

AR18 and AR35 Series

Miniature Programmable Single-Turn Absolute Encoder with Resolution Ranging from 17 Bits to 21 Bits Demo Kits

Description

The Broadcom[®] AR18 and AR35 Series' miniature absolute encoder ASICs are designed to cater to the growing demand for space-constraint applications.

The AR18 encoder has an overall diameter of 18 mm and offers user-programmable resolutions from 17-bit, 19-bit, and 21-bit single-turn absolute outputs. The AR35 encoder has an overall diameter of 35 mm and offers 17-bit and 21-bit single-turn absolute outputs.

The AR18 and AR35 Series provides incremental ABI and UVW in differential mode. Both come with a recommended temperature range of -40°C to 115°C suitable for most industrial applications. Dual-mode operating voltages of 3.3V and 5V are suitable for handheld and portable device applications.

Employing Broadcom-patented Reflective Optical Encoding Theory, the AR18 and AR35 Series offers high-accuracy with correction, which is unattainable by the magnetic encoder.

Features

- Miniature absolute encoder ASIC surface-mount DFN package: 10.9 mm (L) × 9.1 mm (W) × 1.5 mm (H)
- User-programmable resolution ranging from:
 - 17-bit, 19-bit, and 21-bit single turn (OD18).
 - 17-bit and 21-bit single turn (OD35).
- User-programmable incremental output (ABI) resolution ranging from 128 to 8192 CPR
- User-programmable commutation signal (UVW) ranging from 2, 3, 4, 5, 12, 30, 32 pole pair
- Differential output for ABI and UVW
- High temperature range of -40°C to 115°C suitable for most of the industrial operation.
- Dual-mode operating voltage of 3.3V and 5V, enabling handheld and portable device applications.
- Selectable SSI mode communication protocol.
- Selectable RS485 mode communication protocol.
- RoHs compliance.

Applications

- Robotic automation and engineering
- Factory automation and drone
- Medical and dentistry, devices and equipment
- High-accuracy portable and handheld devices
- Miniature motor, servo motor, linear actuator

Ordering Information

Figure 1: Encoder Part Number

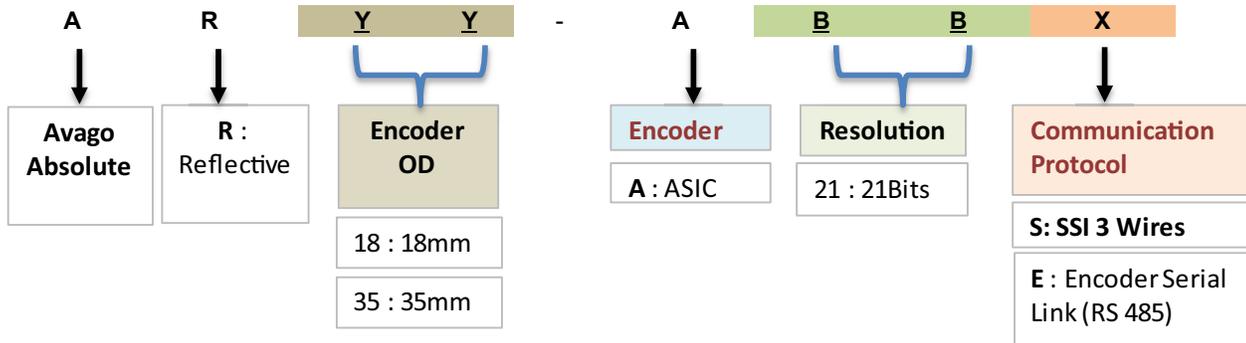
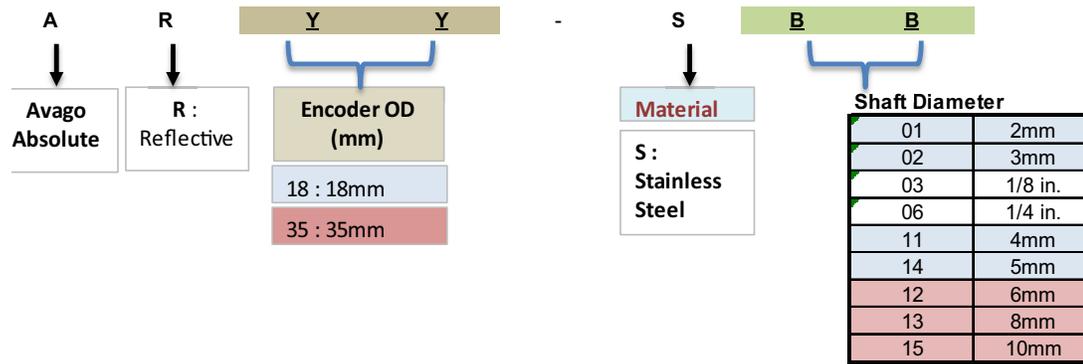


Figure 2: Code Wheel Assembly Part Number



NOTE: Code wheel material: Stainless steel.

