HART COMMUNICATION PROTOCOL

PROFIBUS®

Fieldbus Foundation

DPI 620 Genii

Advanced modular calibrator and HART®/Foundation Fieldbus™ communicator

Combines an advanced multi-function calibrator and HART/Foundation Fieldbus communicator with world-class pressure measurement and generation. ATEX, IECEx and ETL approved intrinsically safe versions are available for use in hazardous areas.

Druck
a Baker Hughes business

A flexible modular system

The Druck DPI 620 Genii Series - advanced modular calibrator and HART/Fieldbus communicator comprises four system components to provide the multi-functionality to perform duties formerly requiring a wide range of different instruments. These system components are:

- DPI620G - Multi-function calibrator, HART/Fieldbus communicator
- PM620 - Interchangeable pressure modules
- MC620G - Pressure module carrier
- PV62XG - Pressure generating stations

Note: All previous generation DPI 620 series and the new DPI 620 Genii series products (including accessories) are compatible with each other.

- DPI620G-IS - Intrinsically safe multi-function calibrator, HART/Fieldbus communicator
- PM620-IS - Intrinsically safe interchangeable pressure modules
- MC620-IS - Intrinsically safe pressure module carrier
- PV62X-IS - Intrinsically safe pressure generating stations

Features

- Multi-function capabilities: electrical, frequency, temperature and pressure
- Optional HART and Foundation Fieldbus communicators
- ATEX, IECEx and ETL approved for hazardous area use
- Modular re-rangeable and expandable concept
- Individual components can be used as stand-alone instruments
- Allows significant inventory reductions
- Simplifies training and improves operator safety
- Reduces cost of ownership

Measure and source mA, mV, V, ohms, frequency, RTDs and thermocouples

Re-rangeable dual channel pressure measurement from 25 mbar (10 in H_2O) to 1000 bar (15000 psi)

Re-rangeable pressure measurement and generation from 25 mbar (10 in H_2O) to 1,000 bar (15,000 psi)

DPI 620 Genii advanced modular calibrator and HART/Foundation Fieldbus communicator

This ultra-compact electrical, frequency and temperature calibrator with full HART communicator and optional Foundation Fieldbus communicator provides simultaneous measurement and source capabilities for the setup, testing and calibration of most types of process instruments including transmitters, transducers, gauges/indicators, switches, proximity detectors, counters, RTDs, thermocouples and valve positioners.

Features

- High resolution touch display and UI (user interface) supporting gestures and swipes for a flatter menu structure and greater ease of use.
- HART and Foundation Fieldbus digital communication with complete device description libraries, internal modems and free of charge upgrades.
- ATEX and IECEx approved system for use in zone 1 and 2 classified hazardous areas.
- ETL approved for use in class I zone 1 hazardous locations.
- UI DASHBOARD to quickly launch applications such as CALIBRATOR, HART and Foundation Fieldbus.
- TASK menu allows single touch configuration for common devices such as pressure and temperature transmitters, transducers, switches, and valve positioners. Most used and user configured tasks can be added to FAVOURITES.
- All first generation DPI620 and the new Genii system components are fully interchangeable e.g., pressure stations, pressure modules and all accessories.

Dashboard applications (model dependent):

Calibrator

- One touch selection of common tasks, e.g., P to I for a pressure transmitter.
- Highest accuracy for measuring, sourcing and simulating electrical, frequency, temperature and pressure.
- Simulate device inputs and measure outputs simultaneously.
- Calculates errors between inputs/outputs.
- Pressure system generates 100 bar/1,500 psi pneumatic and 1,000 bar/15,000 psi hydraulic pressures.
- Interchangeable pressure modules from 25 mbar/10 in H_2O to 1,000 bar/15,000 psi.

Documenting

- Data log up to six channels simultaneously.
- Automate calibration procedures and document as found and as left results.
- Store a complete plant database of procedures and results.
- View standard office documents, including images, text files, spreadsheets and presentations.
- Compatible with calibration management software.

