



## D5100

### Industrial Differential Pressure Transducer

#### SPECIFICATIONS

- ◆ 316L Stainless Steel Wetted Surface
- ◆ Voltage, Current, and mV Outputs
- ◆ True Wet/Wet Differential
- ◆ CE Certified (amplified version only)
- ◆ Variety of Pressure Ports and Electrical Connections

The D5100 series from Measurement Specialties sets the price and performance standard for differential pressure transducers used in demanding environments.

The amplified model of the D5100 series exceeds the latest heavy industrial CE requirements including surge protection and reverse polarity protection. The amplified and mV output pressure transducers both have two pressure ports for high and low pressures and all wetted parts are made of 316L stainless steel. They come in a variety of electrical configurations and ranges from 1 to 500 psi (up to 35 Bar).



your distributor  
[www.amsys.de](http://www.amsys.de)

## D5100

Industrial Differential Pressure Transducer

### FEATURES

- ◆ Heavy Industrial CE Approval (amplified only)
- ◆ As Low As  $\pm 0.1\%$  Pressure Non Linearity
- ◆ Rugged Construction: Can Withstand 50g Shock/20g Vibration
- ◆ Up to  $-40^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$  Operating Temperature Range
- ◆ Excellent Stability
- ◆ Various Output, Pressure Ports and Electrical Connections

### APPLICATIONS

- ◆ Process Controls
- ◆ Tank Level Measurement
- ◆ Filter Performance Monitoring
- ◆ Corrosive Fluids and Gas Measurement Systems
- ◆ Flow Measurements

### STANDARD RANGES

Range	psiD	Range	BarD
0 to 1	◆	0 to 0.07	◆
0 to 5	◆	0 to 0.35	◆
0 to 15	◆	0 to 1	◆
0 to 30	◆	0 to 2	◆
0 to 50	◆	0 to 3.5	◆
0 to 100	◆	0 to 7	◆
0 to 300	◆	0 to 20	◆
0 to 500	◆	0 to 35	◆

**PERFORMANCE SPECIFICATIONS (AMPLIFIED OUTPUT)**

**Typical Drive: See Output Options Table**

**Ambient Temperature: 25°C (unless otherwise specified)**

PARAMETERS	1 PSI			≥5 PSI			UNITS	NOTES	
	MIN	TYP	MAX	MIN	TYP	MAX			
Accuracy	-0.3		0.3	5psi: -0.25 ≥15psi: -0.1		0.25 0.1	%Span	1	
Isolation, Body To Any Lead	1			1			MΩ @25VDC		
Pressure Cycles	1.00E+6			1.00E+6			0-FS Cycles		
Proof Pressure (High Side)			10X			3X	Rated	2	
Proof Pressure (Low Side)			10X			3X	Rated	3	
Burst Pressure (High Side)			12X			4X	Rated	2	
Burst Pressure (Low Side)			12X			4X	Rated	3	
Line (common) Pressure			1000			1000	psi		
Line Pressure Effect on Zero		0.004		5psi: 0.0008 TYP ≥15psi: 0.0005 TYP			%Span/psi		
Long Term Stability		±0.25			±0.1		%Span/year		
Total Error Band	-1.5		1.5	-1		1	%Span		
Compensated Temperature	0		50	0 -20		70 +85	°C		
Operating Temperature	-40		+85	-40		+125	°C	4	
Storage Temperature	-40		+125	-40		+125	°C	4	
Load Resistance (R <sub>L</sub> )	R <sub>L</sub> > 100k Ω								5
Sensor Type	Differential Pressure Sensor with Unidirectional Calibration								
Pressure Port Material	316L Stainless Steel								
Bandwidth	DC to 1KHz (typical)								
Shock	50g, 11 msec Half sine shock per MIL-STD-202F, Method 213B, Condition A								
Vibration	±20g, MIL-STD-810C, Procedure 514.2, Fig 514.2-2, Curve L								

**Notes**

1. Combined linearity, hysteresis and repeatability using Best Fit Straight Line.
2. 1000psi, whichever is less.
3. 150psi, whichever is less.
4. Except cable 105°C Max.
5. Voltage output.