Table 1: Code Wheel Information

Code Wheel	Rop	CW OD	Fitting	Figure
AR18	5.16 mm	13.60 mm	Set Screw	
AR35	8.95 mm	21.20 mm	Set Screw	

Lead Time and Packaging

First production order after market release: 20 weeks

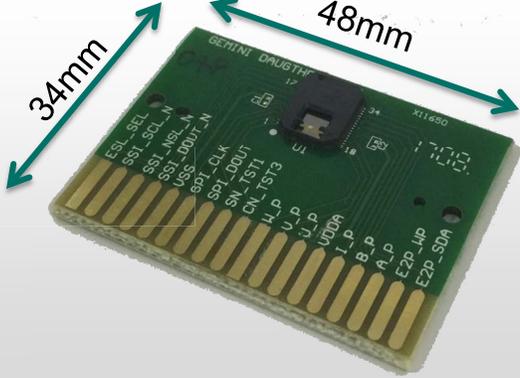
Subsequent orders: 16 weeks

Standard packing index:

- Encoder: 480 pieces (60 pieces per tray, 8 trays per box)
- Code wheel: 240 pieces (30 pieces per tray, 8 trays per box)

AR18/AR35 PCBA Evaluation Pack

Table 2: Evaluation Pack

Encoder PCBA	Code Wheel	
 <p>34mm</p> <p>48mm</p>	+	Or
	 <p>AR18 Codewheel Rop: 5.16 mm CW OD: 13.60 mm Fitting: Set Screw</p>	 <p>AR35 Codewheel Rop: 8.95 mm CW OD: 21.20 mm Fitting: Set Screw</p>

Part number: W1202-495249

Name: AR18-01S PCBA Evaluation Pack

Includes: Encoder PCBA and one code wheel and hub assembly

Lead time: 20 weeks

Minimum order quantity: 5 pieces

Sample Available Part Numbers

Table 3: Part Numbers and Descriptions

Part Number	Product Description
AR18-01S	AR18 PCBA, 21 bits with 3-wire SSI protocol + 2-mm shaft diameter code wheel assembly
AR18-11S	AR18 PCBA, 21 bits with 3-wire SSI protocol + 4-mm shaft diameter code wheel assembly
AR18-01E	AR18 PCBA, 21 bits with ESL protocol + 2-mm shaft diameter code wheel assembly
AR18-11E	AR18 PCBA, 21 bits with ESL protocol + 4-mm shaft diameter code wheel assembly
AR35-14S	AR35 PCBA, 21 bits with 3-wire SSI protocol + 5-mm shaft diameter code wheel assembly
AR35-12S	AR35 PCBA, 21 bits with 3-wire SSI protocol + 6-mm shaft diameter code wheel assembly
AR35-14E	AR35 PCBA, 21 bits with ESL protocol + 5-mm shaft diameter code wheel assembly
AR35-12E	AR35 PCBA, 21 bits with ESL protocol + 6-mm shaft diameter code wheel assembly

AR18/AR35 Sample Pack

Table 4: Sample Pack

Encoder		Code Wheel	
	+		Or 
		AR18 Codewheel Rop: 5.16 mm CW OD: 13.60 mm Fitting: Set Screw	

Part number: W1202-495249

Name: AR18/35 PCBA Evaluation Pack

Includes: Encoder and one code wheel and hub assembly

Lead time: 20 weeks

Minimum order quantity: 10 pieces

A21E-0010 AR18/35 Programming/Calibration Kit

Table 5: Programming/Calibration Kit

Programming/ Calibration Kit		USB PC Interface Cable		Encoder Connecting Cable		Programming/ Calibration Compact Disk
	+		+		+	

Part number: A21E-0010

Name: AR18/35 Programming/Calibration Kit

Includes: Programming/calibration kit, USB PC interface cable, encoder connecting cable, and programming/calibration CD

Lead time: 20 weeks

Minimum order quantity: 1 piece

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