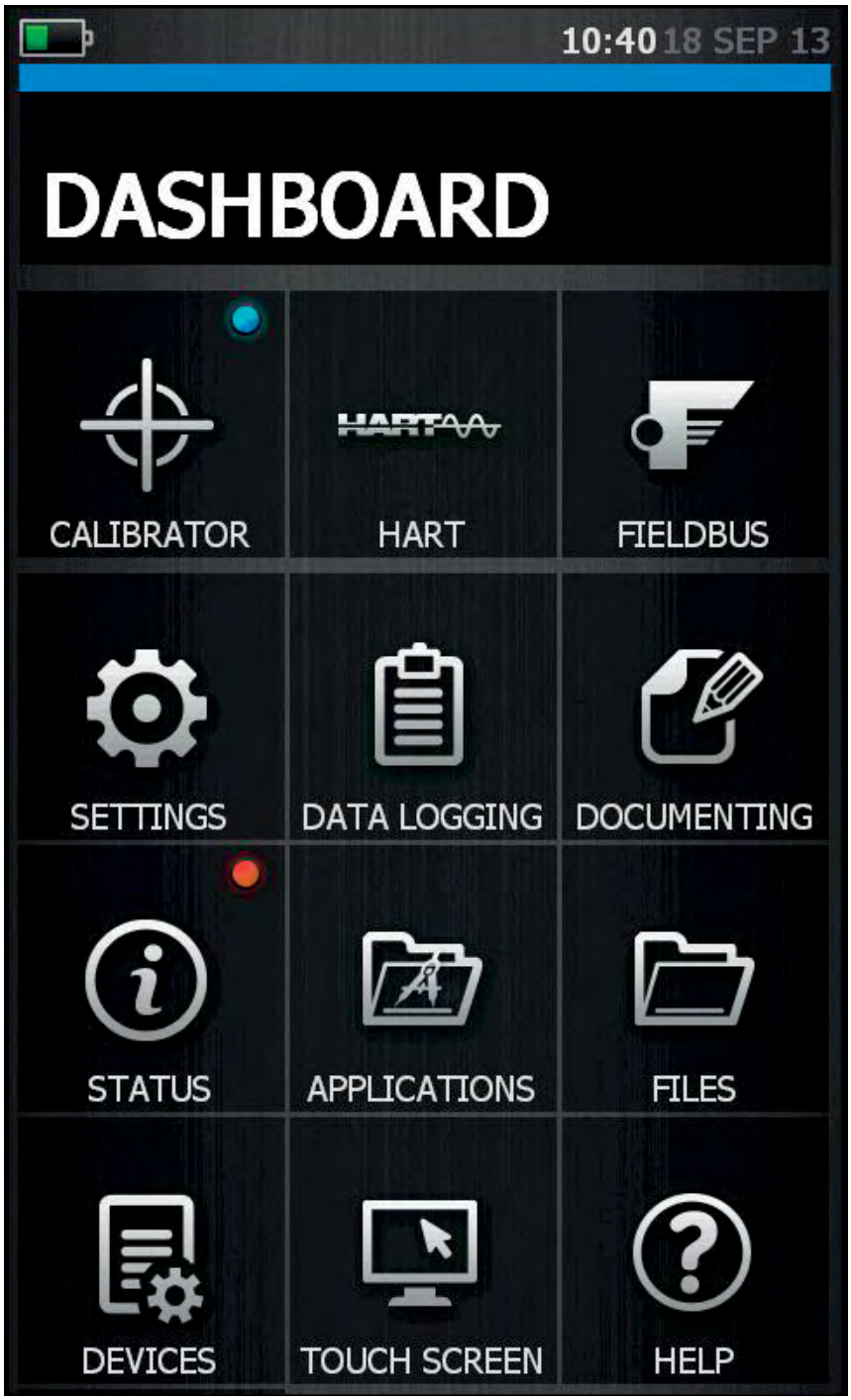
HART communicator

- Measure and source analogue variables without secondary calibration equipment.
- No power during shutdown? Genii provides loop power 24 V or 28 V (Genii-IS series 15V).
- Need a 250 ohm resistor? Just select from the menu.
- It's easy to upgrade Genii with free of charge software and latest DD library.
- View, change, clone and store device configurations.
- Work off-line to create and change configurations.
- Transfer device configurations to your PC.

Foundation Fieldbus communicator - optional

- Fully featured fieldbus communicator for device configuration and calibration.
- Complete device description library.
- It's easy to upgrade Genii with free of charge software and latest DD library.

“Simply, the most advanced test tool available“



Technical specifications

DPI620G general specification for safe area use	
Processor and memory	800 MHz processor 512 MB 800 MHz SDRAM 4 GB internal flash memory 8 GB removable microSD card - provided as standard (accepts cards up to 32 GB)
Display	Size: 110 mm (4.3 in) diagonal; 480 x 800 pixels LCD: Color display with touch-screen Protected by 2 mm toughened glass, impact tested in accordance with BS EN 61010-1:2010 (0.5 kg object from 1 m)
File viewers	A Windows® desktop is available for managing files, running third party applications and viewing simple images, Word documents, Excel spreadsheets, PDF files and PowerPoint files
Languages	English {Default}, Chinese, French, German, Italian, Portuguese, Russian, Spanish, Dutch, Japanese
Operating temperature	-10° to 50°C (14° to 122°F)
Storage temperature	-20° to 70°C (-4° to 158°F)
Ingress protection	IP55
Humidity	0 to 90% RH non condensing
Shock/vibration	BS EN 61010-1:2010; MIL-PRF-28800F for Class II equipment, 1 m drop tested
EMC	Electromagnetic compatibility: BS EN 61326-1:2006
Electrical safety	Electrical – BS EN 61010-1: 2010
Pressure safety	Pressure equipment directive - Class: Sound Engineering Practice (SEP)
Approved	CE Marked
Size (L: W: H)	183 x 114 x 42 mm (7.2 x 4.5 x 1.7 in)
Weight	575 g (1.3 lb) – battery included
Power supply	Lithium-polymer battery (Druck part number: IO620-Battery); Capacity: 5040 mAh (minimum), 5280 mAh (typical); Nominal voltage: 3.7 V. Charge temperature: 0° to 40°C (32° to 104°F) Discharge temperature: -20° to 60°C (-4° to 140°F). Note: For best battery performance, keep the temperature less than 60°C (140°F). Charge/discharge cycles: > 500 > 70% capacity
Duration	Measure functions (CH1): ≈ 12 hours continuous. Dual function, mA measure (CH2): ≈ 7 hours (24 V Source at 12 mA)
Connectivity	USB Type A, USB Type Mini B

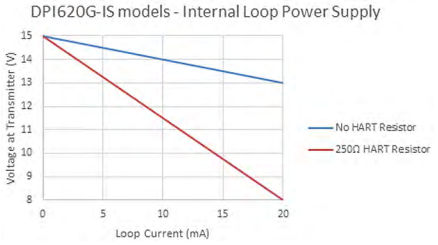
Intrinsically safe DPI620G-IS general specifications for hazardous area use	
Processor and memory	800 MHz Processor 512 MB 800 MHz SDRAM 8 GB internal flash memory
Display	Size: 110 mm (4.3 in) diagonal; 480 x 800 pixels LCD: Color display with touch-screen Protected by 2 mm toughened glass, impact tested in accordance with BS EN 61010-1:2010 (0.5kg object from 1 m)
File viewers	A Windows® desktop is available for managing files, running third party applications and viewing simple images, Word documents, Excel spreadsheets, PDF files and PowerPoint files
Languages	English {Default}, Chinese, French, German, Italian, Portuguese, Russian, Spanish, Dutch, Japanese
Operating temperature	-10° to 50°C (14° to 122°F)
Storage temperature	-20° to 70°C (-4° to 158°F)
Ingress protection	IP54
Humidity	0 to 90% RH Non condensing
Shock/vibration	BS EN 61010-1:2010; MIL-PRF-28800F for Class II equipment, 1 m drop tested
EMC	Electromagnetic compatibility: BS EN 61326-1:2006
Electrical safety	Electrical – BS EN 61010-1: 2010
Pressure safety	Pressure equipment directive - Class: Sound Engineering Practice (SEP)
Approval	CE Marked ATEX and IECEx intrinsically safe: ⟨Ex⟩ II 2G Ex ib IIC T4 Gb (-10°C ≤ Ta ≤ +50°C) ETL intrinsically safe (US and Canada): Class I, Zone 1, AEx/Ex ib IIC T4 Gb (-10°C ≤ Ta ≤ +50°C)
Size (L: W: H)	183 x 114 x 55 mm (7.2 x 4.5 x 2.2 in)
Weight	1.1 kg (2.4 lb) – battery included
Power supply	Lithium-ion battery (Druck part number: IO620G-IS-BATTERY); Capacity: 4800 mAh. Nominal voltage: 3.75 V. Charge temperature: 0° to 40°C (32° to 104°F) Discharge temperature: -10° to 50°C (14° to 12°F). Charge/discharge cycles: > 500 > 70% capacity. Safe area charging only using external charger IO620G-IS-CHARGER and universal mains adaptor IO620-PSU. The battery is detached from the instrument using two thumb screws and mounted on the charger. The battery can be taken into a hazardous area without being connected to an instrument and can be attached and detached in the hazardous area. The battery has an LED indicator to show the charge state of the battery without having to turn the instrument on or when it is not attached to an instrument
Duration	Measure functions (CH1): ≈ 7 hours continuous. Dual function, mA measure (CH2): ≈ 5 hours (Loop enabled at 12 mA)
Connectivity	USB Type Mini B (client)