**CE Compliance**

IEC 55022 Emissions Class A & B

IEC 61000-4-2 Electrostatic Discharge Immunity (6kV contact/8kV air)

IEC 61000-4-3 EM Field Immunity (30V/m)

IEC 61000-4-4 Electrical Fast Transient Immunity (1kV)

IEC 61000-4-5 Surge (1kV)

IEC 61000-4-6 Conducted Immunity (10V)

IEC 61000-4-9 Pulsed Magnetic Field Immunity (100A/m)

**Pressure Port Options**

2 = 1/4-19 BSPP Male

5 = 1/4-18 NPT Male

F = 1/4-19 BSPP Female

G = 1/4-18 NPT Female

Others available upon request

**Dim C (inches) [mm]**

3.08 [78.3]

3.18 [80.8]

2.18 [55.42]

2.18 [55.42]

**Electrical Connection Options**

1 = 2 ft cable

4 = Packard Connector

5 = Bendix Connector

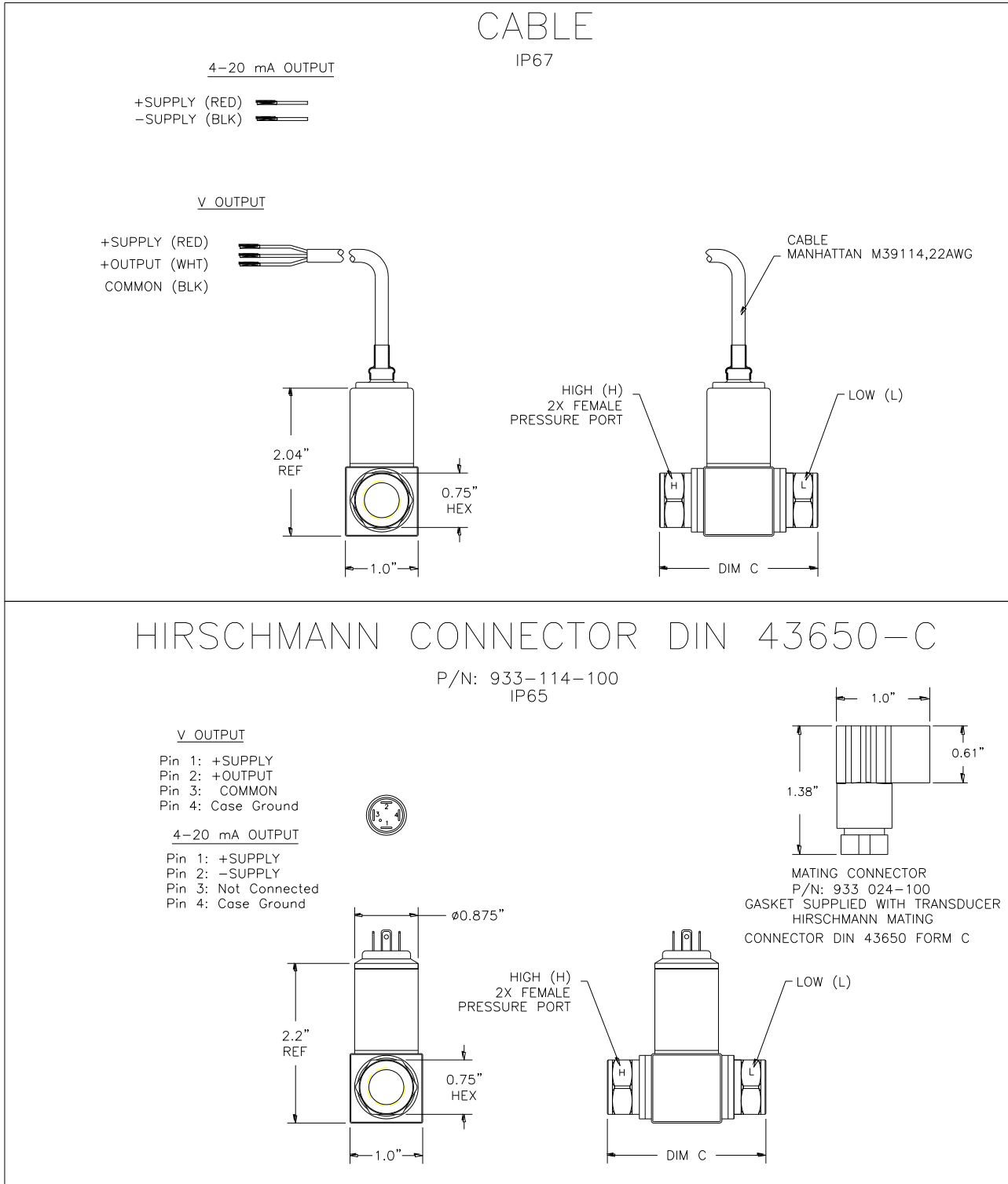
6 = Hirschmann Connector

Others available upon request

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## DIMENSIONS (AMPLIFIED OUTPUT)



