



Smart encoders & actuators

AM5x Series Medium Duty Multi-Turn Absolute Encoders

Features

- Multi-turn absolute fieldbus encoders:
 - EtherCAT
 - Ethernet/IP
 - Modbus TCP
 - Modbus RTU (serial)
- Modbus-RTU interface available
- Solid or hollow shaft version
- General purpose magnetic multi-turn:
 - High resolution up to 8192ppr (13 bit)
 - High turns rollover up to 16384 revolution (14 bit)
- High resolution up to 8192 PPR
- IP65 environmental rating (aluminum/ stainless steel construction)
- Programmable parameters: preset (zero/homing), resolution, turns, direction



AM5x Series Medium Duty Absolute Encoders									
Part Number	Price	Resolution	Turns	Dimensional Drawing	Shaft Type*	Body Diameter	Input Voltage	Cable	Output
AM58S-1314-EPP9-M12	\$339.00	Up to 8192ppr (13 bit)	16384 revolutions (14 bit)	PDF	Solid	58mm	5-30 VDC	M12 male	Ethernet/IP
AM59H-1314-EP15-M12	\$339.00			PDF	Hollow				
AM58S-1314-MTP9-M12	\$339.00			PDF	Solid				ModbusTCP
AM59H-1314-MT15-M12	\$339.00			PDF	Hollow				
AM58S-1314-ECP9-M12	\$339.00			PDF	Solid				EtherCAT
AM59H-1314-EC15-M12	\$339.00			PDF	Hollow				
AM58S-1314-MBP9-M12	\$249.00			PDF	Solid		10-30 VDC	M12 female to pigtail	Modbus RTU (RS485)
AM59H-1314-MB15-M12	\$249.00			PDF	Hollow			M12 female to pigtail	

* Solid shaft encoders are 3/8". Hollow shaft encoders are 15mm. Use any BR1-xx bore reducer to adapt to customer shaft size (6mm, 1/4", 8mm, 3/8", 10mm, 11mm, 12mm, 1/2").

Cables AM5x Ethernet Series

ADC Cables for AM5x Ethernet Series Encoders			
Part Number	Price	Description	Purpose
CD12M-0B-070-A1	\$18.50	AutomationDirect connection cable, M12 axial female to pigtail, 4-pole, PVC jacket, gray, 22.9ft/7m cable length, IP67, sensor & signal.	Power port, M12 to pigtail
7700-44711-S4U0500	\$38.00	Murrelektronik Cat5e Ethernet straight-through patch cable, STP (overall foil shield), M12 axial male D-coded 4-pin to RJ45 axial male 4-pin, 16.4ft/5m cable length, teal. For use with 10/100 Mbps networks.	Comm port, M12 to RJ45
7700-44511-S4U0500	\$38.00	Murrelektronik Cat5e Ethernet straight-through patch cable, STP (overall foil shield), M12 axial male D-coded 4-pin to M12 axial male D-coded 4-pin, 16.4ft/5m cable length, teal. For use with 10/100 Mbps networks.	Comm port, M12 to M12
7700-14541-S4U0500	\$32.00	Murrelektronik Cat5e Ethernet connection cable, STP (overall foil shield), M12 axial male D-coded 4-pin to pigtail, 16.4ft/5m cable length, teal. For use with 10/100 Mbps networks.	Comm port, M12 to pigtail

Cables - AM5x Modbus RTU Series

ADC Cables for AM5x Modbus RTU Series Encoders		
Part Number	Price	Description
EC-M12FC-LKCB-05	\$42.00	Lika Electronic encoder cable, M12 axial female to pigtail, shielded, twisted pair, 16.4ft/5m cable length. For use with Lika Electronic Modbus RTU encoders.
EC-M12FC-LKCB-10	\$59.00	Lika Electronic encoder cable, M12 axial female to pigtail, shielded, twisted pair, 32.8ft/10m cable length. For use with Lika Electronic Modbus RTU encoders.

Do not use standard M12 cables. These cables have larger twisted pairs for data and smaller twisted pairs for power.



