



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).

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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°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 _L)	R _L > 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

Dim C (inches) [mm]

2 = 1/4-19 BSPP Male

3.08 [78.3]

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

Electrical Connection Options

1 = 2 ft cable

4 = Packard Connector

5 = Bendix Connector

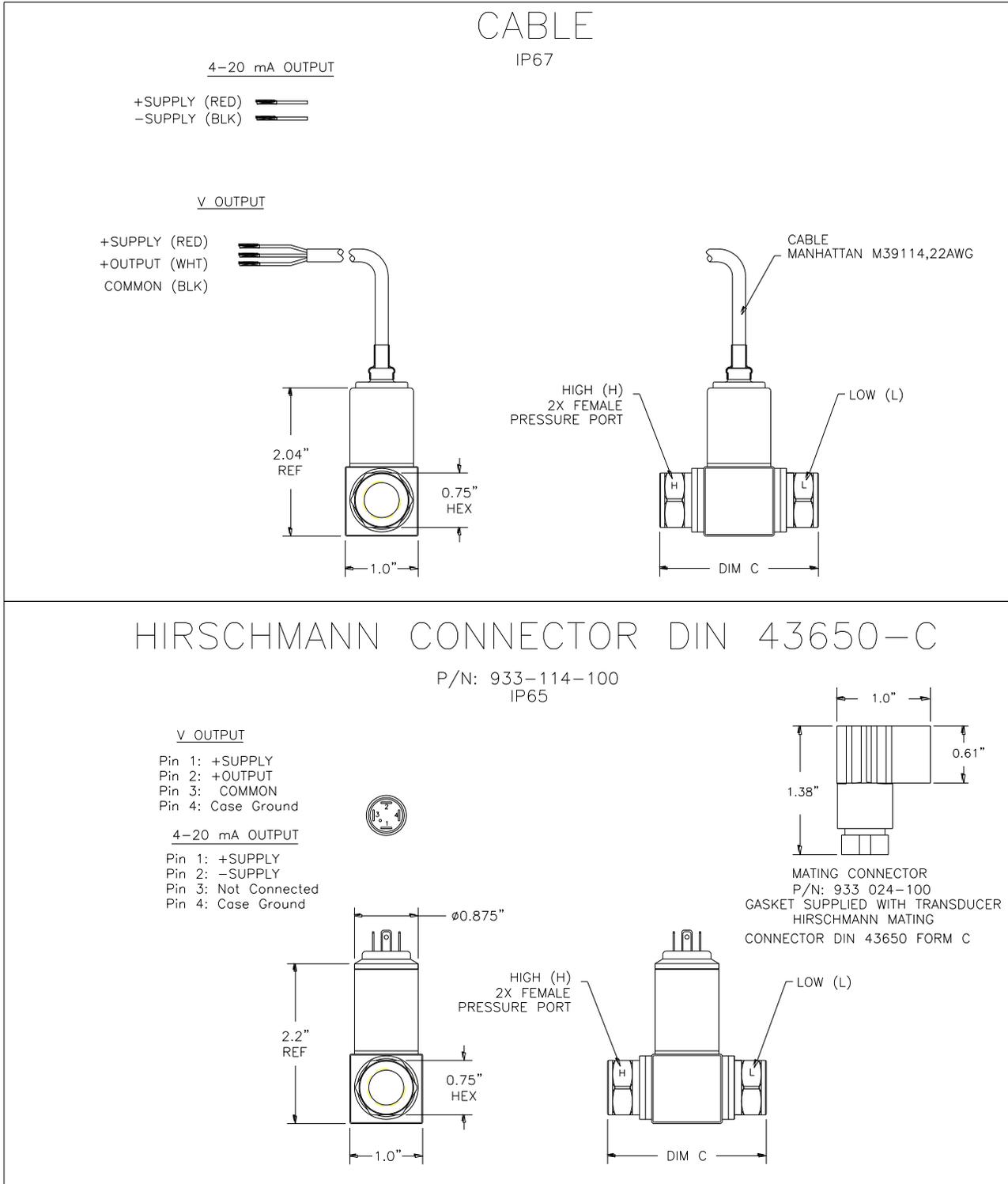
6 = Hirschmann Connector

Others available upon request

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DIMENSIONS (AMPLIFIED OUTPUT)



DIMENSIONS (AMPLIFIED OUTPUT)

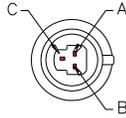
Packard Connector
IP66

4-20 mA OUTPUT

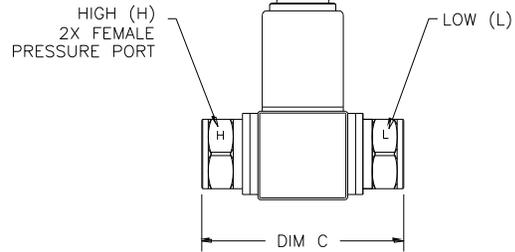
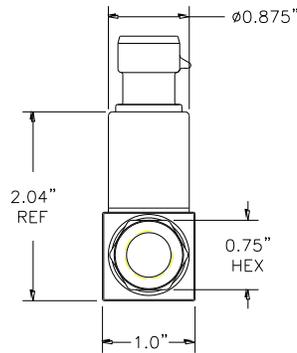
PIN A: +SUPPLY
PIN B: -SUPPLY
PIN C: Not Connected