DIMENSIONS (AMPLIFIED OUTPUT)

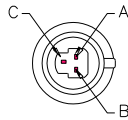
Packard Connector  
IP66

4-20 mA OUTPUT

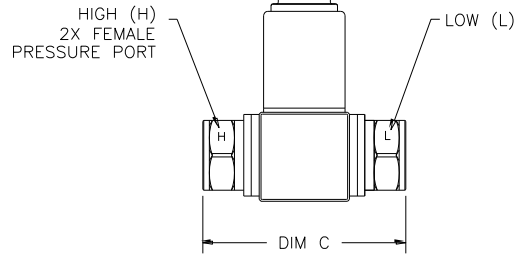
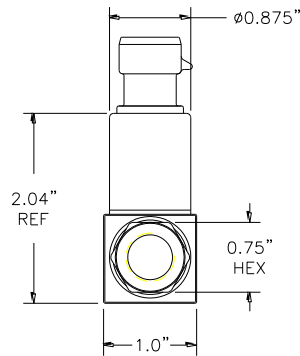
PIN A: +SUPPLY  
PIN B: -SUPPLY  
PIN C: Not Connected

V OUTPUT

PIN A: +SUPPLY  
PIN B: COMMON  
PIN C: +OUTPUT



Mating packard connector  
Housing P/N: 12078090  
Socket P/N: 1203881  
Web site for mating connector:  
[www.powerandsignal.com](http://www.powerandsignal.com)



Bendix PTIH-10-6P Connector  
IP66

4-20 mA OUTPUT

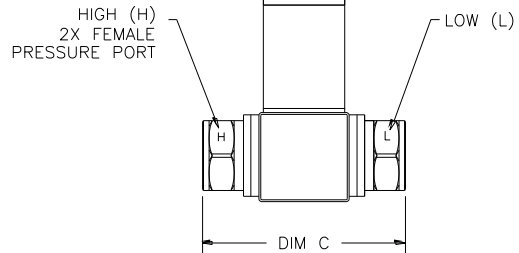
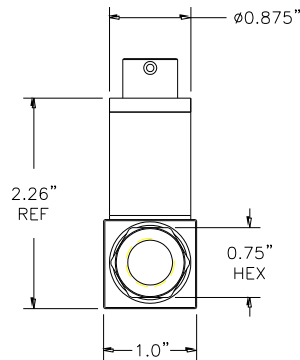
POSITIVE SUPPLY PIN A AND B (INTERNALLY CONNECTED)  
NEGATIVE SUPPLY PIN C AND D (INTERNALLY CONNECTED)  
PIN E: Not Connected  
PIN F: Not Connected

V OUTPUT

PIN A: +SUPPLY  
PIN B: +OUTPUT  
PIN C: COMMON  
PIN D: COMMON  
PIN E: Not Connected  
PIN F: Not Connected



Mating Bendix connector  
P/N: PT06A-10-6S  
MIL-C-26482



**OUTPUT OPTIONS (AMPLIFIED OUTPUT)**

Code	Output	Supply(V)		
		MIN	TYP	MAX
3	0.5 – 4.5V (ratiometric)	4.75	5.00	5.25
4	1 – 5V	8	15	30
5	4 – 20mA	9	15	30