EC-M12FC-LKCB-05



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AM5x Series Medium Duty Multi-Turn Absolute Encoders

Specifications - AM5x Series Ethernet Encoders

AM5x Series Ethernet Encoder Specifications			
Output	EtherNet/IP	ModbusTCP	EtherCAT
Models	AM58S-1314-EPP9-M12 AM59H-1314-EP15-M12	AM58S-1314-MTP9-M12 AM59H-1314-MT15-M12	AM58S-1314-ECP9-M12 AM59H-1314-EC15-M12
Electrical Specifications			
Resolution	Up to 8192ppr (13-bit)		
TURNS	Up to 16384 revolutions (14-bit)		
Accuracy	± 0.09°		
Power Supply	5–30 VDC		
Power Consumption	2W		
Interface & Specification	EtherCAT, CoE, Freerun, Sync-mode, Distributed clock Ethernet, Profile 1.2.0, CIA DS406, Sync-mode, Segment SDO transfer, Multiplexing EtherNet/IP, Vol 2 Ed 1.31, CIP Spec Vol 1 Ed. 3.3, Encoder profile 22h, Sync-mode, Ring redundancy, Segment SDO transfer, Multiplexing Ethernet Modbus TCP/IP: Polled mode (master-slave)		
Protection	Against inversion of polarity and short circuit		
EMC	Electromagnetic immunity according to EN61000-4-2 and EN61000-4-4		
Mechanical Specifications			
Shaft Diameter	Solid	Ø 3/8" (9.52 mm)	
	Hollow	Ø 15 mm (use BR1-xx reducers for 6mm, 1/4", 8mm, 3/8", 10mm, 11mm, 12mm, or 1/2" shafts)	
Shaft Loading (axial, radial)		40N maximum	
Shaft Rotational Speed		6000 rpm maximum	
Bearings Life		400 x 10 ⁶ rev. min (10 ⁹ rev. min with shaft loading of 20N max)	
Weight		350g (12.3 oz)	
Materials			
Flange		Anticorodal, UNI EN AW-6082	
Housing		Zamac die cast	
Bearings		ABEC 5	
Shaft		Stainless steel, non-magnetic, UNI EN 4305	
Compatible Non-Lika Accessories			
Encoder couplings (for 3/8" solid shaft encoders))		GJK-953D , ARM-100-9525-9525D , MCGL20-8-952 , MCGL25-10-952	
Environmental Specifications			
Shock		250g, 6ms acc. to CEI EN 60068-2-27	
Vibrations		10g, 5–2000 Hz acc. to CEI EN 60068-2-6	
Protection		IP65	
Operating Temperature Range		-25°C to +85°C (-13°F to +185°F)	
Storage Temperature Range		-40°C to +100°C (-40°F to +212°F) (98% relative humidity, non-condensing)	
Approvals		CE, UKCA, _c UR _{us} , RoHS	



Solid Shaft



Hollow Shaft



Connectors and LEDs



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AM5x Series Medium Duty Multi-Turn Absolute Encoders

Specifications - AM5x Series Modbus RTU Encoders

AM5x Series Modbus RTU Encoder Specifications		
Output		Modbus RTU
Models		AM58S-1314-MBP9-M12 , AM59H-1314-MB15-M12
Electrical Specifications		
Resolution		Up to 8192ppr (13 bit)
Turns		Up to 16384 revolutions (14 bit)
Power Supply		10–30 VDC
Power Consumption		1W
Output Circuit		Modbus RTU RS485
Interface		Modbus RTU (RS485)
Programmable Parameters		Baudrate, Device address (Node ID), Scaling function, Counting direction, Preset value
Bus Termination		Set via dip switches
Protection		Against inversion of polarity and short-circuit
EMC		Electromagnetic immunity according to EN 61000-4-2 and EN 61000-4-4
Functions		Counting direction, Zero setting/Preset, Resolution, Reset to default parameters, Firmware update (Modbus), Saving parameters
Mechanical Specifications		
Shaft Diameter	Solid	Ø 3/8" (9.52 mm)
	Hollow	Ø 15 mm (use BR1-xx reducers for 6mm, 1/4", 8mm, 3/8", 10mm, 11mm, 12mm, or 1/2" shafts)
Shaft Loading (axial, radial)		40N maximum
Shaft Rotational Speed		12000rpm, 9000rpm continuous operation
Starting Torque (at 20°C)		<1 Ncm (typical)
Electrical Connections		M12 plug
Weight		250g (8.8 oz)
Materials		
Flange		Anticorodal, UNI EN AW-6082
Housing		Zamac die cast
Bearings		ABEC 5
Shaft		Stainless steel, non-magnetic, UNI EN 4305
Compatible Non-Lika Accessories		
Encoder couplings (for 3/8" solid shaft encoders))		GJK-953D , ARM-100-9525-9525D , MCGL20-8-952 , MCGL25-10-952
Environmental Specifications		
Shock		250g, 6ms acc. to CEI EN 60068-2-27
Vibrations		10g, 5–2000 Hz acc. to CEI EN 60068-2-6
Protection		IP65
Operating Temperature Range		-25°C to +85°C (-13°F to +185°F)
Storage Temperature Range		-40°C to +100°C (-40°F to +212°F) (98% relative humidity, non-condensing)
Approvals		CE, UKCA, cUR _{US} , RoHS



