D**igit (LSD) increment of the totalizer	
		Pulse Type (selected by circuit board jumper)	Opto-isolated (Iso) open collector transistor
			Non-isolated open drain FET
		Maximum Voltage	28V DC
		Maximum Current Capacity	100 mA
		Maximum Output Frequency	16 Hz
		Pulse Width	30 mSec fixed
	Status Alarms B30A/Z	Type	Open collector transistor
			Adjustable flow rate with programmable dead band and phase.
		Maximum Voltage	28V DC
		Maximum Current	100 mA
		Pullup Resistor	External required (2.2 k Ohm minimum, 10 k Ohm maximum)
	Status Alarms B30B/S/X	None	
Modbus Digital Communications	B30A/Z	Modbus RTU over RS485, 127 addressable units / 2-wire network, 9600 baud, long integer and single precision IEEE754 formats; retrieve: flow rate, job totalizer, grand totalizer, alarm status and battery level; write: reset job totalizer, reset grand totalizer.	
	B30B/S/X	None	
Data Configuration and Protection	B30A/B/X/Z	Two four-digit user selectable passwords; level one password enables job total reset only, level two password enables all configuration and totalizer reset functions **Not applicable on solar powered units.**	

<table>
<tr><td rowspan="8">Certifications</td><td rowspan="4">Safety</td><td>B30A/B/S</td><td colspan="5">Class I Division 1, Groups C, D; Class II, Division 1 Groups E, F, G; Class III for US and Canada. Complies with UL 913 and CSA C22.2 No. 157-92</td></tr>
<tr><td rowspan="3">B30X/Z</td><td colspan="5">Class I Division 1 Groups B, C, D; Class II, Division 1, Groups E, F, G; Class III for US and Canada Complies with UL 1203 and CSA C22.2 No. 30-M1986</td></tr>
<tr><td colspan="5">ATEX II 2 G Ex d IIC T4 Gb and ATEX II D Ex tb IIIC T135 °C Db</td></tr>
<tr><td colspan="5">Complies with Directive 94/9/EC.</td></tr>
<tr><td rowspan="4">Entity Parameters</td><td colspan="6" rowspan="4"><table>
<tr><td>B30A/B only</td><td>4…20 mA Loop: Vmax = 28V DC</td><td>Imax = 26 mA</td><td>Ci = 0.5 µF</td><td>Li = 0 mH</td></tr>
<tr><td>B30A/B/S only</td><td>Pulse Output: Vmax = 28V DC</td><td>Imax = 100 mA</td><td>Ci = 0 µF</td><td>Li = 0 mH</td></tr>
<tr><td>B30A/B/S only</td><td>Reset Input: Vmax = 5V DC</td><td>Imax = 5 mA</td><td>Ci = 0 µF</td><td>Li = 0 mH</td></tr>
<tr><td>B30A only</td><td>RS485: Vmax = 10V DC</td><td>Imax = 60 mA</td><td>Ci = 0 µF</td><td>Li = 0 mH</td></tr>
<tr><td>B30A/B/S only</td><td>Turbine Input: Voc = 2.5V</td><td>Isc = 1.8 mA</td><td>Ca = 1.5 µF</td><td>La = 1.65 H</td></tr>
</table></td></tr>
<tr><td></td></tr>
<tr><td></td></tr>
<tr><td>EMC</td><td colspan="6">2004/108/EC</td></tr>
<tr><td>Measurement Accuracy</td><td>Common Accuracy</td><td colspan="6">0.05%</td></tr>
<tr><td>Response Time (Damping)</td><td>Common Response Time</td><td colspan="6">1…100 seconds response to a step change input, user adjustable</td></tr>
<tr><td>Environmental Limits</td><td>Common Limits</td><td colspan="6">–22…158° F (–30…70° C); 0…90% humidity, non-condensing</td></tr>
<tr><td rowspan="2">Materials and Enclosure Ratings</td><td>B30A/B/S</td><td colspan="6">Polycarbonate, stainless steel, polyurethane, thermoplastic elastomer, acrylic; NEMA 4X/IP 66</td></tr>
<tr><td>B30X/Z</td><td colspan="6">Copper free, epoxy-coated, aluminum, buna seal, NEMA 4X/IP66</td></tr>
<tr><td rowspan="5">Engineering Units</td><td>Liquid</td><td colspan="6">US Gallons, Liters, Oil Barrels (42 US gallons), Liquid Barrels (31.5 US gallons), Cubic Meters, Million US Gallons, Cubic Feet, Million Liters, Acre Feet</td></tr>
<tr><td>Gas</td><td colspan="6">Cubic Feet, Thousand Cubic Feet, Million Cubic Feet, Standard Cubic Feet, Actual Cubic Feet, Normal Cubic Meters, Actual Cubic Meters, Liters</td></tr>
<tr><td>Rate Time</td><td colspan="6">Seconds, minutes, hours, days</td></tr>
<tr><td>Totalizer Exponents</td><td colspan="6">0.00, 0.0, x1, x10, x100, x1000</td></tr>
<tr><td>K factor Units</td><td colspan="6">Pulses/US gallon, pulses/cubic meter, pulses/liter, pulses/cubic foot</td></tr>
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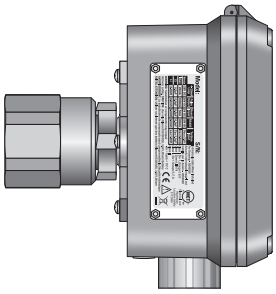
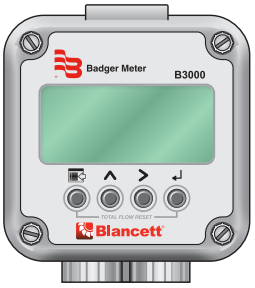
MOUNTING STYLES