Electrical measurement and source										
		NLH&R[1] ±1°C (2°F) for 24 hrs (note 2)		Total uncertainty 10° to 30°C (50° to 86°F) for 1 year (note 3)		Additional error -10° to 10°C (14° to 50°F) 30° to 50°C (86° to 122°F)		Resolution	Display reading window	
		%Rdg	+ %FS	%Rdg	+ %FS	%Rdg/°C	+ %FS/°C			
Measure mode										
DC voltage	Thermocouple	Please refer to thermocouple specification table							CH1	
	TC mode -10 to 100 mV	0.0045	0.008	0.007 (0.009)	0.01	0	0.0005	0.001	CH1	
	+/- 200 mV	0.0045	0.004	0.01	0.005	0	0.0005	0.001	CH1	CH2
	+/- 2000 mV	0.004	0.003	0.0095 (0.01)	0.005	0	0.0005	0.01	CH1	CH2
	+/- 20 V	0.0025	0.002	0.0145	0.002	0	0.0005	0.00001	CH1	CH2
	+/- 30 V	0.0035	0.0035	0.0145	0.004	0	0.0005	0.0001	CH1	CH2
AC voltage (note 1) not applicable to DPI620G-IS versions	0 to 2000 mVAC	0.125	0.125	0.2	0.15	0.005	0.005	0.1	CH1	
	0 to 20 VAC	0.1255	0.125	0.2	0.15	0.005	0.005	0.001	CH1	
	0 to 300 VAC	1	0.06	1.5	0.1	0.05	0.005	0.01	CH1	
Current	+/- 20 mA	0.006	0.005	0.012 (0.016)	0.006 (0.0065)	0	0.0005	0.0001	CH1	CH2
	+/- 55 mA	0.005	0.005	0.016 (0.019)	0.005 (0.006)	0	0.0005	0.0001	CH1	CH2
Resistance (True, 4 wire)	RTD	Please refer to RTD specification table							CH1	
	0 to 400 Ω	0.0055 (0.006)	0.001 (0.002)	0.009	0.0012	0	0.0005	0.001	CH1	
	0 to 4000 Ω	0.0055 (0.006)	0.001 (0.002)	0.009	0.0012	0	0.0005	0.01	CH1	
Resistance (4 wire)	RTD	Please refer to RTD specification table							CH1	
	0 to 400 Ω	0.012	0.005	0.015	0.006	0	0.001	0.001	CH1	
	0 to 4000 Ω	0.0115	0.0045	0.015	0.006	0	0.001	0.01	CH1	
Frequency	0 to 1000 Hz	0.0003	0.0002	0.003	0.0002			0.0001	CH1	
	1 kHz to 50 kHz (5 kHz)	0.0003	0.0004	0.003	0.0004			0.00001	CH1	
	0 to 999999 CPM	Refer to range table above for equivalent frequency						0.01	CH1	
	0 to 999999 CPH	Refer to range table above for equivalent frequency						0.01	CH1	
	Trigger level	Automatic and adjustable 0 to 20 V						0.1		
	Trigger level	Automatic or manual setting 0 to 20 V						0.1		
Pressure	25 mbar to 1000 bar	Please refer to PM 620 pressure range table							P1	P2
IDOS external module		Please refer to IDOS UPM datasheet. Cable P/N IO620-IDOS-USB required							IDOS	
USB port		Please refer to Druck for compatible devices							USB	
Source mode										
DC voltage	TC mode	Please refer to thermocouple specification table								
	TC mode -10 to 100 mV	0.009	0.008	0.014	0.01	0	0.0005	0.001	CH1	
	0 to 200 mV	0.0045	0.004	0.01	0.005	0	0.0005	0.1	CH1	
	0 to 2000 mV	0.004	0.003	0.009	0.005	0	0.0005	0.1	CH1	
	0 to 20 V (12 V) @ 3 mA max.	0.006	0.002 (0.0035)	0.0145 (0.015)	0.002 (0.004)	0	0.0005	0.001	CH1	
Current	0.2 to 24 mA with ext. loop power	0.01	0.004	0.015	0.005	0	0.0005	0.001	CH1	CH2
	0.2 to 24 mA with int. loop power	0.01	0.004	0.015	0.005	0	0.0005	0.001		CH2
	Internal loop power		24/28V ±10% (15V ±10%; 100Ω output impedance)							
Resistance[2]	RTD	Please refer to RTD specification table							CH1	
	0 to 400 Ω (0.1 mA)	0.024 (0.026)	0.0035 (0.0045)	0.03 (0.035)	0.0075 (0.012)	0	0.001	0.01	CH1	
	0 to 400 Ω (0.5 mA)	0.004	0.0025	0.008	0.003	0	0.001	0.01	CH1	
	400 to 2000 Ω (0.05 mA)	0.048	0.0035	0.06	0.006	0	0.001	0.01	CH1	
	2 k to 4 kΩ (0.05 mA)	0.048	0.0035	0.06	0.0045	0	0.001	0.01	CH1	
	Maximum input current	0-400 Ω 5 mA, 400-2000 Ω 1mA, 2000-4000 Ω 0.5 mA								
Frequency	0 to 1000 Hz	0.0003	0.00023	0.003	0.00023			0.1	CH1	
	1 kHz to 50 kHz (5 kHz)	0.0003	0.000074	0.003	0.000074			0.001	CH1	
	Output waveform	Square, positive swing up to 20 V (12V) adjustable, negative swing -120 mV (fixed) Sine and Triangular, adjustable amplitude and offset within the limits -2.5 (-0.5) to +20 V (+12 V)								
	Square wave peak output	0 to 20 V +/-20 mV (3 mA maximum)								
	0 to 99999 CPM	Please refer to range table above for equivalent frequency						1	CH1	
	0 to 99999 CPH	Please refer to range table above for equivalent frequency						1	CH1	

