Smart encoders & actuators

# AQ5x Series Programmable Incremental Encoders

## Features

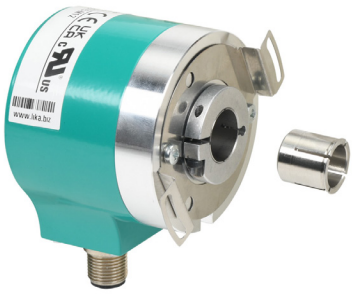
- Programmable incremental encoder
- Configurable resolution from 1 to 16,384 PPR (1024 default)
- Selectable index length of 90 or 180°
- Counting direction programmable CW or CCW
- Universal output circuit: 5–30 VDC Push-Pull (Totem Pole), or NPN/PNP open collector (HTL), or Line Driver (TTL)
- Quadrature output signals with index (ABZ, /ABZ)
- Programmable via USB cable and LIKA-IP-IQ software (free download at AutomationDirect on the AQ58S and AQ59H store pages)
- IP65 environmental rating

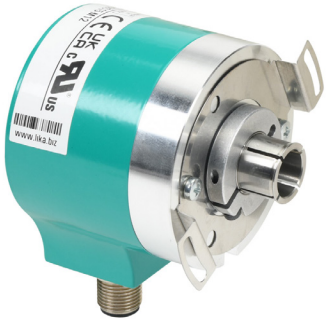
**AQ5x Series Medium Duty Incremental (Quadrature) Encoders**

| Part Number | Price | Pulses per Revolution | Dimensional Drawing | Shaft Type | Body Diameter | Input Voltage | Cable | Output |
|---|---|---|---|---|---|---|---|---|
| AQ58S-PRG-HZCP9-M12 | $160.00 | Up to 16,384 (14-bit) | PDF | 3/8" solid | 58mm | 5-30 VDC | M12 male | Universal circuit: Push-Pull (Totem Pole), or NPN/ PNP open collector (HTL), or Line Driver (TTL) |
| AQ59H-PRG-HZC15-M12 | $160.00 | | PDF | 6 to 15 mm hollow | 59mm | | | |

***Configurable Hollow Shaft Sizing***

The AQ59H encoder features a hollow shaft that can be resized using removable bushings. The images below show the installation of a BR1-12 bushing. See the "Accessories - AQ5x Series" on page tECD-7 for all available options.





***How to Configure your Encoder***

Use one of the following cable(s) to configure the encoder:

- KIT-IP/IQ58-USB-M12 programming cable
- Combination of KIT-IP/IQ58 and EC-IP/IQ58-M12
- Combination of KIT-IP/IQ58 and EC-M12F12-LKT12-05 or EC-M12F12-LKT12-10
- Download the software from the AQ58S-PRG-HZCP9-M12 or AQ59H-PRG-HZC15-M12 store page

