Automation

Ultra Low Voltage Drives

Ultra Low Voltage Servo Drives

S1 series 1x40A

F series 2x60A 1X120A

S2 series 2x30A 1X60A

G series 2x180A 1X360A

RoboG4 is our fourth generation family of ultra low voltage (under 60 V) servo drives

Ultra Low Voltage Servo Drives

Ultimate Precision and Control

Current is measured and adjusted every 62 microseconds to produce smooth and precise torque. Three cascaded loops for position, speed and current, each with its own PID and Feed-forward gains, resulting in easier tuning, and optimal performance and system responsiveness.

Faster Processing

New, faster motion algorithms.

Get More Torque & Speed

RoboG4 drives include automatic field weakening, allowing the motor to reach a higher speed than its maximum rating or produce additional torque at the motor's rated top speed.

Works with Virtually any Motor

Wide range of supported rotor sensor types including Hall, Quadrature Encoders, Analog, Sin-Cos, Resolver, and SSI.

Major Connectivity

Drives include traditional RS232/485/USB communication ports compatible with major Fieldbus standards. Can be tightly coupled with other drives, computers, or PLCs in factory installations and robotics systems.

Scripting = Ultimate Flexibility

Think of it as having a PLC built right into the drive, at no extra cost. This Ultra Low Voltage Drives exclusive feature lets you tailor the drive to meet challenging requirements.

Fast & Automated Setup/Tuning

Free PC Utility cuts development time from hours to minutes! Attach a motor and the drive automatically characterizes it, calibrates the rotor sensor, and tunes the torque and speed control loops. Monitor and troubleshoot with the powerful multichannel chart recorder.

Stay Ahead of Technology

RoboG4 drives have the necessary circuitry and control algorithms for today's most popular motor types: Surface Permanent Magnets (SPM) or Internal Permanent Magnets (IPM) brushless motors, DC brushed motors, and AC Induction motors.

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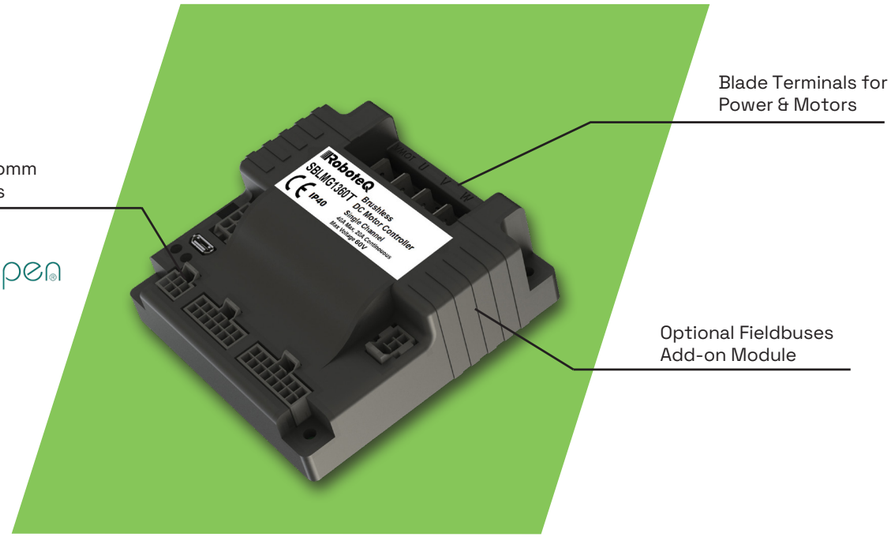
SBLMG1360T
1x40A



Part Number	SBLMG1360T
Power	
Number of Channels	1
Max Amps/ch	40
Cont Amps/ch	20
Max Voltage	60
Power Connections	Fast-on
Communication	
RS232	Y
CANbus	Y
Rotor Sensor	
Encoder	Y
Hall	Y
Sin/Cos	Y
SSI Single-turn	Y
SSI Multi-turn	Y
Resolver	Y
Sensor Connector	Molex Nanofit