Notes:

Values in () apply to DPI620G-IS models

1. Specification applies, 45 to 65 Hz and between 10% and 100% of full scale
2. Specification applies when calibration temperature is between 10 and 30°C
3. Total uncertainty includes reference standard uncertainty, NLH&R and typical long term stability for one year (K=2)



Multiple parameter display capability

The display can be configured to show a maximum of 6 (5 for IS versions) simultaneous reading windows as follows: CH1, CH2, P1, P2, IDOS (not IS versions), HART/Fieldbus)

"True Ohms" RTD measure mode (4-wire)

Type	Temperature coefficient	Temperature range				Total uncertainty 10° to 30°C (50° to 86°F) for 1 year		
		°C		°F		Rdg	Tos	
		From	To	From	To	%	°C	°F
Pt 50	3.85	-200	850	-328	1562	0.012	0.05	0.09
Pt 100	3.85	-200	850	-328	1562	0.012	0.04	0.07
Pt 100	3.92	-200	850	-328	1562	0.012	0.04	0.07
Pt 200	3.85	-200	260	-328	500	0.01	0.03	0.051
		260	850	500	1562	0.15	0.077	0.14
Pt 500	3.85	-200	-60	-328	-76	0.01	0.026	0.044
		-60	0	-76	32	0.015	0.05	0.086
		0	850	32	1562	0.012	0.05	0.086
Pt 1000	3.85	-200	-150	-328	-238	0.009	0.024	0.04
		-150	0	-238	32	0.011	0.036	0.061
		0	850	32	1562	0.012	0.036	0.061
Cu 10	4.27	-200	0	-328	32	0	0.14	0.25
		0	260	32	500	0	0.17	0.3
D 100	6.18	-200	0	-328	32	0.01	0.035	0.06
		0	640	32	1184	0.012	0.035	0.06
Ni 100	6.72	-60	0	-76	32	0	0.026	0.047
		0	250	32	482	0	0.03	0.055
Ni 120	6.72	-80	0	-112	32	0	0.022	0.04
		0	270	32	518	0	0.028	0.05
		270	320	518	608	0	0.057	0.1

Standard RTD measure mode (4-wire)

Type	Temperature coefficient	Temperature range				Total uncertainty 10° to 30°C (50° to 86°F) for 1 year		
		°C		°F		Rdg	Tos	
		From	To	From	To	%	°C	°F
Pt 50	3.85	-200	850	-328	1562	0.021	0.16	0.28
Pt 100	3.85	-200	0	-328	32	0.017	0.1	0.175
		0	850	32	1562	0.0215	0.1	0.174
Pt 100	3.92	-200	0	-328	32	0.017	0.1	0.175
		0	850	32	1562	0.0215	0.1	0.174
Pt 200	3.85	-200	0	-328	32	0.017	0.069	0.12
		0	260	32	500	0.018	0.069	0.12
		260	850	500	1562	0.033	0.33	0.6
Pt 500	3.85	-200	-60	-328	-76	0.0165	0.051	0.09
		-60	0	-76	32	0.017	0.16	0.29
		0	850	32	1562	0.024	0.16	0.28
Pt 1000	3.85	-200	-150	-328	-238	0.016	0.044	0.074
		-150	0	-238	32	0.018	0.1	0.175
		0	850	32	1562	0.0215	0.1	0.174
Cu 10	4.27	-200	0	-328	32	0.035	0.66	1.18
		0	260	32	500	0.01	0.66	1.18
D 100	6.18	-200	0	-328	32	0.019	0.1	0.174
		0	640	32	1184	0.02	0.1	0.174
Ni 100	6.72	-60	0	-76	32	0	0.071	0.13
		0	250	32	482	0.002	0.071	0.13
Ni 120	6.72	-80	270	-112	518	0	0.06	0.11
		270	320	518	608	0	0.2	0.36

RTD Simulate Mode (0.1 mA min, 0-400 Ω; 0.05 mA min, 400-4000 Ω)								
Type	Temperature coefficient	Temperature range				Total uncertainty 10° to 30°C (50° to 86°F) for 1 year		
		°C		°F		Rdg	Tos	
		From	To	From	To	%	°C	°F
Pt 50	3.85	-200	850	-328	1562	0.043 (0.052)	0.24 (0.35)	0.42 (0.63)
Pt 100	3.85	-200	850	-328	1562	0.04 (0.047)	0.16 (0.22)	0.28 (0.40)
Pt 100	3.92	-200	850	-328	1562	0.04 (0.047)	0.16 (0.22)	0.28 (0.40)
Pt 200	3.85	-200	260	-328	500	0.0345 (0.041)	0.12 (0.16)	0.21 (0.29)
		260	850	500	1562	0.087	0.28	0.50
Pt 500	3.85	-200	-60	-328	-76	0.33 (0.038)	0.095 (0.12)	0.169 (0.22)
		-60	850	-76	1562	0.078	0.23	0.41
Pt 1000	3.85	-200	-150	-328	-238	0.32 (0.037)	0.085 (0.11)	0.15 (0.20)
		-150	260	-238	500	0.0675	0.19	0.34
		260	850	500	1562	0.082	0.17	0.31
Cu 10	4.27	-200	260	-328	500	0	0.85 (1.40)	1.53 (2.52)
D 100	6.18	-200	640	-328	1184	0.38 (0.046)	0.16 (0.22)	0.28 (0.40)
Ni 100	6.72	-60	250	-76	482	0	0.12 (0.16)	0.22 (0.29)
Ni 120	6.72	-80	270	-112	518	0	0.11 (0.14)	0.20 (0.25)
		270	320	518	608	0	0.25	0.45

Notes:

These figures relate to DPI 620 Genii uncertainties only values in () apply to DPI620G-IS models

For RTD measure and source functions the uncertainty is given by:

Urtd = T(°C) x %Rdg + Tos (°C)
or
Urtd = T(°F) x%Rdg + Tos (°F)

where T( ) is the measurement expressed in °C or °F

Measurement resolution:

0.01 °C/F
Simulation resolution 0.1 °C/F

Excitation current:

Measure mode 0 to 400 Ω 2.5 mA, 400 Ω to 4000 Ω 0.5 mA;

Simulate mode 0 to 400 Ω 5 mA max, 0.4 to 2 kΩ 1 mA max and 2 to 4 kΩ 0.5 mA max

Simulate mode pulsed excitation current minimum duration 10 ms

Thermocouple measurement and simulation									
Type	Standard	Temperature range				Measurement		Simulation	
						Total uncertainty 10° to 30°C (50° to 86°F) for 1 year			
		°C		°F		°C	°F	°C	°F
		From	To	From	To				
B	IEC 584	250.00	500.00	482.00	932.00	4.00	7.20	4.00	7.20
		500.00	700.00	932.00	1,292.00	2.00	3.60	2.00	3.60
		700.00	1,200.00	1,292.00	2,192.00	1.50	2.70	1.50	2.70
		1,200.00	1,820.00	2,192.00	3,308.00	1.00 (1.10)	1.80 (1.98)	1.10	1.98
E	IEC 584	-270.00	-200.00	-454.00	-328.00	2.00	3.60	2.00	3.60
		-200.00	-120.00	-328.00	-184.00	0.50	0.90	0.50	0.90
		-120.00	1,000.00	-184.00	1,832.00	0.25	0.45	0.30	0.54
J	IEC 584	-210.00	-140.00	-346.00	-220.00	0.50	0.90	0.50	0.90
		-140.00	1,200.00	-220.00	2,192.00	0.30	0.54	0.40	0.72
K	IEC 584	-270.00	-220.00	-454.00	-364.00	4.00	7.20	4.00	7.20
		-220.00	-160.00	-364.00	-256.00	1.00	1.80	1.00	1.80
		-160.00	-60.00	-256.00	-76.00	0.50	0.90	0.50	0.90
		-60.00	800.00	-76.00	1,472.00	0.30 (0.40)	0.54 (0.72)	0.40	0.72
		800.00	1,370.00	1,472.00	2,498.00	0.50	0.90	0.60	1.08
L	DIN 43710	-200.00	-100.00	-328.00	-148.00	0.40	0.72	0.40	0.72
		-100.00	900.00	-148.00	1,652.00	0.25	0.45	0.30	0.54
N	IEC 584	-270.00	-200.00	-454.00	-328.00	7.00	12.60	7.00	12.60
		-200.00	-40.00	-328.00	-40.00	1.00	1.80	1.00	1.80
		-40.00	1,300.00	-40.00	2,372.00	0.40	0.72	0.50	0.90
R	IEC 584	-50.00	360.00	-58.00	680.00	3.00	5.40	3.00	5.40
		360.00	1,760.00	680.00	3,200.00	1.00	1.80	1.10	1.98
S	IEC 584	-50.00	70.00	-58.00	158.00	3.00	5.40	3.00	5.40
		70.00	320.00	158.00	608.00	1.50	2.70	1.50	2.70
		320.00	660.00	608.00	1,220.00	1.10	1.98	1.20	2.16
		660.00	1,740.00	1,220.00	3,164.00	1.00 (1.10)	1.80 (1.98)	1.20	2.16
T	IEC 584	-270.00	-230.00	-454.00	-382.00	3.00	5.40	3.00	5.40
		-230.00	-50.00	-382.00	-58.00	1.00	1.80	1.00	1.80
		-50.00	400.00	-58.00	752.00	0.30	0.54	0.30	0.54
U	DIN 43710	-200.00	-50.00	-328.00	-58.00	0.60	1.08	0.60	1.08
		-50.00	600.00	-58.00	1,112.00	0.30	0.54	0.30	0.54
C		0.00	1,600.00	32.00	2,912.00	0.80 (0.90)	1.44 (1.62)	1.00	1.80
		1,600.00	2,000.00	2,912.00	3,632.00	1.00 (1.10)	1.80 (1.98)	1.20	2.16
		2,000.00	2,300.00	3,632.00	4,172.00	1.40 (1.50)	2.52 (2.70)	1.70	3.06
D		0.00	100.00	32.00	212.00	1.10	1.98	1.10	1.98
		100.00	270.00	212.00	518.00	0.80	1.44	0.80	1.44
		270.00	1,200.00	518.00	2,192.00	0.60 (0.70)	1.08 (1.26)	0.70	1.26
		1,200.00	1,800.00	2,192.00	3,272.00	0.80 (0.90)	1.44 (1.62)	1.00	1.80

Values in () apply to DPI620G-IS models

Measurement resolution 0.01 °C/F

Simulation resolution 0.1 °C/F

Cold Junction (CJ) uncertainty 0.2°C (0.4°F) in ambient range 10 to 30°C (50 to 86°F)

Add 0.01° CJ uncertainty/° outside of this ambient range

PM620 pressure modules

Features

- Fully interchangeable with no need for set-up or calibration
- Simple screw fit - hand tight no tools required
- Ranges from 25 mbar to 1,000 bar (10 inH2O to 15,000 psi)
- Accuracy from 0.005% FS
- Safe and hazardous area versions available

The PM620 is the latest development in digital output sensor technology incorporating a number of key innovations to allow pressure re-ranging of compatible equipment. A simple screw fit makes both the pressure and electrical connections without the need for tools, sealing tape, cables or plugs and digital characterization allows interchangeability without set-up or calibration.

MC620G module carrier

Features

- 2 independent pressure channels
- Simple to re-range
- Pressure protection
- Safe and hazardous area versions available

The MC620 module carrier attaches to the head of the DPI620 to provide two independent pressure measurement channels. These can be fitted with any PM620 pressure module from 25 mbar to 1,000 bar (10 inH2O to 15,000 psi). A simple screw fit means no tools are required and ensures both a high integrity pressure seal and a reliable digital interface. Even the pressure adapters are interchangeable and only require a finger tight fit.

The carrier is designed for pressure safety and will automatically seal if a module is not fitted or if the user attempts to remove it.