# Encoder Accessories

Smart encoders & actuators

## Accessories - AQ5x/AM5x Series

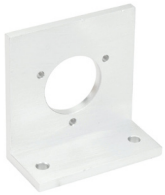
| Accessories for AQ5x/AM5x Series Encoders | | | |
|---|---|---|---|
| ***Part Number*** | ***Price*** | ***Description*** | ***Use with*** |
| ***BR1-6*** | $7.75 | Lika Electronic reducer bushing, 15mm to 6mm, metal. For use with Lika Electronic AQ59 series encoders. | AQ5x, AM5x |
| ***BR1-6.35*** | $7.75 | Lika Electronic reducer bushing, 15mm to 1/4in, metal. For use with Lika Electronic AQ59 series encoders. | AQ5x, AM5x |
| ***BR1-8*** | $7.75 | Lika Electronic reducer bushing, 15mm to 8mm, metal. For use with Lika Electronic AQ59 series encoders. | AQ5x, AM5x |
| ***BR1-9.52*** | $7.75 | Lika Electronic reducer bushing, 15mm to 3/8in, metal. For use with Lika Electronic AQ59 series encoders. | AQ5x, AM5x |
| ***BR1-10*** | $7.75 | Lika Electronic reducer bushing, 15mm to 10mm, metal. For use with Lika Electronic AQ59 series encoders. | AQ5x, AM5x |
| ***BR1-11*** | $7.75 | Lika Electronic reducer bushing, 15mm to 11mm, metal. For use with Lika Electronic AQ59 series encoders. | AQ5x, AM5x |
| ***BR1-12*** | $7.75 | Lika Electronic reducer bushing, 15mm to 12mm, metal. For use with Lika Electronic AQ59 series encoders. | AQ5x, AM5x |
| ***BR1-12.7*** | $7.75 | Lika Electronic reducer bushing, 15mm to 1/2in, metal. For use with Lika Electronic AQ59 series encoders. | AQ5x, AM5x |
| ***PF4256*** | $38.50 | Lika Electronic round mounting flange, 61mm bolt hole circle, metal. For use with Lika Electronic AQ58 series encoders. Mounting hardware included. | AQ5x, AM5x |
| ***PF0408*** | $142.00 | Lika Electronic spring-loaded encoder mount, metal. For use with Lika Electronic AQ58 series encoders. Mounting hardware included. | AQ5x, AM5x |
| ***PF4257*** | $21.00 | Lika Electronic right angle bracket, metal. For use with Lika Electronic AQ58 series encoders. Mounting hardware included. | AQ5x, AM5x |
| ***PF4259*** | $24.00 | Lika Electronic square mounting flange, 92mm bolt hole circle, metal. For use with Lika Electronic AQ58 series encoders. Mounting hardware included. | AQ5x, AM5x |
| ***PF4274*** | $109.00 | Lika Electronic round mounting flange, 70mm bolt hole circle, metal. For use with Lika Electronic AQ58 series encoders. Mounting hardware included. | AQ5x, AM5x |
| ***PF4258*** | $21.00 | Lika Electronic round mounting flange, 75mm and 100mm bolt hole circle, metal. For use with Lika Electronic AQ58 series encoders. Mounting hardware included. | AQ5x, AM5x |
| ***PF5000-A*** | $17.50 | Lika Electronic square mounting flange, 70mm bolt hole circle, metal. For use with Lika Electronic AQ58 series encoders. Mounting hardware included. | AQ5x, AM5x |
| ***LKM-386*** | $10.00 | Lika Electronic servo mount clamp, metal. For use with Lika Electronic AQ58 and A41 series encoders. Mounting hardware included. | AQ5x |
| ***KIT-XX59*** | $10.00 | Lika Electronic servo mount clamp, metal. For use with Lika Electronic AQ58 and AQ59 series encoders. Mounting hardware included. | AQ5x, AM5x |
| ***KIT-IP/IQ58*** | $153.00 | Lika Electronic programming cable, USB A to 4-position terminal block, 4.9ft/1.5m cable length. For use with Lika Electronic AQ58 and AQ59 series encoders. Requires Lika Electronic EC-IP/IQ58-M12 programming or EC-M12F12-LKT12-xx encoder cable. | AQ5x |
| ***EC-IP/IQ58-M12*** | $32.00 | Lika Electronic programming cable, M12 axial female to pigtail, 2ft cable length. For use with Lika Electronic AQ58 and AQ59 series encoders. Requires Lika Electronic KIT-IP/IQ58 programming cable. | AQ5x |
| ***KIT-IP/IQ58-USB-M12*** | $109.00 | Lika Electronic programming cable, USB A to M12 axial female, 1.6ft/0.5m cable length. For use with Lika Electronic AQ58 and AQ59 series encoders. | AQ5x |
| ***EC-M12F12-LKT12-05*** | $61.00 | Lika Electronic encoder cable, M12 axial female to pigtail, shielded, 16.4ft/5m cable length. For use with Lika Electronic AQ58 and AQ59 series encoders. | AQ5x |
| ***EC-M12F12-LKT12-10*** | $83.00 | Lika Electronic encoder cable, M12 axial female to pigtail, shielded, 32.8ft/10m cable length. For use with Lika Electronic AQ58 and AQ59 series encoders. | AQ5x |

