

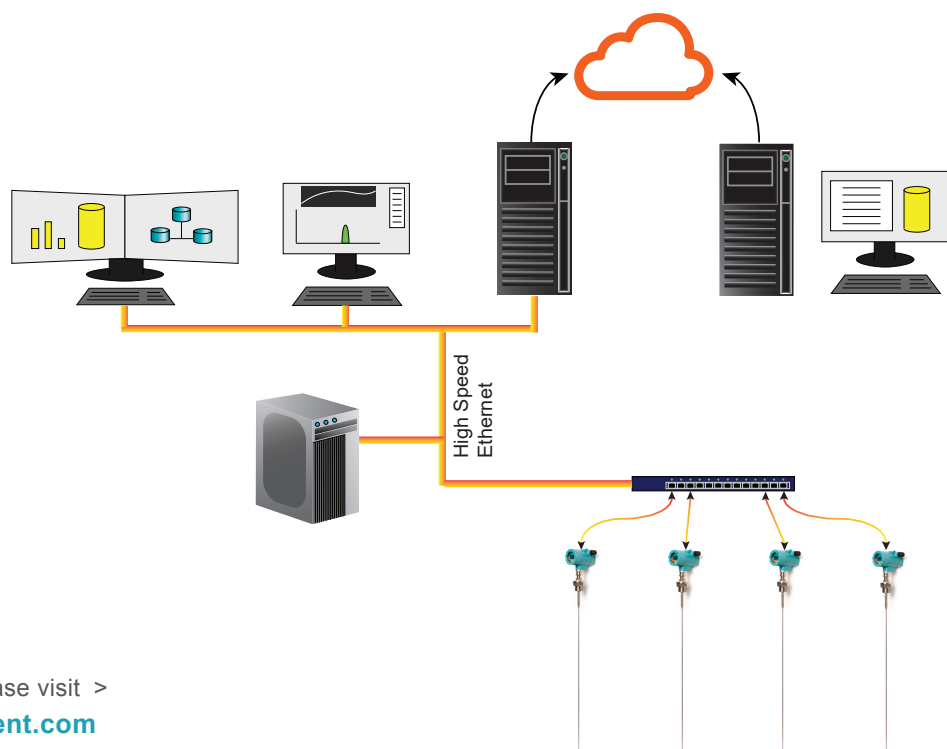
A Higher Level of Performance



Data Sheet

# Centurion Guided Radar

Power Over Ethernet (PoE) Series



For more information, please visit >  
[www.hawkmeasurement.com](http://www.hawkmeasurement.com)

# Overview

## Centurion Guided Radar



### Principle of Operation

Guided-wave technology sends the radar pulse down a probe to measure either liquids, solids or a low dielectric to high dielectric Interface level.

The pulse hits the surface and / or Interface and is reflected back up the probe to the sensor, where the transit time is translated into a distance using time of flight and time expansion.

The amplitude of the reflection depends on the dielectric constant of the product.



### Function

The HAWK range of Guided Radar products are ideal for level measurement of liquids, solids, bulk materials, sludge, powders, granules for Level and Interface to a distance of 38m (124ft).

This technology is not affected by pressure, temperature, viscosity, vacuum, foam, dust, changes in dielectric constant or coating of the probe.

### Primary Areas of Application

- Chemicals
- Petrochemicals
- Cement
- Building Aggregates
- Mining / Minerals
- Food & Beverages
- Oil & Gas
- Pharmaceutical
- Pulp & Paper
- Wastewater

### Features

- Interface level measurement option
- Up to 38m (124ft) range
- Very short minimum range ( $\leq 150\text{mm}$ , 6")
- Cat 5 Ethernet plug - no special wiring
- Auto-calibration to any dielectric  $\geq 1.5$
- Adjustable sensitivity
- Precise & continuous measurement
- Power & Communications via Ethernet
- Power & measurement via a single connection
- Protection class IP66, NEMA 4x
- Measures extremely low dielectric (1.5)
- Programmable fail safe mode