MC620G specification	
Maximum pressure	400 bar (5,800 psi) pneumatic 1,000 bar (15,000 psi) hydraulic
Pressure media	Compatible with stainless steel and nitrile seals
Pressure safety	Pressure equipment directive class SEP
Size and weight	80 mm x 100 mm x 110 mm, 640 g

MC620-IS specification (where different to MC620G)	
Size and weight	78 mm x 100 mm x 110 mm, 820 g

PM620 specification	
Maximum intermittent pressure	2 x FS
Maximum working pressure	110% FS
Sealing	IP 65 (protected against dust and jets of water)
Operating temperature	-10 to 50°C (14 to 122°F)
Storage temperature	-20 to 70°C (-4 to 158°F)
Humidity	0 to 90% RH non condensing
Shock and vibration	BS EN 61010-1:2010; MIL-PRF-28800F for Class II equipment, 1 m Drop Tested
EMC	BS EN 61326-1:2006
Electrical safety	BS EN 61010-1:2010
Pressure safety	Pressure equipment directive class SEP
Approval	CE marked
Size and weight	L. 56 mm, Dia. 44 mm, 106 g maximum

PM620-IS Pressure module specification (where different from PM620)	
Approval	CE Marked ATEX & IECEx intrinsically safe: Ex II 1G Ex ia IIC T4 Ga (-10°C ≤ Ta ≤ +50°C) ETL intrinsically safe (US and Canada): Class I, Zone 1, AEx/Ex ia IIC T4 (-10°C ≤ Ta ≤ +50°C)

Gauge ranges (referenced to atmosphere)					
		Media	NLH&R 20°C ± 2°C (68°F ± 4°F) 24 hr	NLH&R 0° to 50°C (32° to 122°F) 24 hr	Total uncertainty 0° to 50°C (32° to 122°F) for 1 year
			Gauge	Gauge	Gauge
bar	**psi**		**%FS**	**%FS**	**%FS**
±0.025	±10 inH_2O	1	0.090	0.090	0.100
±0.07	±1	1	0.025	0.030	0.047
±0.2	±3	1	0.020	0.027	0.045
±0.35	±5	2	0.020	0.025	0.044
±0.7	±10	2	0.015	0.020	0.041
±1	-14.5 to 15	2	0.015	0.020	0.041
-1 to 2	-14.5 to 30	2	0.015	0.020	0.025
-1 to 3.5	-14.5 to 50	2	0.010	0.020	0.025
-1 to 7	-14.5 to 100	2	0.010	0.020	0.025
-1 to 10	-14.5 to 150	2	0.005	0.020	0.025
-1 to 20	-14.5 to 300	2	0.005	0.020	0.025
0 to 35	0 to 500	2	0.005	0.020	0.025
0 to 70	0 to 1,000	2	0.005	0.020	0.025
0 to 100	0 to 1,500	2	0.005	0.020	0.025
0 to 135	0 to 2,000	2	0.005	0.020	0.025
0 to 200	0 to 3,000	2	0.005	0.020	0.025

NLH&R non-linearity, hysteresis and repeatability

❶ Compatible with non-corrosive gas/fluid

❷ Compatible with stainless steel

*The reading can be referenced to ambient air pressure via a software feature of the DPI620 Genii, allowing the same module to be switched between absolute and sealed gauge measurement.

DPI620 Genii pressure resolution: adjustable 4 to 7 digits. Uncertainty confidence level 95% (K=2)

Absolute ranges (referenced to vacuum)								
		Media	NLH&R 20°C ± 2°C (68°F ± 4°F) 24 hr	NLH&R 20°C ± 2°C (68°F ± 4°F) 24 hr	NLH&R 0° to 50°C (32° to 122°F) 24 hr	NLH&R 0° to 50°C (32° to 122°F) 24 hr	Total uncertainty 0° to 50°C (32° to 122°F) for 1 year	
			Absolute	*Sealed gauge	Absolute	*Sealed gauge	Absolute	*Sealed gauge
bar	**psi**		**%FS**	**%FS**	**%FS**	**%FS**	**%FS**	**%FS**
0 to 0.35	0 to 5	2	0.030		0.050		0.080	
0 to 1.2	0 to 35 inHg	2	0.020		0.036		0.070	
0 to 2	0 to 30	2	0.015		0.036		0.052	
0 to 3.5	0 to 50	2	0.015		0.036		0.050	
0 to 7	0 to 100	2	0.015		0.036		0.050	
0 to 10	0 to 150	2	0.015	0.005	0.030	0.020	0.047	0.025
0 to 20	0 to 300	2	0.015	0.005	0.030	0.020	0.047	0.025
0 to 35	0 to 500	2	0.015	0.005	0.030	0.020	0.047	0.025
0 to 70	0 to 1,000	2	0.015	0.005	0.030	0.020	0.047	0.025
0 to 100	0 to 1,500	2	0.015	0.005	0.030	0.020	0.046	0.025
0 to 135	0 to 2,000	2	0.015	0.005	0.030	0.020	0.046	0.025
0 to 200	0 to 3,000	2	0.015	0.005	0.030	0.020	0.046	0.025
0 to 350	0 to 5,000	2	0.015	0.005	0.033	0.020	0.049	0.025
0 to 700	0 to 10,000	2	0.015	0.005	0.033	0.020	0.049	0.025
0 to 1000	0 to 15,000	2	0.015	0.005	0.033	0.020	0.049	0.025

The PV621, 622 and 623 pressure generating stations

Features

- A uniquely capable, re-rangeable and self contained pressure test system
- Advanced pressure generation
    - 95% vacuum to 20 bar (300 psi) pneumatic
    - 95% vacuum to 100 bar (1,500 psi) pneumatic
    - 0 to 1000 bar (15,000 psi) hydraulic
- Stand-alone replacements for hand pumps
- Bench top use as comparators
- Safe and hazardous area versions available

There are three pressure generation stations: the PV621, a pneumatic pressure generator for pressures 95% vacuum to 20 bar (300 psi); the PV622, a pneumatic pressure generator for pressures 95% vacuum to 100 bar (1,500 psi); and the PV623, a hydraulic pressure generator for pressures up to 1,000 bar (15,000 psi). Each pressure station is designed for stand-alone operation as a pressure generator and can replace conventional hand pumps to provide greater efficiency and ease of use. They can also be used on the workbench as comparators.

Combining any of the pressure stations with a PM620 pressure module and the DPI620 calibrator creates a uniquely capable, self-contained pressure calibrator.