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



Bendix PTIH-10-6P Connector
IP66

4-20 mA OUTPUT

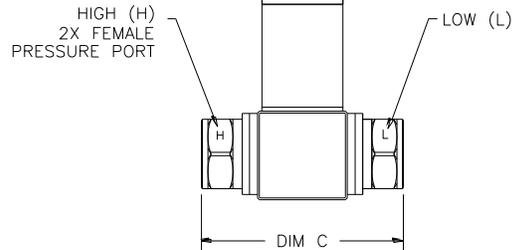
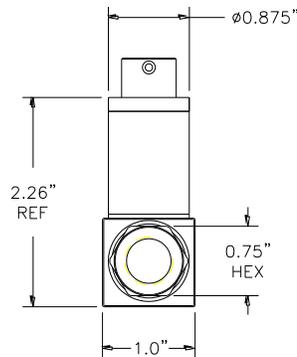
POSITIVE SUPPLY PIN A AND B (INTERNALLY CONNECTED)
NEGATIVE SUPPLY PIN C AND D (INTERNALLY CONNECTED)
PIN E: Not Connected
PIN F: Not Connected

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



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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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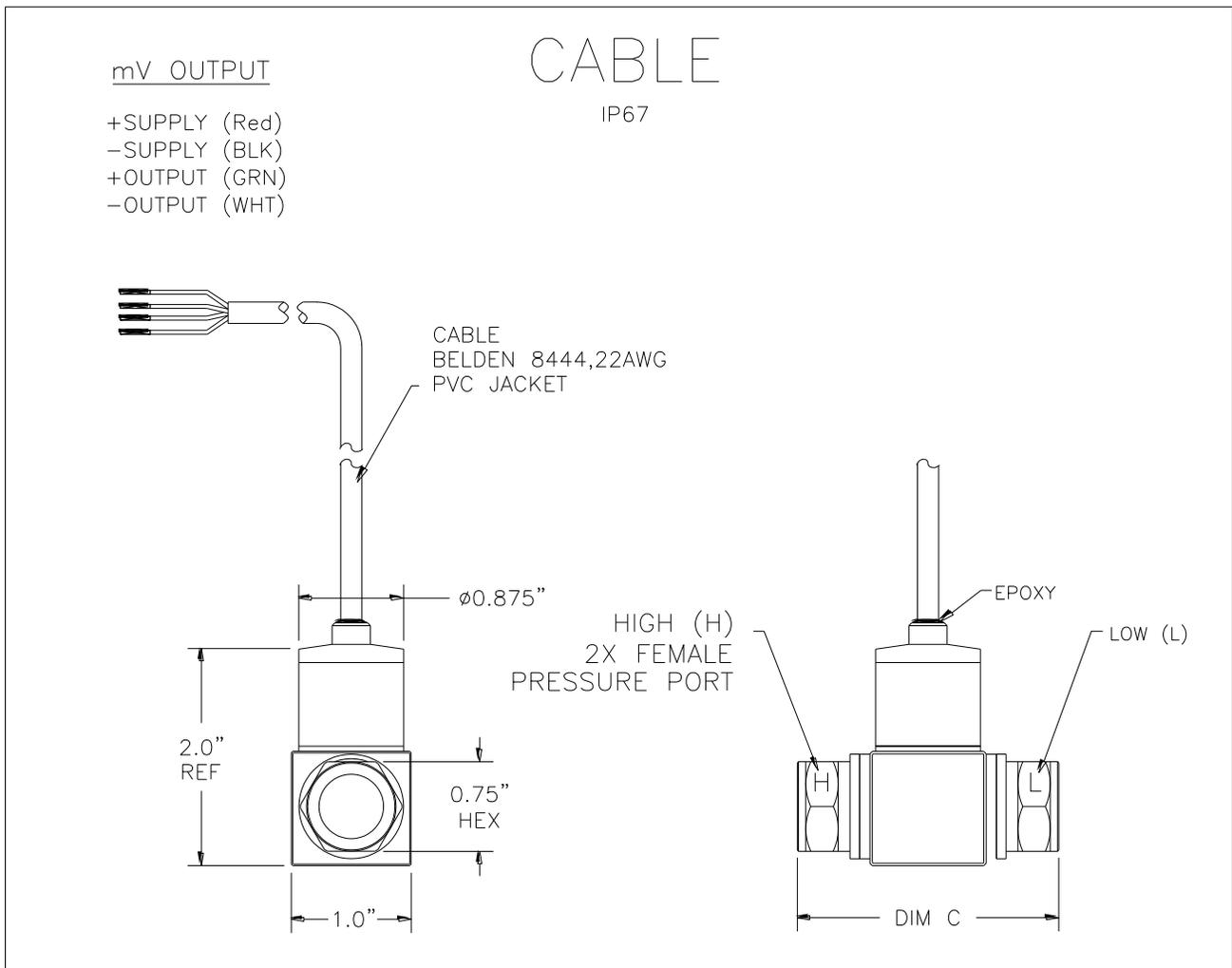
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Notes

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

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

*See Specification for mV Output

**All Intermediate ranges with amplified output are standard

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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]

NORTH AMERICA

Measurement Specialties, Inc.,
a TE Connectivity Company
Phone: 800-522-6752
Email: customercare.frm@te.com

EUROPE

Measurement Specialties (Europe), Ltd.,
a TE Connectivity Company
Phone: 800-440-5100
Email: customercare.lcsb@te.com

ASIA

Measurement Specialties (China), Ltd.,
a TE Connectivity Company
Phone: 0400-820-6015
Email: customercare.shzn@te.com

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