### Intelligent, Networkable & HawkEye365 Cloud Ready

Multiple units can be connect to a powered switch. Data streamed over any standard network, for local and remote control, management and monitoring. Complete cloud inventory monitoring via Hawkeye365

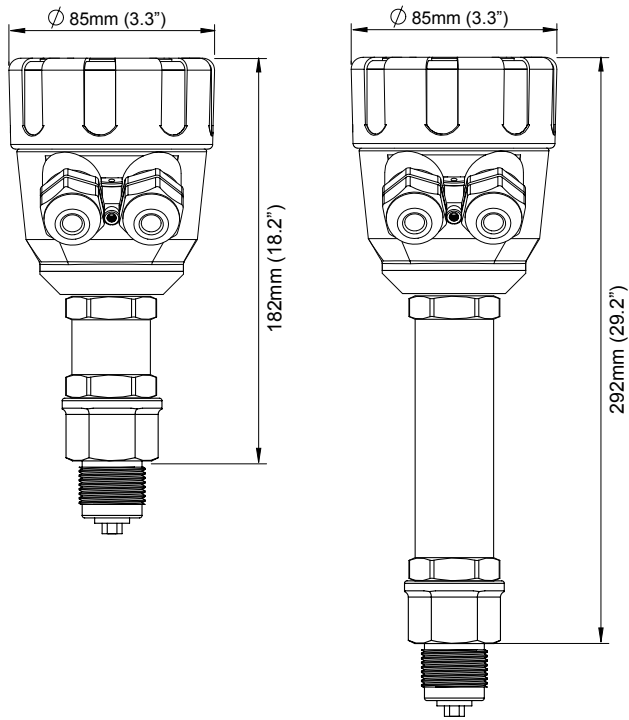


### Enclosures

#### Single Chamber with Viewing Window

Process Temperature  
80°C (176°F)

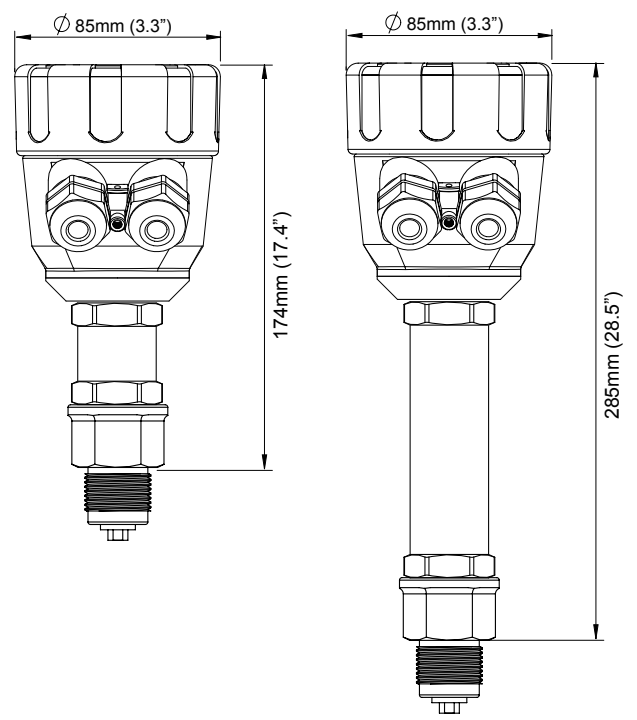
Process Temperature  
130°C ≥ 250°C (266°F ≥ 482°F)



#### Single Chamber with no Viewing Window

Process Temperature  
80°C (176°F)

Process Temperature  
130°C ≥ 250°C (266°F ≥ 482°F)