Part Number	SBLMG1360T
Input/Outputs	
Max Analog Inputs	4
Max Digital Inputs	4
Max Pulse Inputs	4
Max Digital Outputs	2
PWM Brake Outputs	1
Brake Resistor Outputs	1
I/O Connector	Molex Nanofit
Mechanical	
Dimensions	73.5x74.1x25.6mm
Cooling	Conduction
IP Rating	IP40

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Ultra Low Voltage Servo Drives

S2-Series Compact Low-Power Dual-Channel

SBLG2360T
2x30A / 1x60A

Product Variants:
-S Single-Channel

SBLMG2360T
2x30A / 1x60A

Product Variants:
-S Single-Channel

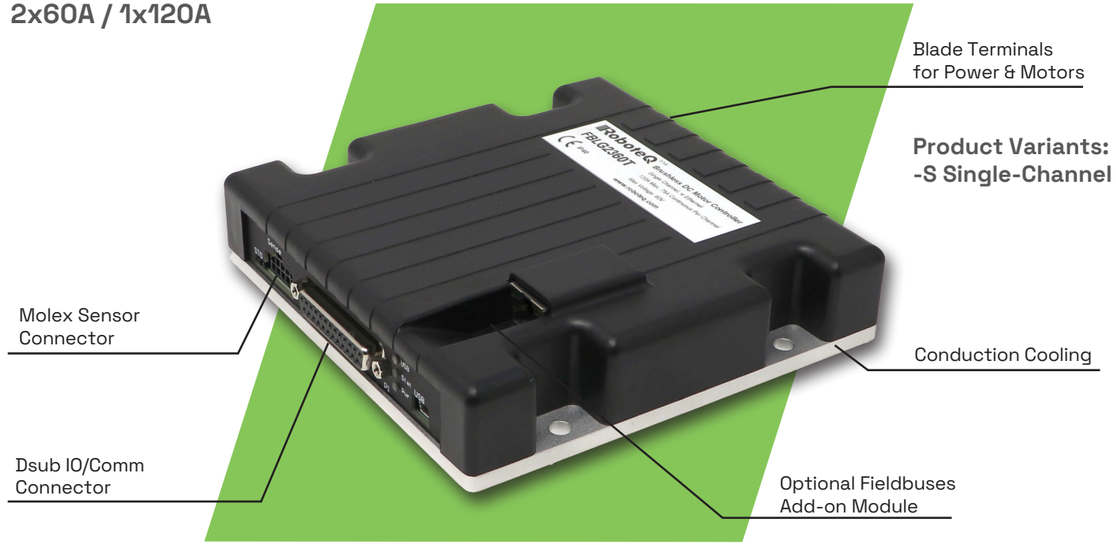
S2-Series Compact Low-Power Dual-Channel

Part Number	SBLG2360T (S)	SBLMG2360T (S)
Power		
Number of Channels	2 (1)	2 (1)
Max Amps/ch	30 (60)	30 (60)
Cont Amps/ch	16 (32)	20 (40)
Max Voltage	60	60
Power Connections	Screw Terminal	Molex Megafit
STO	Y	Y
Communication		
RS232	Y	Y
RS485	Y	N
CANbus	Y	Y
Rotor Sensor		
Encoder	Y	Y
Hall	Y	Y
Sin/Cos	Y	Y
SSI Single-turn	Y	Y
SSI Multi-turn	Y	Y
Sensor Connector	Molex Microfit	Molex Microfit
Input/Outputs		
Max Analog Inputs	8	8
Max Digital Inputs	10	10
Max Pulse Inputs	8	8
Max Digital Outputs	4	4
PWM Brake Outputs	0	2
I/O Connector	DSub25	Molex Nanofit
Mechanical		
Dimensions	123.4x83.4x25.6mm	124.2x84.2x26.1mm
Cooling	Conduction	Conduction
IP Rating	IP40	IP30

Ultra Low Voltage Servo Drives

F-Series Mid-Power Dual-Channel

FBLG2360T
2x60A / 1x120A



Power	
Number of Channels	2 (1)
Max Amps/ch	60 (120)
Cont Amps/ch	40 (80)
Max Voltage	60
Power Connections	Fast-on
STO	Y
Communication	
RS232	Y
RS485	Y
CANbus	Y
Ethernet	-E version
Rotor Sensor	
Encoder	Y
Hall	Y