Meter Mount

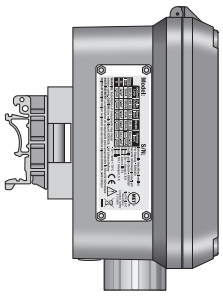
- Monitor is assembled to the flow meter, creating a compact flow measurement system.
- NEMA 4X (IP 66) enclosure.

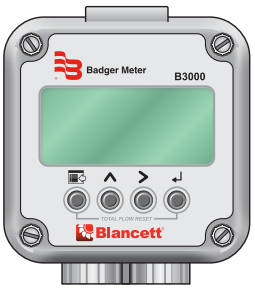




Remote Mount

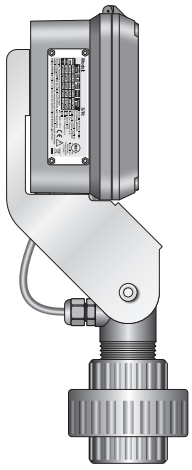
- Ideal when monitor needs to be located away from flow meter. Suitable for high temperature, excessive noise or inaccessible areas.
- NEMA 4X (IP 66) enclosure.
- Panel, DIN rail, and pipe mounting hardware included.
- Cable lengths from 10…100 ft (3…30.5 m) sold separately.





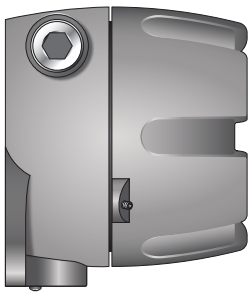
Swivel Mount

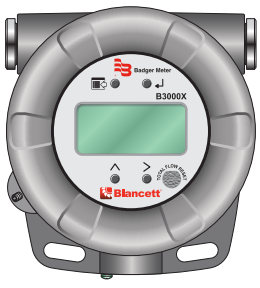
- Capable of adjustment pivot of 180 degrees for ease of viewing.
- NEMA 4X (IP 66) enclosure.
- Remote Swivel mount also available, consult factory for details.
- Offers additional protection from elements.



Explosion Proof

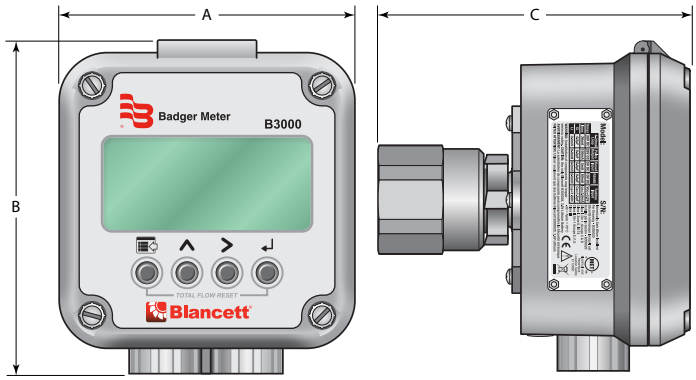
- Ideal for hazardous locations.
- NEMA 4X (IP 66) enclosure.
- Rugged compact design.
- Remote or meter mount.