### Probe Variants

#### A04 / A06 / A08 / J04 / J06 / J08

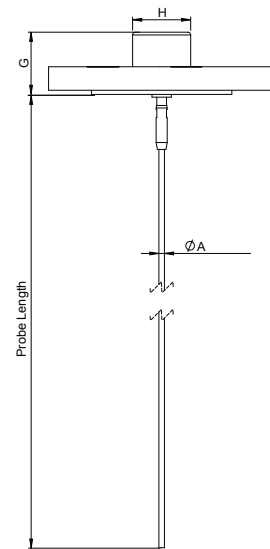
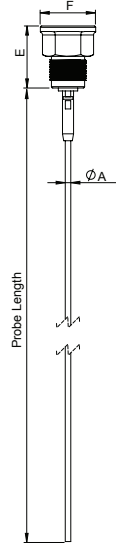
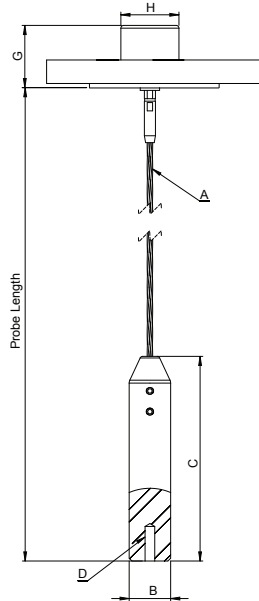
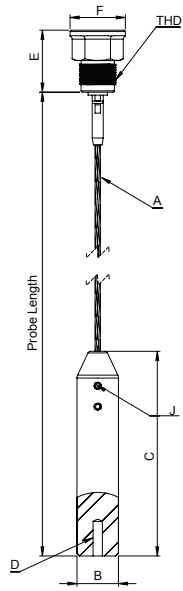
#### B04 / B06 / B08 / K04 / K06 / K08 / B11

##### Threaded

##### Bushed Flange

##### Threaded

##### Bushed Flange



Probe / Cable Dimensions

Probe Type	THD BSP or NPT	A		B		C		E		F		D Internal Threads (A04, A06, A08 only)	J (Tightening Torque = 20Nm)	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.		Set Screw	Hex Key Size
A04, B04, J04, K04	3/4	4	0.16	22	0.9	120	4.7	45	1.8	40	1.6	M10x1.25, 24mm deep	3x M8x1.25x12	4mm
A06, B06, J06, K06, B11	1	6	0.24	28	1.1	150	5.9	45	1.8	40	1.6	M10x1.25, 24mm deep	3x M8x1.25x12	4mm
A08, B08, J08, K08	1-1/2	8	0.31	36	1.4	200	7.8	72	2.8	64	2.5	M10x1.25, 24mm deep	3x M10x1.5x18	5mm
	<b>Bushed Flange</b>	G		H										
		mm	in.	mm	in.									
A04, B04, J04, K04		45	1.8	42	1.6									
A06, B06, J06, K06, B11		72	2.8	70	2.7									



### Centurion Guided Radar System

PoE Type - 3/4" & 1" Threaded Units (mounting option TN07, TB07, TN10, TB10, Flanged)

#### Model

CGR4 Centurion Guided Radar 4 wire

#### Communication

E Ethernet PoE (Powered Ethernet)

#### Housing

- A Single Chamber Aluminium, powder coated with viewing window<sup>4</sup>
- B Single Chamber Aluminium, powder coated, no viewing window<sup>4</sup>

#### Conduit / Cable Entry

3 M20 x 1.5

#### Probe Type

- A04 4mm flexible cable
- A06 6mm flexible cable
- B04 4mm rigid probe
- B06 6mm rigid probe
- J04 Detached 4mm flexible cable
- J06 Detached 6mm flexible cable
- K04 Detached 4mm rigid probe
- K06 Detached 6mm rigid probe
- B11 11mm rigid probe with centering disc connection

#### Probe Variant / Materials

S 316L

#### Mounting

- TN07 3/4" NPT Thread (316L)
- TB07 3/4" BSP Thread (316L)
- TN10 1" NPT Thread (316L)
- TB10 1" BSP Thread (316L)
- FXXX<sup>1</sup> Bushed Flange (replace XXX with 3 character Bushed Flange Code)