Rotor Sensor (Continued)	
Sin/Cos	Y
SSI Single-turn	Y
SSI Multi-turn	Y
Resolver	Y
Sensor Connector	Molex Microfit
Input/Outputs	
Max Analog Inputs	8
Max Digital Inputs	10
Max Pulse Inputs	8
Max Digital Outputs	4
I/O Connector	DSub25
Mechanical	
Dimensions	140x140x25mm
Cooling	Conduction
IP Rating	IP40

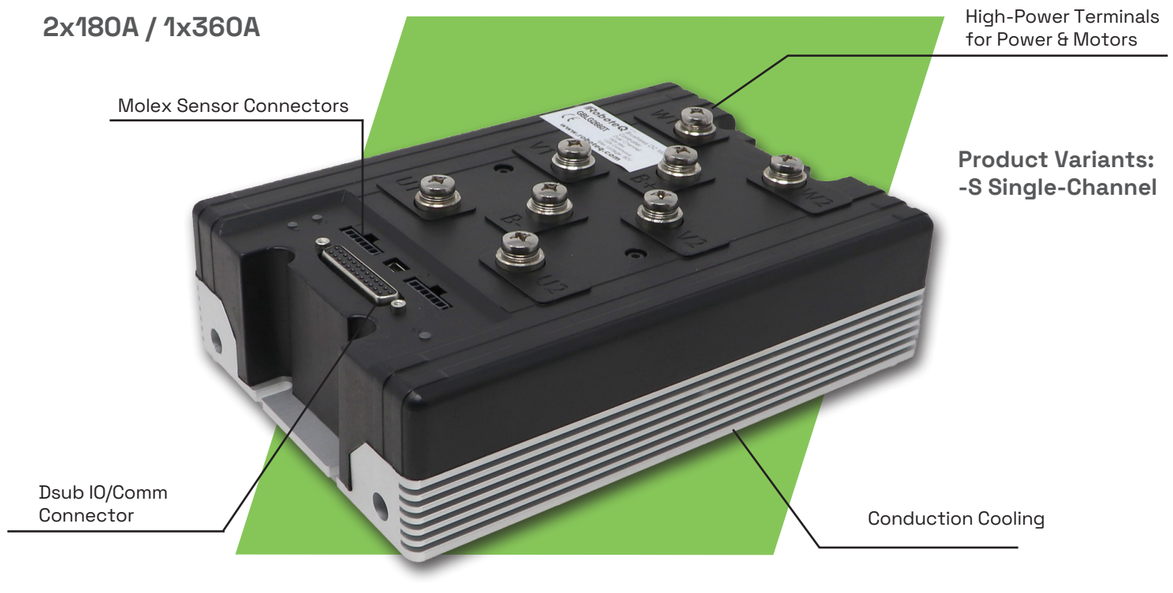
CANopen
STO

Advanced Servo Drives – High Power

G-Series Compact High-Power Dual-Channel

GBLG2660T

2x180A / 1x360A



Power	
Number of Channels	2 (1)
Max Amps/ch	180 (360)
Cont Amps/ch	120 (240)
Max Voltage	60
Power Connections	Power Terminals
STO	Y
Communication	
RS232	Y
RS485	Y
CANbus	Y
Ethernet	-E version
Rotor Sensor	
Encoder	Y
Hall	Y

Rotor Sensor (Continued)	
Sin/Cos	Y
SSI Single-turn	Y
SSI Multi-turn	Y
Resolver	Y
Sensor Connector	Molex Microfit
Input/Outputs	
Max Analog Inputs	8
Max Digital Inputs	8
Max Pulse Inputs	8
Max Digital Outputs	4
I/O Connector	DSub25
Mechanical	
Dimensions	145x208x55mm
Cooling	Conduction
IP Rating	IP40

CANopen TÜV SÜD STO

Brushless DC Motor Drives

SBL and KBL/MBL Families – Low to Mid Power

All Nidec Automation's motor controllers are high performance, microcontroller-based motor drives, loaded with numerous features and operating modes. Yet, for all their sophistication, the controllers are very simple to install and operate. Their many configuration options are programmed using PC utility with a convenient Graphical User Interface. Once programmed, the configuration data are stored permanently in the controllers' nonvolatile memory, eliminating the need for cumbersome and unreliable jumpers.