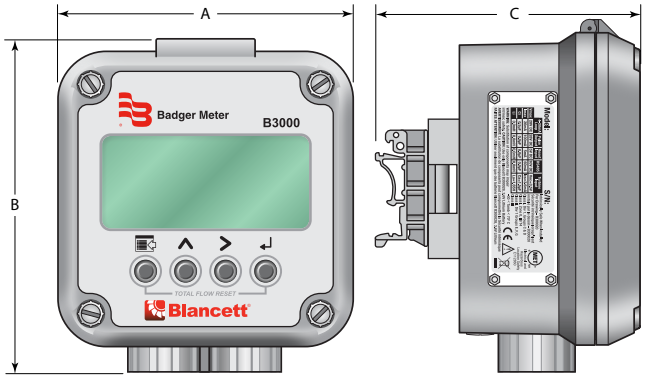
DIMENSIONS

Meter Mount



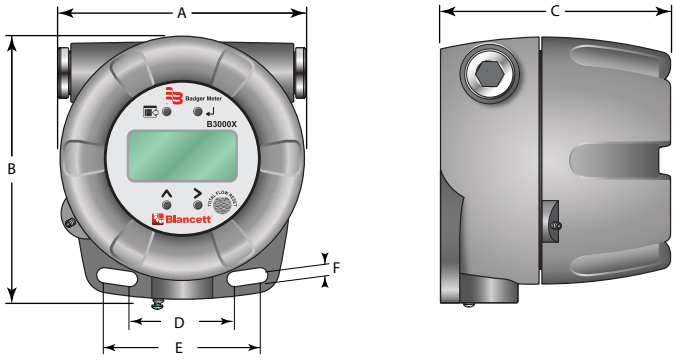
A	B	C
4.50 in. (114.3 mm)	5.08 in. (129.0 mm)	4.78 in. (121.4 mm)