Solid Shaft



Hollow Shaft



Connectors and LEDs

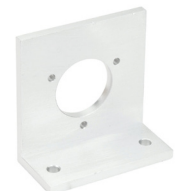


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Encoder Accessories

Accessories - AQ5x/AM5x Series

Accessories for AQ5x/AM5x Series Encoders			
Part Number	Price	Description	Use with
<u>BR1-6</u>	\$7.75	Lika Electronic reducer bushing, 15mm to 6mm, metal. For use with Lika Electronic AQ59 series encoders.	AQ5x, AM5x
<u>BR1-6.35</u>	\$7.75	Lika Electronic reducer bushing, 15mm to 1/4in, metal. For use with Lika Electronic AQ59 series encoders.	AQ5x, AM5x
<u>BR1-8</u>	\$7.75	Lika Electronic reducer bushing, 15mm to 8mm, metal. For use with Lika Electronic AQ59 series encoders.	AQ5x, AM5x
<u>BR1-9.52</u>	\$7.75	Lika Electronic reducer bushing, 15mm to 3/8in, metal. For use with Lika Electronic AQ59 series encoders.	AQ5x, AM5x
<u>BR1-10</u>	\$7.75	Lika Electronic reducer bushing, 15mm to 10mm, metal. For use with Lika Electronic AQ59 series encoders.	AQ5x, AM5x
<u>BR1-11</u>	\$7.75	Lika Electronic reducer bushing, 15mm to 11mm, metal. For use with Lika Electronic AQ59 series encoders.	AQ5x, AM5x
<u>BR1-12</u>	\$7.75	Lika Electronic reducer bushing, 15mm to 12mm, metal. For use with Lika Electronic AQ59 series encoders.	AQ5x, AM5x
<u>BR1-12.7</u>	\$7.75	Lika Electronic reducer bushing, 15mm to 1/2in, metal. For use with Lika Electronic AQ59 series encoders.	AQ5x, AM5x
<u>PF4256</u>	\$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
<u>PF0408</u>	\$142.00	Lika Electronic spring-loaded encoder mount, metal. For use with Lika Electronic AQ58 series encoders. Mounting hardware included.	AQ5x, AM5x
<u>PF4257</u>	\$21.00	Lika Electronic right angle bracket, metal. For use with Lika Electronic AQ58 series encoders. Mounting hardware included.	AQ5x, AM5x
<u>PF4259</u>	\$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
<u>PF4274</u>	\$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
<u>PF4258</u>	\$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
<u>PF5000-A</u>	\$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
<u>LKM-386</u>	\$10.00	Lika Electronic servo mount clamp, metal. For use with Lika Electronic AQ58 and A41 series encoders. Mounting hardware included.	AQ5x
<u>KIT-XX59</u>	\$10.00	Lika Electronic servo mount clamp, metal. For use with Lika Electronic AQ58 and AQ59 series encoders. Mounting hardware included.	AQ5x, AM5x
<u>KIT-IP/IQ58</u>	\$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
<u>EC-IP/IQ58-M12</u>	\$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
<u>KIT-IP/IQ58-USB-M12</u>	\$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
<u>EC-M12F12-LKT12-05</u>	\$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
<u>EC-M12F12-LKT12-10</u>	\$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**



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Configuration Software for Modbus RTU Encoders

Lika Modbus RTU Configuration Software

AM58S and AM59H Modbus RTU absolute encoders can use software expressly developed and released by Lika Electronic to easily program and configure the device. It allows the user to set working parameters and monitor device functionality.

This software is for use with the Modbus RTU programmable encoders only.

Requirements:

- PC with Windows software (Windows XP or later)
- RS485 connection to PC, via RS-232 to RS-485 converter or USB to RS-485 adapter.



Lika Electronic Modbus RTU Configuration Software			
Part Number	Price	Requires	Use With
<u>LIKA-MODBUS-RTU</u>	\$0.00	PC serial port or <u>USB-485M</u> serial adapter	Lika Electronic Modbus RTU encoders

modbus-RTU Rev. 2.1.0

Serial line
Select serial com: **COM7**
All coms: ☐

Device
address: **1**
CONNECT + Read Params
Write Holding: ☐ All addresses

Functions
Normal
Update FW
Manual frame
Real values: ☐

Device connected
Model: **AM58S/AM59H - 1314**

INPUT registers
Current position: **9309**
angle: **49.087**
counts: **1117**
turns: **1**
Continuous reading: ☒
Baud rate dip switch: **4** 19200 Even
Address dip switch: **1**
SW version: **V1.0**
HW version: **V2.0**
Status word: **Scaling ON**
Alarm register
Machine data not valid