Our controllers are fitted with many safety features ensuring a secure power-on start, automatic stop in case of command loss, overcurrent protection, and overheat protection. Temperature sensors automatically decrease the output power in case of overheating.

SBL Family – Low Power/Compact

Motor Controller Image	Part Number	Motor Type	Max Voltage	Number of Channels	Max Amps per Channel	Cooling	Dimensions (mm)
	SBL1360A	Brushless DC	60	1	30	Conduction Plate	70 x 70 x 27
	SBLG2360T	Brushless DC	60	2	30	Conduction Plate	123 x 83 x 25
	SBLG2360TS	Brushless DC	60	1	60	Conduction Plate	123 x 83 x 25
	SBLMG2360T	Brushless DC	60	2	30	Conduction Plate	123 x 83 x 25
	SBLMG2360TS	Brushless DC	60	1	60	Conduction Plate	123 x 83 x 25
	SBLMG1360T	Brushless DC	60	1	60	Conduction Plate	74 x 73 x 25

KBL/MBL Family – Mid Power

Motor Controller Image	Part Number	Motor Type	Max Voltage	Number of Channels	Max Amps per Channel	Cooling	Dimensions (mm)
	KBL1660	Brushless DC	60	1	100	Conduction Plate	140 x 113 x 20
	MBL1660A	Brushless DC	60	1	120	Conduction Plate	140 x 113 x 20

Brushless DC Motor Drives

FBLG Family – Mid Power / Advanced Features

Motor Controller Image	Part Number	Motor Type	Max Voltage	Number of Channels	Max Amps per Channel	Cooling	Dimensions (mm)
	FBLG2360T	Brushless DC	60	2	60	Conduction Plate	140 x 140 x 25
	FBLG2360TS	Brushless DC	60	1	120	Conduction Plate	140 x 140 x 25
	FBLG2360TE	Brushless DC	60	2	60	Conduction Plate	140 x 140 x 25
	FBLG2360TES	Brushless DC	60	1	120	Conduction Plate	140 x 140 x 25

FBLG Family Applications

- AGVs
- AMRs
- Small Electric Vehicles

Brushless DC Motor Drives

GBLG Family – Very High Power

Motor Controller Image	Part Number	Motor Type	Max Voltage	Number of Channels	Max Amps per Channel	Cooling	Dimensions (mm)
	GBLG2660T	Brushless DC	60	2	180	Conduction plate	140 x 200 x 58
	GBLG2660TS	Brushless DC	60	1	360	Conduction plate	145 x 209 x 59
	GBLG2660TE	Brushless DC	60	2	180	Conduction plate	140 x 200 x 58
	GBLG2660TES	Brushless DC	60	1	360	Conduction plate	145 x 209 x 59

GBLG Family Applications

- Electric Vehicles
- Material Handling Equipment
- AGVs
- Other high power applications

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Brushed DC Motor Drives

Brushed DC motors are the most common and least expensive motor types. Choose from the following product families and several product references of single, dual or triple channel motor controllers for brushed DC motors, ranging from 20A to 500A per channel:

SDC Family – Low Power / Compact

Part Number		Motor Type	Max Voltage	Number of Channels	Max Amps per Channel	Cooling	Dimensions (mm)
SDC2160		Brushed DC	60	2	20	Conduction plate	70 x 70 x 20
SDC2160S		Brushed DC	60	1	40	Conduction plate	70 x 70 x 20
SDCG3260T		Brushed DC	60	3	30	Conduction plate	123 x 83 x 25