**Bore Reducers**

**Mounting Flanges**

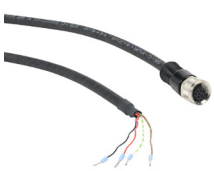
**PF0408**

**LKM-386**



**PF4257**

**KIT-IP/IQ58**



**EC-IP/IQ58-M12**

**KIT-IP/IQ58-USB-M12**

**EC-M12F12-LKT12-05**

**KIT-XX59**

Smart encoders & actuators

# AQ5x Series Programmable Incremental Encoders

## Specifications - AQ5x Series

| Electrical Specifications | |
|---|---|
| ***Resolution (PPR)*** | Programmable from 1 to 16,384 (default 1024 PPR) |
| ***Accuracy*** | ± 0.15° |
| ***Output Signals*** | Quadrature output signals with index (ABZ, /ABZ) |
| ***Counting Frequency*** | 500kHz maximum |
| ***Output Circuits*** | Universal circuit: Push-Pull (Totem Pole), or NPN/PNP open collector (HTL), or Line Driver (TTL) |
| ***Power Supply*** | +5VDC to +30VDC |
| ***Consumption*** | 60mA (typical) |
| ***Output Current (each channel)*** | 40mA maximum |
| ***Protection*** | Against inversion of polarity and short circuit |
| ***EMC*** | Electro-magnetic immunity according to EN61000-4-2 and EN61000-4-4 |
| **Mechanical Specifications** | |
| ***Shaft Diameter*** | Ø 9.52 mm (3/8") |
| ***Hollow Shaft Diameter*** | Ø 15mm<br>(available bore reducer sleeves for 6mm, 1/4", 8mm, 3/8", 10mm, 11mm, 12mm, 1/2") |
| ***Shaft Loading (axial, radial)*** | 100N maximum |
| ***Shaft Rotational Speed*** | Typical 6000 rpm, temporary 12000 rpm maximum |
| ***Starting Torque (@20°C)*** | AQ58: 0.15 Ncm<br>AQ59: 0.4 Ncm |
| ***Bearings Life*** | $400 \times 10^6$ rev. min<br>($10^9$ rev. min. with shaft loading limited to 20N) |
| ***Electrical Connections*** | M12 |
| ***Weight*** | 200g (7 oz) |
| **Materials** | |
| ***Flange*** | Anticorodal, UNI EN AW-6082 |
| ***Housing*** | Anticorodal, UNI EN AW-6082 |
| ***Bearings*** | ABEC 5 |
| ***Shaft*** | Stainless steel, non-magnetic, UNI EN 4305 |
| **Environmental Specifications** | |
| ***Shock*** | 100g, 6ms acc. |
| ***Vibrations*** | 10g, 5-2000 Hz acc. |
| ***Protection*** | IP65 |
| ***Operating Temperature Range*** | -40°C to 85°C (-40°F to 185°F) |
| ***Storage Temperature Range*** | -40°C to 100°C (-40°F to 212°F)<br>(98% relative humidity without condensation) |
| ***Approvals*** | CE, UKCA, $_c$UR$_{us}$, RoHS |

Smart encoders & actuators

# Windows Configuration Software

## Lika Configuration Software

AQ58S and AQ59H programmable incremental encoders can use software expressly developed and released by Lika Electronic to easily program and configure the device.

This software is for use with the AQ58S and AQ59H programmable encoders only.

Use one of the following methods to configure the AQ58S or AQ59H encoder:

- KIT-IP/IQ58-USB-M12 programming cable.
- Combination of KIT-IP/IQ58 and EC-IP/IQ58-M12 programming kit.
- Combination of KIT-IP/IQ58 and EC-M12F12-LKT12-xx cable.

| Lika Electronic Windows Configuration Software | | | |
|---|---|---|---|
| ***Part Number*** | ***Price*** | ***Requires*** | ***Use With*** |
| ***LIKA-IP-IQ*** | $0.00 | KIT-IP/IQ58-USB-M12 or KIT-IP/ IQ58 programming cable | AQ58 and AQ59 series Lika encoders. |