**PERFORMANCE SPECIFICATIONS (mV OUTPUT)**

**Supply Voltage: 10Vdc**

**Ambient Temperature: 25°C (unless otherwise specified)**

PARAMETERS	1 PSI			≥5 PSI			UNITS	NOTES
	MIN	TYP	MAX	MIN	TYP	MAX		
Supply Voltage		10	14		10	14	VDC	
Zero Pressure Output	-2.0	0	2.0	5psi: -2.0 ≥15psi: -1.0	0	2.0 1.0	mV	
Span	77	80	83	5psi: 98 ≥15psi: 99	100	102 101	mV	
Accuracy	-0.3		0.3	5psi: -0.25 ≥15psi: -0.1		0.25 0.1	%Span	1
Input Resistance	5.5	9.0	12.5	5.5	9.0	12.5	KΩ	
Output Resistance	4.0		30.0	5psi: 4.0 ≥15psi: 4.0		30.0 25.0	KΩ	
Isolation, Body To Any Lead	50			50			MΩ @50VDC	
Pressure Cycles	1.00E+6			1.00E+6			0-FS Cycles	
Proof Pressure (High Side)			10X			3X	Rated	2
Proof Pressure (Low Side)			10X			3X	Rated	3
Burst Pressure (High Side)			12X			4X	Rated	2
Burst Pressure (Low Side)			12X			4X	Rated	3
Line (common) Pressure			1000			1000	psi	
Line Pressure Effect on Zero		0.004		5psi: 0.0008 TYP ≥15psi: 0.0005 TYP			%Span/psi	
Long Term Stability		±0.25			±0.1		%Span/year	
Temperature Coefficient – Span	-1.5		1.5	5psi: -1.5 ≥15psi: -1.0		1.5 1.0	%Span	
Temperature Coefficient – Offset	-2.5		2.5	5psi: -1.5 ≥15psi: -1.0		1.5 1.0	%Span	
Output Load Resistance	5			5			MΩ	
Output Noise (10Hz to 1KHz)		1.0			1.0		μV p-p	
Response Time (10% to 90%)		0.1			0.1		ms	
Compensated Temperature	0		50	5psi: 0 ≥15psi: -20		70 85	°C	
Operating Temperature	-40		+85	-40		+125	°C	
Storage Temperature	-40		+125	-40		+125	°C	4
Voltage Breakdown	500V rms@50Hz, Leakage Current <1mA							
Sensor Type	Differential Pressure Sensor with Unidirectional Calibration							
Pressure Port Material	316L Stainless Steel							
Shock	50g, 11 msec Half sine shock per MIL-STD-202F, Method 213B, Condition A							

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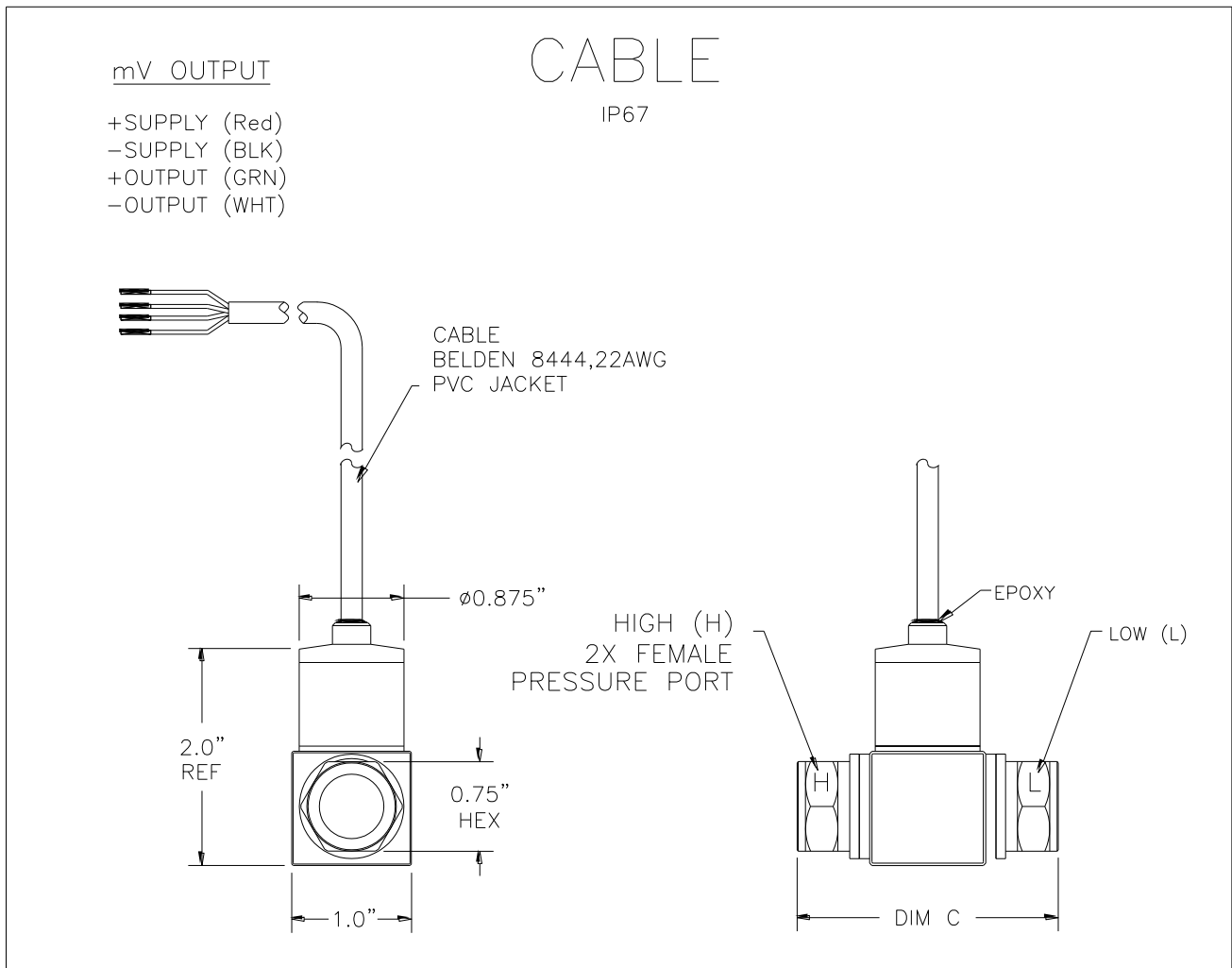
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### Notes