MDC / FDCG Family – Mid Power

Part Number		Motor Type	Max Voltage	Number of Channels	Max Amps per Channel	Cooling	Dimensions (mm)
MDC1460		Brushed DC	60	1	120	Conduction plate	120 x 133 x 25
MDC2460		Brushed DC	60	2	60	Conduction plate	140 x 140 x 25
FDCG3260T		Brushed DC	60	3	60	Conduction plate	140 x 140 x 25
FDCG3260TE		Brushed DC	60	3	60	Conduction plate	140 x 140 x 25

Brushed DC Motor Drives

HDC – High Power / Air Cooled

Part Number		Motor Type	Max Voltage	Number of Channels	Max Amps per Channel	Cooling	Dimensions (mm)
HDC2460		Brushed DC	60	2	150	Heatsink Extrusion or Conduction Plate	228 x 140 x 40
HDC2460S		Brushed DC	60	1	300	Heatsink Extrusion or Conduction Plate	228 x 140 x 40

GDCG Family – Very High Power

Part Number		Motor Type	Max Voltage	Number of Channels	Max Amps per Channel	Cooling	Dimensions (mm)
GDC3660		Brushed DC	60	3	180	Conduction plate	140 x 140 x 25
GDC3660T		Brushed DC	60	3	180	Conduction plate	140 x 140 x 25

AC Induction Motor Drives

AC Induction motors are industry workhorses thanks to their simple and inexpensive construction. They are commonly used in traction for electric vehicles. AC Induction motors are being used increasingly in robotics and automation applications thanks to advanced electronic controls. Nidec Automation's Ultra Low Voltage Drives offers a growing line of single and dual channel Variable Frequency Drives for AC Induction motors, ranging from 30A to 360A per channel.

SIM Family – Low Power / Compact

Motor Controller Image	Part Number	Motor Type	Max Voltage	Number of Channels	Max Amps per Channel	Cooling	Dimensions (mm)
	SIMG2360TS	AC Induction	60	1	60	Conduction plate	123 x 83 x 25
	SIM1360	AC Induction	60	1	30	Conduction plate	70 x 70 x 27
	SIMG2360T	AC Induction	60	2	30	Conduction plate	123 x 83 x25

FIMG Family – Mid Power

Motor Controller Image	Part Number	Motor Type	Max Voltage	Number of Channels	Max Amps per Channel	Cooling	Dimensions (mm)
	FIMG2360T	AC Induction	60	2	60	Conduction plate	140 x 140 x 25
	FIMG2360TS	AC Induction	60	1	120	Conduction plate	140 x 140 x 25
	FIMG2360TE	AC Induction	60	2	60	Conduction plate	140 x 140 x 25

AC Induction Motor Drives

GIMG Family – Very High Power

Motor Controller Image	Part Number	Motor Type	Max Voltage	Number of Channels	Max Amps per Channel	Cooling	Dimensions (mm)
	GIMG2660T	AC Induction	60	2	180	Conduction plate	140 x 140 x 25
	GIMG2660TES	AC Induction	60	1	360	Conduction plate	140 x 140 x 25
	GIMG2660TE	AC Induction	60	2	180	Conduction plate	140 x 140 x 25
	GIMG2660TS	AC Induction	60	1	360	Conduction plate	190 x 200 x 58

Nidec Automation's AC induction motor controllers can be used with practically any AC induction motor within the specified power and voltage range

Guide Sensors

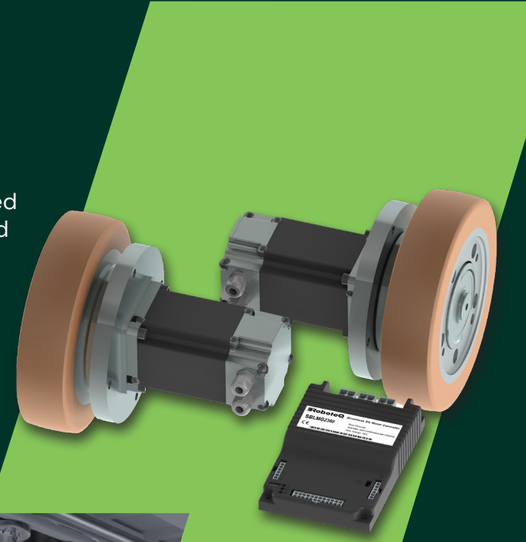
Nidec Automation's magnetic guide sensor is capable of detecting and reporting the position of a magnetic field along its horizontal axis. Our sensor is intended for applications in Automatic Guided Vehicles "AGVs" using inexpensive adhesive magnetic tape to form a guide on the floor.