PV621G, PV622G and PV623G specification	
Maximum pressure	PV621G 20 bar (300 psi) pneumatic PV622G 100 bar (1,500 psi) pneumatic PV623G 1,000 bar (15,000 psi) hydraulic
Pressure media	PV621G and PV622G non-corrosive gases, PV623G de-mineralized water or mineral oil (ISO viscosity grade < 22)
Operating temperature	-10° to 50°C (14° to 122°F) For water +4 to +50°C (39 to 122°F)
Storage temperature	-20 to 70°C (-4 to 158°F) (must be empty of water)
Shock and vibration	BS EN 61010-1:2010; MIL-PRF-28800F for Class II equipment, 1 m drop tested
Pressure safety	Pressure equipment directive class SEP
Size and weight	450 mm x 280 mm x 235 mm, PV621G 2.65 kg, PV622G 3.30 kg, PV623G 3.75 kg

PV621-IS, PV622-IS and PV623-IS specification (where different from above table)	
Maximum pressure	PV621-IS 20 bar (300 psi) pneumatic PV622-IS 100 bar (1,500 psi) pneumatic PV623-IS 1,000 bar (15,000 psi) hydraulic
Operating temperature	-10 to 40°C (14 to 104°F)
Approval	CE Marked ATEX and IECEx intrinsically safe: Ex II 2G Ex ia IIC T4 Gb (-10°C ≤ Ta ≤ +40°C) ETL intrinsically safe (US and Canada): Class I, Zone 1, AEx/Ex ia IIC T4 (-10°C ≤ Ta ≤ +40°C)

PV622G

PV622-IS

Ordering information

Systems for safe area use

Please order the following model numbers and part numbers as separate line items.

Model DPI620G

Genii advanced modular calibrator and HART communicator.

Model DPI620G-FF

Genii advanced modular calibrator and HART/Fieldbus communicator.

Model DPI620G-PB

Genii advanced modular calibrator and HART/Profi bus communicator.

Model DPI620G-FFPB

Genii advanced modular calibrator and HART/Fieldbus and Profi bus communicator.

Model DPI620G-L

Genii advanced modular calibrator retains all the features of model DPI620G, but does not include the HART or Fieldbus communicator.

The DPI620G are supplied with a rechargeable lithium polymer battery P/N IO620-BATTERY, universal mains adaptercharger P/N IO620-PSU, P/N IO620-AC 300 VAC true rms measurement probe, test leads, calibration certificate, and quick reference guide.

(P/N IO620-BATTERY) Spare/rechargeable lithium polymer battery (not compatible with DPI620G-IS models)

(P/N IO620-PSU) Spare/replacement universal mains adapter

Input voltage 100 to 240 VAC 50/60 Hz Mains socket adapters are provided.

Model MC620G

Genii pressure module carrier

Supplied with G 1/8 female and 1/8 NPT female adapters (2 of each).

Model PM620 “pressure range” and “type”

Pressure module supplied with calibration certificate. Please state model number, pressure range and type gauge or absolute e.g., PM620 20 bar (300 psi) gauge (see page 11 for pressure ranges).

Model PV621G

Pneumatic pressure generating station vacuum to 20 bar (300 psi)

Model PV622G

Pneumatic pressure generating station vacuum to 100 bar (1,500 psi)

Model PV623G

Hydraulic pressure generating station 0 to 1,000 bar (15,000 psi)

The PV621G, 622G and 623G are supplied with G1/8 female and 1/8 NPT female adapters carry strap, and quick reference guide. In addition, the PV623G includes a plastic refill bottle for hydraulic fluid.

Accessories for safe area use

(P/N IO620-AC) Replacement AC voltage measurement probe

Attaches to the DPI620G, 30 V sockets to provide 300 VAC true rms measurement. Is supplied as standard with all new DPI620G.

(P/N IO620-CASE-1) Carrying case

Protective carrying case with belt loop, shoulder strap and large detachable pocket for test leads and accessories.

(P/N IO620-CASE-2) System carrying case

Protective carrying case for system components including the DPI620G, MC620G, PM620 modules, test leads, hose and adapters.

(P/N IO620-CHARGER) Battery charging station

External battery charging station allows a spare battery to be charged independently of the DPI620G for minimum instrument down time. Power is provided by the standard mains adaptor (P/N I0620-PSU). A complete charge cycle takes approximately 6.5 hours. The charging station can be connected to a USB port to provide a top-up charge (full charge in 13 hours).

(P/N IO620-USB-PC) USB cable

Connects the DPI620G or DPI620G-IS to a PC

(P/N IO620-IDOS-USB)
IDOS to USB converter

Allows connection of an IDOS universal pressure module to the DPI620G. P/N IO620-USB-PC is also required to connect the converter to the DPI620G USB port. (not compatible with DPI620G-IS)

(P/N IO620-USB-RS232)
USB to RS 232 cable

Connects the DPI620G to an RS 232 interface (not compatible with DPI620G-IS)

Intrinsically safe systems for hazardous area use

Model DPI620G-IS

Genii intrinsically safe advanced modular calibrator and HART communicator

Model DPI620G-IS-FF

Genii intrinsically safe advanced modular calibrator and HART/ Fieldbus communicator

Model DPI620G-IS-PB

Genii intrinsically safe advanced modular calibrator and HART/Profibus communicator

Model DPI620G-IS-FFPB

Genii intrinsically safe advanced modular calibrator and HART/Foundation Fieldbus and Profibus communicator

Model DPI620G-IS-L

Genii intrinsically safe advanced modular calibrator without communicator. Retains all the features of model DPI620G-IS, but does not include the HART or Fieldbus communicator.

The DPI 620G-IS Series are supplied with a rechargeable lithium ion battery P/N IO620G-IS-BATTERY, universal mains adapter N IO620-PSU and charger P/N IO620G-IS-CHARGER, test leads, calibration certificate, and quick reference guide.

(P/N IO620G-IS-BATTERY) Spare/replacement rechargeable battery

(P/N IO620-PSU) Spare/replacement universal mains adapter

(P/N IO620G-IS-CHARGER) Spare/replacement charger (PSU not included)

Model MC620-IS

Pressure module carrier for DPI620G-IS series.

Supplied with G 1/8 female and 1/8 NPT female adaptors (2 of each)

Model PM620-IS "pressure range" and "type"

Intrinsically safe pressure module supplied with calibration certificate. Please state model number, pressure range and type gauge or absolute e.g., PM620-IS 20 bar (300 psi) gauge (see page 11 for pressure ranges)

Model PV621-IS

Intrinsically safe pneumatic pressure generating station vacuum to 20 bar (300 psi)

Model PV622-IS

Intrinsically safe pneumatic pressure generating station vacuum to 100 bar (1,500 psi)

Model PV623-IS

Intrinsically safe hydraulic pressure generating station 0 to 1,000 bar (15,000 psi)

The PV621-IS, 622-IS and 623-IS are supplied with G1/8 female and 1/8 NPT female adapters carry strap, and quick reference guide. In addition, the PV623-IS includes a plastic refill bottle for hydraulic fluid.

Accessories for hazardous area use

(P/N IO620-CASE-2-IS)
System carrying case

A protective carrying case for system components including the DPI620G-IS, MC620-IS, PM620-IS modules, test leads, hose and adapters.

PV621, 622, 623 and MC620 Accessories

Note: unless otherwise stated the following accessories are suitable for hazardous area use.

Dirt moisture trap

Prevents contamination of the PV621 and 622 pneumatic systems and cross contamination from one device under test to another. The IDT connects directly to the PV621 and 622 pressure port and replicates the quick fit connection for compatibility with the hose and adapter kits.

P/N IO620-IDT621: Maximum working pressure 20 bar (300 psi)

P/N IO620-IDT622: Maximum working pressure 100 bar (1,500 psi)

Pressure relief valve

When fitted to a PV62X pressure station a relief valve protects the PM620 pressure module and the device under test from overpressure.

Relief valve table					
Part number	For use with	Factory setting		Adjustable range	
		bar	psi	bar	psi
IO620-PRV-P1	PV621G PV622G	1	15	0.2 to 1	3 to 15
IO620-PRV-P2	PV621G PV622G	5	100	3 to 7	45 to 100
IO620-PRV-P3	PV621G PV622G	30	435	16 to 32	230 to 460
IO620-PRV-P4	PV622G	60	870	30 to 60	435 to 870
IO620-PRV-P5	PV622G	100	1,500	60 to 100	870 to 1,500
IO620-PRV-P6	PV621G PV622G	3	45	1.1 to 3	16 to 45
IO620-PRV-P7	PV621G PV622G	12	170	6.1 to 12	90 to 170
IO620-PRV-P8	PV621G PV622G	18	260	12.1 to 18	175 to 260
IO620-PRV-H1	PV623G	50	725	10 to 50	145 to 725
IO620-PRV-H2	PV623G	200	3000	50 to 200	725 to 2,900
IO620-PRV-H3	PV623G	400	6000	200 to 400	2,900 to 5,800
IO620-PRV-H4	PV623G	700	10,000	300 to 700	4,350 to 10,000
IO620-PRV-H5	PV623G	1,000	15,000	600 to 1,000	8,700 to 15,000

(P/N IO620-CASE-4) Modular system transit case

A rigid transit case with wheels and an extendable handle. Accommodates two PV62XG pressure stations, DPI620G, MC620G and PM620 modules, with ample storage space for accessories. Size: 736 mm x 554 mm x 267 mm. Weight: 8,5 kg empty.

Pressure station carrying case

A protective carrying case with shoulder strap and large pocket for accessories. Also accommodates the assembled system including the DPI620G and PM620.

P/N IO620-CASE-3: Safe area use

P/N IO620-CASE-3-IS: Hazardous area use

Pneumatic hose

Pneumatic hose terminated with quick fit connectors compatible with the test point adapters supplied with the PV62XG, MC620G and the adapter sets.

Safe area use

P/N IOHOSE-NP1: 1 m/3.28 ft pneumatic hose. Maximum pressure 20 bar/300 psi

P/N IOHOSE-NP2: 2 m/6.56 ft pneumatic hose. Maximum pressure 20 bar/300 psi

P/N IO620-HOSE-P1: 1 m/3.28 ft pneumatic hose. Maximum pressure 400 bar (5,800 psi)

P/N IO620-HOSE-P2: 2 m/6.56 ft pneumatic hose. Maximum pressure 400 bar (5,800 psi)

Hazardous area use

P/N IO620-HOSE-P1-IS: 1 m/3.28 ft pneumatic hose. Maximum pressure 400 bar (5,800 psi)

P/N IO620-HOSE-P2-IS: 2 m/6.56 ft pneumatic hose. Maximum pressure 400 bar (5,800 psi)

Hydraulic hose

A high pressure hydraulic hose rated to 1,000 bar (15,000 psi) and terminated with quick fit connectors compatible with the test point adapters supplied with the PV62XG, MC620G and the adapter sets. The hose is self sealing to avoid leakage when disconnected.

Safe area use

P/N IO620-HOSE-H1: 1 m/3.28 ft hydraulic hose

P/N IO620-HOSE-H2: 2 m/6.56 ft hydraulic hose

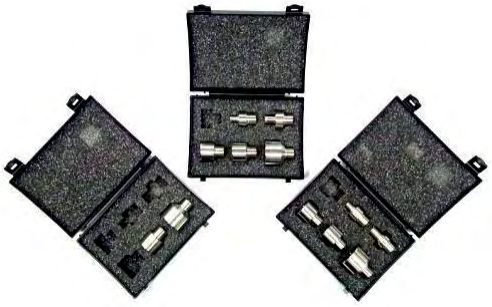
Hazardous area use

P/N IO620-HOSE-H1-IS: 1 m/3.28 ft hydraulic hose

P/N IO620-HOSE-H2-IS: 2 m/6.56 ft hydraulic hose

Pressure adapter set

A set of test point adapters to connect the tool less quick fit PV62XG, MC620G and the extension hoses to the device under test.



P/N IO620-BSP: G1/8 male and G¼ male, G¼ female, G3/8 female and G½ female

P/N IO620-NPT: 1/8" male and ¼" male, ¼" female, 3/8" female, and ½" female

P/N IO620-MET: 14 mm and 20 mm female

(P/N IO620-COMP) Comparator adapter

Allows the PV62XG pressure station to be used as a comparator. The adapter connects to the stations pressure port and provides two outlet ports for making gauge comparisons. Compatible with the test point adapters supplied with the PV62XG and the adapter sets.

(P/N IO620-BLANK) Blanking plug

Allows the PV621G and 622G to be used as pressure generators independently of the DPI620G and PM620 by blanking the PV62XG pressure module port. Not required for the PV623G as the port is self-sealing.

(P/N IO620-104 ADAPT) DPI 104 gauge adaptor

Allows a DPI 104 digital pressure gauge to be connected to the PV62XG pressure module port in place of DPI620G and PM620 to provide a simple low cost pressure calibrator.

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