1. Combined linearity, hysteresis and repeatability using Best Fit Straight Line.
2. 1000psi, whichever is less.
3. 150psi, whichever is less.
4. Except cable 105°C Max.

Pressure Port Options	Dim C (inches) [mm]	Electrical Connection Options
2 = 1/4-19 BSPP Male	3.08 [78.3]	1 = 2 ft cable
5 = 1/4-18 NPT Male	3.18 [80.8]	
F = 1/4-19 BSPP Female	2.18 [55.42]	
G = 1/4-18 NPT Female	2.18 [55.42]	
Others available upon request		Others available upon request

### DIMENSIONS (mV OUTPUT)



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## OUTPUT OPTIONS (mV OUTPUT)

Code	Output	MIN	Supply(V)	
			TYP	MAX
2	80mV (1psi), 100mV (≥5psi) [ratiometric]		10	14

## ORDERING INFORMATION

<b>D51</b>	<b>2</b>	<b>3</b>	<b>-</b>	<b>0</b>	<b>0000</b>	<b>F</b>	<b>-</b>	<b>005P</b>	<b>D</b>
<b>Model Name</b>									
<b>Output</b>									
2=mV output**									
3=0.5-4.5V @ 5V (ratiometric)									
4=1-5V; V <sub>SUPPLY</sub> =5±0.25V									
5=4-20mA; V <sub>SUPPLY</sub> =9-30V									
<b>Connection</b>									
See "Connection Table"									
<b>Standard/Special</b>									
0=Standard                      B=Special (EU)									
A=Special (US)                C=Special (Asia)									
<b>Customer Standard/Special</b>									
0000=Standard                      XXXX=Customer Special (EWR No.)									
<b>Pressure Port</b>									
See "Pressure Port" Table									
<b>Pressure Range</b>									
001P            005P            015P            030P            050P            100P            300P            500P									
0.07B            0.35B            001B            002B            3.5B            007B            020B            035B									
<b>Pressure Type</b>									
D=Differential									

\*See Specification for mV Output

\*\*All Intermediate ranges with amplified output are standard



## D5100

### Industrial Differential Pressure Transducer

#### Connection Table

Code	Connection
1	Cable 2ft. Manhattan #39114,22AWG
2	Cable 4ft. Manhattan #39114,22AWG
3	Cable 10ft. Manhattan #39114,22AWG
4	Packard Connector
5	Bayonet Connector
6	Hirschmann Connector DIN 43650-C
7	Hirschmann Connector DIN 43650-A
D	M12 Connector
M	Cable 1 meter Manhattan #39114,22AWG
N	Cable 2 meter Manhattan #39114,22AWG
P	Cable 5 meter Manhattan #39114,22AWG
R	Cable 10 meter Manhattan #39114,22AWG

#### Pressure Port Table

Code	Port	Dim C
2	1/4-19 BSPP MALE	3.08 [78.23]
4	7/16-20 UNF-2A MALE SAE J514 STRAIGHT THREAD O-RING BUNA-N 70SH-904 ID8,92mmXW1.83mm	2.84 [72.14]
5	1/4-18 NPT MALE	3.19 [81.03]
6	1/8-27 NPT MALE	3.13 [79.50]
H	7/16-20 UNF-3A AS4395 MALE	3.23 [82.04]
F	1/4-19 BSPP FEMALE	2.18 [55.37]
G	1/4-18 BSPP FEMALE	2.18 [55.37]
P	7/16-20 UNF SAE J514 FEMALE	2.18 [55.37]
R	1/8-27 NPT FEMALE	2.18 [55.37]



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