It interfaces seamlessly with Nidec Automation motor drives. Utilizes USB, RS232, and CAN for interfacing to any PLC, microcomputer or PC.

Sensor Image	Part Number	IP Rating	Width (mm)	Serial	USB	Analog	PWM	CAN	M12 connector
	MGS1600	IP64	160	✔	✔	✔	✔	✔	No
	MGSW1600	IP40	160	✔	✔	✔	✔	✔	No

AGV Kits

Robot building can be faster and easier, with our integrated Motor/Gearbox/Wheels with matching, pre-configured and tuned drive. AGVs need two motors to move and steer. We can make this work with a single drive. Compared to the traditional One Motor/One Drive approach, the Dual Channel is simpler, cheaper, safer and easier to integrate and maintain.



AGV Kits:

- **2 x AGV motors (each includes VRLZ090 gearbox & AGV wheel)**
- **1 x Dual-channel drive**
- **1 x Drive control cable**

Motor frame sizes from 60mm to 142mm and payloads up to 2000kg

Both motors are supplied fitted with industry standard AGV wheels (156.4mm diameter).

With our direct mounting designs, the need for other mechanical parts is reduced along with the setup time.

Integrated Motor/Gearbox/Wheels with Matching, Drive

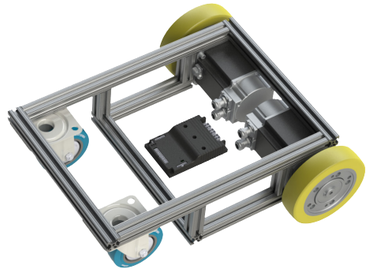
Nidec Automation's Ultra Low Voltage Drives deliver precise speed, torque, and position control; exceptional power density, dual-channel, battery operation support, regenerative braking, fieldbus connectivity, rugged construction, Safe Torque Off function, and advanced protection.

Nidec Automation

Integrated Motor/Gearbox/Wheels & Drive

Ideal for:

- AGVs
- Small Electric Vehicles
- Terrestrial and Underwater Robotic Vehicles
- Hazardous Material Handling Robots
- Balancing Robots



Motor frame sizes from 60mm to 142mm and payloads up to 2000kg

AGV Motor Wheel Part Numbers

Part Number	Frame Motor Size (mm)	Brake
060LDB300ROB	60	No
060LDB30XROB	60	Yes
089LDA300ROB	89	No
089LDA30XROB	89	Yes
142LDA300ROB	142	No
142LDA30XROB	142	Yes

AGV Kit Part Numbers

Part Number	Frame Motor Size (mm)	Robot Size (kg)	Brake	Drive	Ethernet	Maximum RPM
AGV060B01G	60	500	No	SBLG2360T	No	3000
AGV060B02G	60	500	Yes	SBLG2360T	No	3000
AGV089A01G	89	1000	No	FBLG2360T	No	3000
AGV089A01G-E	89	1000	No	FBLG2360TE	Yes	3000
AGV089A02G	89	1000	Yes	FBLG2360T	No	3000
AGV089A02G-E	89	1000	Yes	FBLG2360TE	Yes	3000
AGV089A03G	89	1000	No	FBLG2360T	No	1500
AGV089A03G-E	89	1000	No	FBLG2360TE	Yes	1500
AGV089A04G	89	1000	Yes	FBLG2360T	No	1500
AGV089A04G-E	89	1000	Yes	FBLG2360TE	Yes	1500
AGV142A01G	142	2000	No	GBLG2660T	No	2000
AGV142A02G	142	2000	Yes	GBLG2660T	No	2000