#### Process O-ring Seal / Process Temperature

V1	FKM (Viton)	(-40°C to +80°C)	(-40°F to +176°F)
V4	FKM (Viton)	(-40°C to +150°C)	(-40°F to +302°F)
B1	NBR	(-40°C to +80°C)	(-40°F to +176°F)
E1	EPDM	(-40°C to +80°C)	(-40°F to +176°F)
E3	EPDM	(-40°C to +130°C)	(-40°F to +266°F)
M1	FFKM (Markez)	(-10°C to +80°C)	(+14°F to +176°F)
M4	FFKM (Markez)	(-10°C to +150°C)	(+14°F to +302°F)
M5	FFKM (Markez)	(-10°C to +200°C)	(+14°F to +392°F)
M6	FFKM (Markez)	(-5°C to +250°C)	(+23°F to +482°F) (Max Process Pressure 40 bar)
S1	Silicone	(-40°C to +80°C)	(-40°F to +176°F)

#### Process Pressure

- 1 6 bar (87 psig)
- 3 20 bar (290 psig)
- 4 40 bar (580 psig)
- 5 100 bar (1450 psig)

#### Approval Standard

XX Not Required

#### Probe Length

Specify in cm

CGR4 P A 3 B04 S TN10 B1 1 XX 200

# Part Numbering

## Centurion Guided Radar



### Probe / Mounting Combination Table

Probe Code	Variant / Materials	Mounting	Flange Sizes <sup>2</sup>		Max. Length
			Min. Size	Max size	
A04 / J04	S	TN07, TB07, FXXX	1", DN25, 25mm	4", DN100, 100mm	1850cm
A06 / J06	S	TN10, TB10	2", DN50, 50mm	4", DN100, 100mm	1850cm
B04 / K04	S	TN07, TB07, FXXX	1", DN25, 25mm	4", DN100, 100mm	400cm
B06 / K06	S	TN10, TB10	2", DN50, 50mm	4", DN100, 100mm	400cm

<sup>1</sup>See Bushed selection in Flange Table.

<sup>2</sup>Hawk Supplied Flanges. End user can use any appropriate flange with suitable bore hole.

## Centurion Guided Radar System

### PoE Type - 1.5" Threaded Units (mounting option TN15, TB15, Flanged)

#### Model

CGR4 Centurion Guided Radar 4 Wire

#### Communication

E Ethernet PoE (Powered Ethernet)

#### Housing

- A Single Chamber Aluminium, powder coated with viewing window<sup>4</sup>
- B Single Chamber Aluminium, powder coated, no viewing window<sup>4</sup>

#### Conduit / Cable Entry

3 M20 x 1.5

#### Probe Type

A08 8mm flexible cable J08 Detached 8mm flexible cable  
 B08 8mm rigid probe K08 Detached 8mm rigid probe

#### Probe Variant / Materials

S 316L

#### Mounting

TN15 1.5" NPT  
 TB15 1.5" BSP  
 FXXX<sup>1</sup> Flanged (no threaded connection) (replace XXX with 3 character Bushed Flange Code)

#### Process O-ring Seal / Process Temperature

V1 FKM (Viton) (-40°C to +80°C) (-40°F to +176°F)  
 V3 FKM (Viton) (-40°C to +130°C) (-40°F to +266°F)  
 B1 NBR (-40°C to +80°C) (-40°F to +176°F)  
 E1 EPDM (-40°C to +80°C) (-40°F to +176°F)  
 E3 EPDM (-40°C to +130°C) (-40°F to +266°F) (Max. Process Pressure 6 bar / 87 psig)  
 S1 Silicone (-40°C to +80°C) (-40°F to +176°F)  
 S3 Silicone (-40°C to +130°C) (-40°F to +266°F) (Max. Process Pressure 6 bar / 87 psig)

#### Process Pressure

1 6 bar (87 psig)  
 3 20 bar (290 psig)  
 4 40 bar (580 psig)

#### Approval Standard

XX Not Required

#### Probe Length

Specify in cm

**CGR4 E A 3 B08 S TN15 B1 1 XX 200**

### Probe / Mounting Combination Table

Probe Code	Variant / Materials	Mounting	Flange Sizes <sup>2</sup>		Max. Length
			Min. Size	Max size	
A08 / J08	S	TN15, TB15, FXXX	2", DN50, 50mm	4", DN100, 100mm	1850cm
B08 / K08	S	TN15, TB15, FXXX	2", DN50, 50mm	4", DN100, 100mm	400cm

<sup>1</sup>See Bushed Flange selection in Flange Table.