Remote Mount



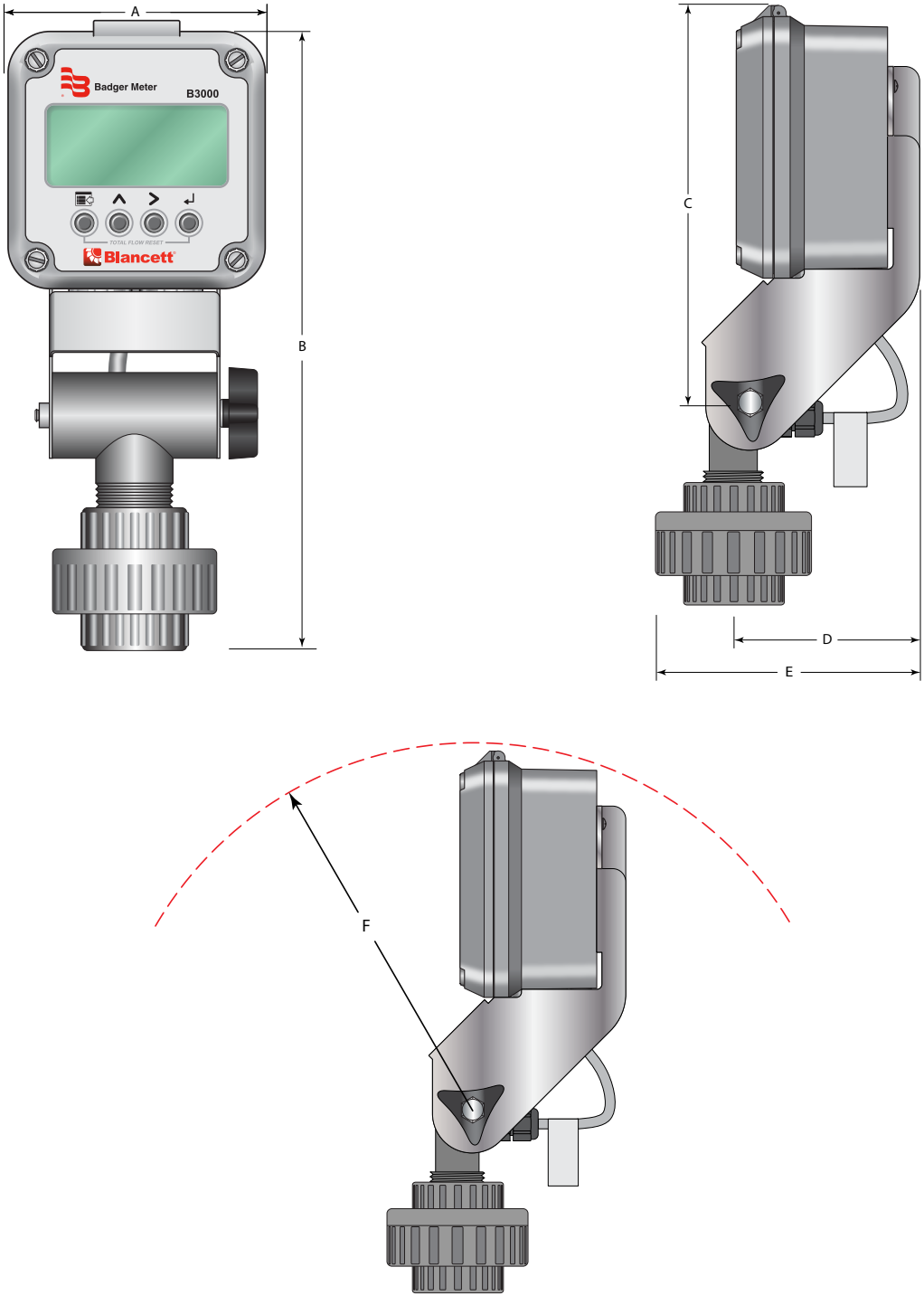
A	B	C
4.50 in. (114.3 mm)	5.08 in. (129.0 mm)	3.80 in. (96.5 mm)

Explosion Proof



A	B	C	D	E	F
5.25 in. (133.4 mm)	5.65 in. (143.5 mm)	4.86 in. (123.4 mm)	2.25 in. (57.1 mm)	3.35 in. (85.1 mm)	0.33 in. (8.4 mm)

Swivel Mount



A	B	C	D	E	F
4.50 in. (114.3 mm)	10.9 in. (276.9 mm)	6.90 in. (175.4 mm)	3.21 in. (81.5 mm)	4.25 in. (107.9 mm)	7.00 in. (177.8 mm)

Control. Manage. Optimize.

www.badgermeter.com

The Americas | Badger Meter | 4545 West Brown Deer Rd | PO Box 245036 | Milwaukee, WI 53224-9536 | 800-876-3837 | 414-355-0400
México | Badger Meter de las Americas, S.A. de C.V. | Pedro Luis Ogazón N°32 | Esq. Angelina N°24 | Colonia Guadalupe Inn | CP 01050 | México, DF | México | +52-55-5662-0882
Europe, Eastern Europe Branch Office (for Poland, Latvia, Lithuania, Estonia, Ukraine, Belarus) | Badger Meter Europe | ul. Korfantego 6 | 44-193 Knurów | Poland | +48-32-236-8787
Europe, Middle East and Africa | Badger Meter Europa GmbH | Nurtinger Str 76 | 72639 Neuffen | Germany | +49-7025-9208-0
Europe, Middle East Branch Office | Badger Meter Europe | PO Box 341442 | Dubai Silicon Oasis, Head Quarter Building, Wing C, Office #C209 | Dubai / UAE | +971-4-371 2503
Slovakia | Badger Meter Slovakia s.r.o. | Racianska 109/B | 831 02 Bratislava, Slovakia | +421-2-44 63 83 01
Asia Pacific | Badger Meter | 80 Marine Parade Rd | 21-06 Parkway Parade | Singapore 449269 | +65-63464836
China | Badger Meter | 7-1202 | 99 Hangzhong Road | Minhang District | Shanghai | China 201101 | +86-21-5763 5412
Switzerland | Badger Meter Swiss AG | Mittelholzerstrasse 8 | 3006 Bern | Switzerland | +41-31-932 01 11

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