HOLDING registers
Counts per rev: **8192**
Total resolution: **134217728**
Preset value: **0**
Offset value: **7751036**
Node address
Baudrate
Operating parameters: ☒ Enable scaling function
☐ Change counting dir.
☐ Enable watchdog
Control Word: **Execute preset**
Upload defaults
Auto save: ☒ **Save parameters**

Exception error
Exception error

Encoder Selection Guide

SAE Dimension Encoders & Metric Dimension Encoders

Encoder Selection Guide												
Type	Duty	Series	Encoder Diameter	Shaft Diameter	Shaft Type	Operating Voltage (VDC) and Electrical Output	IP Rating	Cable	Max Radial Load (N)	Max Axial Load (N)	Available Resolutions (PPR)	Brand
Incremental	Modular Kit	AMT	28mm, 42mm	2, 3, 4, 5, 6, 8 mm 3/16, 1/4, 3/8, 1/2, 5/8 inch	Hollow	5V Line Driver (TTL) or 5V Push-Pull (Totem Pole)	IP20	Custom cables sold separately	N/A	N/A	Programmable up to 4096	Same Sky
		MTRA	31mm	5mm 1/4", 3/8"	Hollow	5V Line Driver (TTL) or 5V Push-Pull (Totem Pole)	IP20	Custom cables sold separately	N/A	N/A	400, 1000	SureStep
	Light Duty	TRD-S(H)R	38mm, 40mm	8mm	Solid or Hollow	5V Line Driver (TTL) or 5-26V NPN/PNP Open Collector (HTL)	IP50 or IP65	Integral 2m pigtail cable	20	10	100, 200, 360, 500, 600, 1000, 1024, 2000, 2500	JTEKT
		A41	41mm	1/4"	Solid or Hollow	5-30VDC Universal output circuit: Push-Pull (Totem Pole), or NPN/PNP Open Collector (HTL), or Line Driver (TTL)	IP64	Integral 2m pigtail cable	20	20	100, 200, 360, 500, 1000, 1024, 200, 2048, 3600, 4096	Lika
	Medium Duty	A50	50mm	1/4", 3/8"	Hollow		IP65	M12 cables sold separately	20	20	360, 1000, 1024, 2048	
		A80	80mm	30mm (reducer bushings available for 19 & 20mm, 5/8", 7/8", 1, and 1 1/8")	Hollow		IP64	M23 cables sold separately	30	30	1024	
		AQ58/59	58mm, 59mm	3/8" solid, 15mm hollow (reducer bushings available for 6, 8, 10, 11, 12 mm; 1/4, 3/8, 1/2 inch)	Solid or Hollow		IP65	M12 cables sold separately	100	100	Programmable from 1 to 16,384 (default 1024)	
		AR01	58mm	15mm	Solid Dual-shaft		IP65	M12 cables sold separately	50	50	250 (linear res: 0.36 deg/cts) 1250 (linear res: 0.072 deg/cts)	
		TRDA-20	2"	3/8"	Solid	5VDC Line Driver (TTL) or 5-30VDC Push-Pull (Totem Pole)	IP50	Integral 2m pigtail cable	50	30	100, 360, 500, 1000, 1024, 2500	JTEKT
		TRDA-25	2.5" flange (w/2.0" body)	3/8"	Solid		IP65	Military Spec (MS) cables sold separately	50	30	100, 360, 500, 1000, 1014, 2500	
		TRD-N(H)	50mm	8mm	Solid or Hollow		IP65	Integral 2m pigtail cable	50	30	3, 4, 5, 10, 30, 40, 50, 60, 100, 120, 200, 240, 250, 300, 360, 400, 480, 500, 600, 750, 1000, 1024, 1200, 2000, 2500	
	Heavy Duty	TRD-GK	78mm	10mm	Solid	10-30VDC Push-Pull (Totem Pole)	IP65	Integral 2m pigtail cable	100	50	30, 100, 120, 200, 240, 250, 300, 360, 400, 500, 600, 1000, 1200, 2000, 2500, 3600, 5000	
Absolute	Medium Duty	TRD-NA	50mm	8mm	Solid	10-30V NPN/PNP Open Collector (HTL)	IP65	Integral 2m pigtail cable	50	30	32, 64, 128, 180, 256, 360, 512, 720, 1024 (Gray code)	Lika
		AM5x ¹	58mm	6–15 mm, 3/8"	Solid or Hollow	5–30 VDC, 10–30 VDC	IP65	M12 cables sold separately	40	40	Programmable up to 8192 ppr (13 bit), up to 16384 turns (14 bit)	

1 - AM5x encoders have different versions supporting 4 different outputs - Ethernet/IP, Modbus TCP, EtherCAT, and Modbus RTU (RS485).