<sup>2</sup>Hawk Supplied Flanges. End user can use any appropriate flange with suitable bore hole.



## Flanged

### Threaded Flanges

#### Model

#### FLA - Flange Size

- 1 1" or DN25 or 25mm
- H 1 1/2" or DN40 or 40mm
- 2 2" or DN50 or 50mm
- K 2 1/2" or DN65 or 65mm
- 3 3" or DN80 or 80mm
- L 3 1/2" (ANSI ONLY)
- 4 4" or DN100 or 100mm

#### Flange Type

- A1 ANSI B16.5 150LB FLANGE
- A3 ANSI B16.5 300LB FLANGE
- A6 ANSI B16.5 600LB FLANGE
- A9 ANSI B16.5 900LB FLANGE
- AA ANSI B16.5 1500LB FLANGE
- AB ANSI B16.5 2500LB FLANGE
- D6 DIN2527 PN6 FLANGE
- D0 DIN2527 PN10 FLANGE
- D1 DIN2527 PN16 FLANGE
- D2 DIN2527 PN25 FLANGE
- D4 DIN2527 PN40 FLANGE
- J5 JIS 5K FLANGE
- J0 JIS 10K FLANGE
- J1 JIS 16K FLANGE
- J2 JIS 20K FLANGE
- J4 JIS 40K FLANGE
- S1 AS 2129 Table D
- S2 AS 2129 Table E
- S3 AS 2129 Table F
- S4 AS 2129 Table H

#### Material

- SS SS316L

#### Thread Type

- TB07 3/4" BSP THDs
- TB10 1" BSP THDs
- TB15 1 1/2" BSP THDs
- TN07 3/4" NPT THDs
- TN10 1" NPT THDs
- TN15 1 1/2" NPT THDs

**FLA - 2 A1 - SS - TB15**

### Bushed Flanges

#### Model

#### F Flange Size

- 1 1" or DN25 or 25mm
- H 1 1/2" or DN40 or 40mm
- 2 2" or DN50 or 50mm
- K 2 1/2" or DN65 or 65mm
- 3 3" or DN80 or 80mm
- L 3 1/2" (ANSI ONLY)
- 4 4" or DN100 or 100mm

#### Flange Type

- A1 ANSI B16.5 150LB FLANGE
- A3 ANSI B16.5 300LB FLANGE
- A6 ANSI B16.5 600LB FLANGE
- A9 ANSI B16.5 900LB FLANGE
- AA ANSI B16.5 1500LB FLANGE
- AB ANSI B16.5 2500LB FLANGE
- D6 DIN2527 PN6 FLANGE
- D0 DIN2527 PN10 FLANGE
- D1 DIN2527 PN16 FLANGE
- D2 DIN2527 PN25 FLANGE
- D4 DIN2527 PN40 FLANGE
- J5 JIS 5K FLANGE
- J0 JIS 10K FLANGE
- J1 JIS 16K FLANGE
- J2 JIS 20K FLANGE
- J4 JIS 40K FLANGE
- S1 AS 2129 Table D
- S2 AS 2129 Table E
- S3 AS 2129 Table F
- S4 AS 2129 Table H

**F 2 D4**

# Specifications

## Centurion Guided Radar

Specifications dependent on model selection.