Cables & Accessories

Image	Part Number	Description
	CABLE-SENX1	Cable for MGSW, and FLW sensors. 8 pin female M12-8 connector to 8 color-coded wires, 6 ft long
	RC2 CABLE BOARD	RC Radio Cable Board for Ultra Low Voltage Drives with 15-pin connectors
	RC5 CABLE BOARD	RC Radio Cable Board for Ultra Low Voltage Drives with 25-pin connectors
	RS232 ISOLATOR	Optical isolator of the Tx, Rx and GND RS232 lines up to 5000V
	USB ISOLATOR	Full speed USB 2.0 compliant port isolator with a 1000V isolation voltage

Cables & Accessories

Image	Part Number	Description
	BOB15	Break-out board with DSub15M and DSub9F female connectors. Fits all drives with 15-pin connectors. Cable not included
	CABLE-ABCX1	ABC Hall Cable with single row 6-pin Molex connector and transition board for MBL1, HBL1, SBL2, GBL2 Brushless Motor Drives
	CABLE-ABCX1M	Single ABC Hall Cable with single row JST connector and transition board for SBL1 Brushless Motor Drives
	CABLE-ABCX2	ABC Hall Cable with dual row 2x5pin Molex connector and transition board for dual-channel Brushless Motor Drives
	CABLE-BOB15	Break-out board with DSub15M and DSub9F connectors plus 6' RS232 cable.
	CABLE-ENC1	12" encoder cable and transition board for MDC2xxx and XDC2xxx drives
	CABLE-KBLX1	Cable for KBL controllers. M12 8 pin circular connector to 8 color-coded wires, 3 ft long

Software

All of Nidec Automation's drives and sensors are based on advanced 32-bit ARM processors. They are the hardware platforms for our constantly improving Control, Signal Processing and Communications Algorithms that are embedded in our Firmware. Our components can talk to each other and we offer the tools needed to integrate them into larger assemblies. As such, we understand our customer needs and offer an array of solutions backed by expert Engineering Support.

PC Utilities

PC Utility	Part Number	Description
	ROBORUN PRO-LICENSE	Professional License for all Ultra Low Voltage Drives PC Utilities. Required for compiling MicroBasic scripts larger than 1K. The code and instructions will be sent after the order is placed.
	ROBORUNPLUS	PC-based Configuration Utility that makes configuring and operating drives much more intuitive by using pull-down menus, buttons, and sliders. Free version with limited scripting size.
	TRACKSENSOR	PC-based Configuration Utility for Flow Sensors and Magnetic Guide Sensors. Configure, Run, and Monitor the devices intuitively by using pull-down menus, buttons, and sliders. Free version with limited scripting size.

Software

Simulators and Tools

Image	Part Number	Description
	MICROBASICXTRAS	MicroBasic sample scripts and Notepad++ Dictionary
	ROBOAGVSIM	PC-Based simulator for line-following AGVs

Simulators and Tools

Image	Part Number	Description
	LINUXWINAPI	Linux and Windows API for Drives and Navigation Sensors
	ROBOROSDRIVER	ROS1 Driver for Nidec Automation drives

About Nidec

Nidec Automation

Headquartered in St. Louis, Missouri, Nidec Automation designs and manufactures innovative precision electric motors, gearmotors and drives for modern automation applications. Nidec Automation's sophisticated solutions increase the speed, reliability and safety of autonomous guided vehicles, automated storage & retrieval systems, conveyance systems, and robotics for warehouse and factory automation applications. With manufacturing and engineering operations worldwide, Nidec Automation is your strategic partner for meeting the productivity demands that supply a world in motion.

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Nidec Corporation

With headquarters in Kyoto, Japan, Nidec is the world's leading electric motor manufacturer, with 2023 revenues of over $18B USD and comprised of over 300 group companies and 122,000 employees. A pioneer in electrification, Nidec has worked across a wide array of industries ranging from information technology, automotive, appliance, commercial, industrial and machinery since its foundation in 1973. Nidec is a trusted development partner in multiple high-growth spaces including industrial automation, vehicle electrification and energy storage, providing world-class technology, support, and localized manufacturing to support industry leaders around the globe.

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