### Electronics

#### Power

- Ethernet Powered (48VDC)

#### Power Consumption

- <500mW @ 24VDC

#### Communications

- Ethernet

#### Maximum Range

- Flexible cable probe: 38m (124ft)
- Rigid probe: 4m (13ft 1in)

#### Minimum Range (Blanking)

- <=150mm (6.0")

#### Dielectric Range

- $\geq 1.5$  (Interface mode requires low to high dielectric layers)

#### Frequency

- 2.2 GHz

#### Resolution

- Display: 1.0mm

#### Accuracy

- +/- 3mm

#### Measurements per second

- 3

#### Response Time

- <1 second (application dependant)

#### Sum of non linearity, non repeatability, hysteresis

- Measurement +/- 0.02%

#### Repeatability

- +/- 3mm

#### Memory

- Non-Volatile (No backup battery required)
- >10 years data retention

#### Operating Temperature (Electronics)

- -40°C to +80°C (-40°F to +176°F)

#### Display

- 4 line graphic display (128 x 64 pixels)

#### Language

- English

#### Configuration

- 4 button (up down, Cal, Run), GoshawkII via Ethernet

#### Enclosure

##### Type

- Single Chamber with or without viewing window

##### Material

- Die-cast Copper-Free Aluminium, Epoxy Painted

##### Conduit / Cable Entry

- 1/2" NPT
- M20 x 1.5

##### IP Rating

- NEMA 4X
- IP66



# Specifications

## Centurion Guided Radar

Specifications dependent on model selection.



### Electromagnetic Compatibility



CAN ICES-3(A)/NMB-3(A)

This device complies with Part 15, Subpart B Class A of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

### Probe

#### Probe Size

- 4mm SS316L rod
- 4mm DIN3055 (7x7 strand) SS316L flexible cable
- 6mm SS316L rod
- 6mm DIN3055 (7x7 strand) SS316L flexible cable
- 8mm SS316L rod
- 8mm DIN3055 (7x7 strand) SS316L flexible cable
- 11mm SS316L rod

#### Wetted Materials<sup>2</sup>

- TN07 / TB07 / TN10 / TB10 / Bushed Flange<sup>1</sup> SS316L, PEEK
- TN15 / TB15 / Bushed Flange<sup>1</sup> - SS316L, PTFE, GF25

<sup>1</sup> See Probe / Mounting Combination Table for flange types

#### Probe O-Ring Seals / Process Temperature\*

- |                 |                 |                   |
|-----------------|-----------------|-------------------|
| • FKM (Viton)   | -40°C to +150°C | (-40°F to +302°F) |
| • EPDM          | -40°C to +130°C | (-40°F to +266°F) |
| • FFKM (Markez) | -10°C to +200°C | (+14°F to +392°F) |
| • FFKM (Markez) | -5°C to +250°C  | (+23°F to +482°F) |
| • Silicone      | -40°C to +80°C  | (-40°F to +176°F) |
| • Silicone      | -40°C to +130°C | (-40°F to +266°F) |
| • NBR           | -40°C to +80°C  | (-40°F to +176°F) |

#### Process Connections

- |            |          |            |
|------------|----------|------------|
| • 3/4" NPT | • 1" NPT | • 1.5" NPT |
| • 3/4" BSP | • 1" BSP | • 1.5" BSP |
- Threaded Flange
  - Bushed Flange

### Process Pressure

- -1 to 100 BAR

#### Tensile Load (flexible cable probes)

- |                         |         |
|-------------------------|---------|
| • Probe Type: A04 / J04 | 0.5 ton |
| • Probe Type: A06 / J06 | 1.0 ton |
| • Probe Type: A08 / J08 | 4.0 ton |

#### Lateral Load (rigid probes)

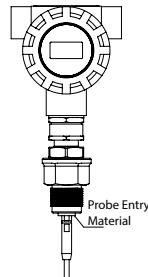
- |                               |      |
|-------------------------------|------|
| • Probe Type: B04 / K04       | 1 Nm |
| • Probe Type: B06 / K06       | 3 Nm |
| • Probe Type: B08 / K08 / B11 | 8 Nm |

#### Probe Length

Max

Min

- |                               |        |       |
|-------------------------------|--------|-------|
| • Probe Type: A04 / J04       | 3800cm | 100cm |
| • Probe Type: A06 / J06       | 3800cm | 100cm |
| • Probe Type: A08 / J08       | 3800cm | 100cm |
| • Probe Type: B04 / K04       | 400cm  | 20cm  |
| • Probe Type: B06 / K06       | 400cm  | 20cm  |
| • Probe Type: B08 / K08       | 400cm  | 20cm  |
| • Probe Type: B11 (Segmented) | 3800cm | 20cm  |



<sup>2</sup> PEEK or PTFE/GF25 probe entry

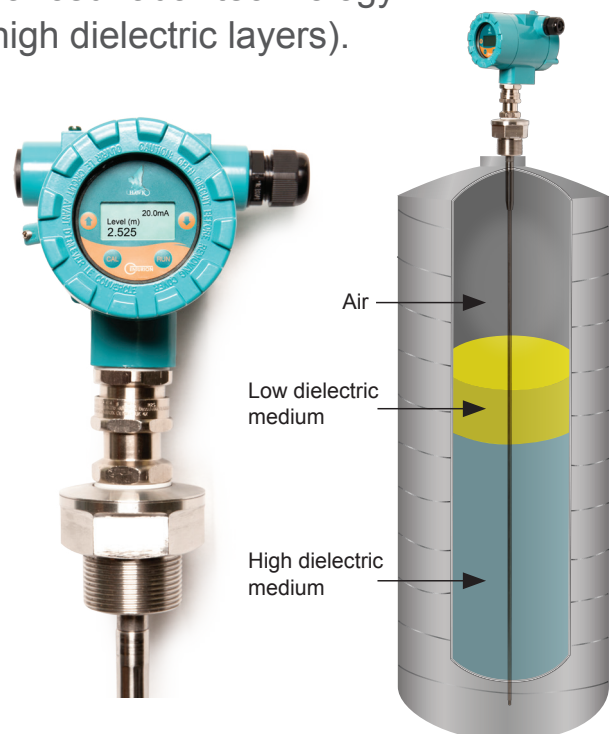
# Level and Interface Measurement of Liquids and Solids

## Centurion Guided Radar

Power Over Ethernet



Centurion Guided Radar (CGR) is HAWK's advanced radar technology for measuring liquids & liquid interface (low to high dielectric layers).



# Ordering & Contact Information

Centurion Guided Radar



## Ordering Instructions

### Threaded unit type

Assemble part number taking note of the valid combinations and exclusions for the full system. The unit is ordered as a single line item. For example:

CGR2H13B08STB15B11XX200

### Flanged type - Threaded flange

Assemble part number taking note of the valid combinations and exclusions for the full system. The unit and the threaded flange are ordered as separate line items.

For example:

CGR2H13B08S**TN15**B11XX200

FLA-FA4-SS-**TN15**

or

CGR2H13B08S**TN07**B11XX200

FLA-FA1-SS-**TN07**

### Flanged type - Bushed flange

Assemble part number taking note of the valid combinations and exclusions for the full system. In the Mounting part code enter 4 character Bushed flange code from the table. All Bushed flanges have F as the first character. For example.

CGR2H13B08S**F4A1**B11XX200

### Hawk Measurement Systems (Head Office)

15 - 17 Maurice Court  
Nunawading VIC 3131, AUSTRALIA

Phone: +61 3 9873 4750

Fax: +61 3 9873 4538

Email: [info@hawk.com.au](mailto:info@hawk.com.au)

For more information and global representatives: [www.hawkmeasurement.com](http://www.hawkmeasurement.com)

Technical data subject to change without notice.

### Hawk Measurement America

5010 Gateway Drive

Medina, OH 44256, USA

Ph: +1 978 304 3000 / +1 888 429 5538

Fax: +1 978 304 1462

Email: [info@hawkmeasurement.com](mailto:info@hawkmeasurement.com)

Represented by:

