



8901 E. PLEASANT VALLEY ROAD
 INDEPENDENCE, OHIO 44131-5508
TELEPHONE: (1) 216-642-1230 • **FAX:** (1) 216-642-6037
E-MAIL: tachs@avtron.com • **WEB:** www.avtronencoders.com

Encoder Instructions

**M191A
 M193A/M193B**
INACTIVE DESIGN
 Replaced by Model **AV850**

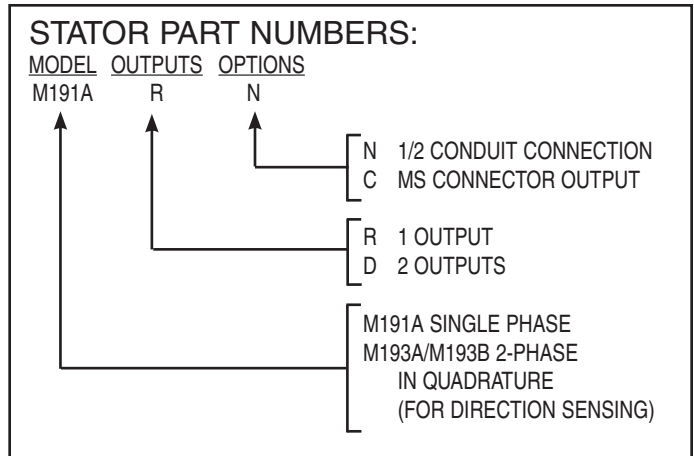
DESCRIPTION

The Avtron Model M191A, M193A and M193B SLAPTach™ Pulse Generators are designed to be compatible with the accessory mounting provisions of most DC motors. Both stub shaft and through shaft mountings are accommodated for motor frame sizes from 180 through 500. This space saving design eliminates the need for costly adapters and shaft couplings. It not only saves installation time but, more importantly, completely eliminates common failures resulting from poor coupling alignment.

The magnetic pulse generating circuitry is completely encapsulated and immune to dirt and oil. One or two electrically isolated outputs with or without direction sensing capabilities are available. All outputs are zero speed; that is, they can work effectively down to zero RPM.

The Avtron SLAPTach™ Pulse Generator consists of two separate parts: a rotor and a stator housing. These precision machined parts, when mounted to the accessory end of a motor that conforms to NEMA MG 1-11.67 for Type FC Face Mounting, will function properly without further adjustment.

The available options for the M191A, M193A and M193B SLAPTach™ pulse generators and how they are indicated in the part number are shown below.



ACCESSORY SHAFT SIZE	STUB SHAFT			THROUGH SHAFT	
	ROTOR P/N	INSTALLATION HARDWARE KIT	GROUNDING KIT P/N	ROTOR P/N	INSTALLATION HARDWARE
1.1250/1.1245	B16782	B19084-1	A24379	B17088	NOTE 1
1.3750/1.3745	—	—	—	B17089	NOTE 1
1.6250/1.6245	—	—	—	B17090	NOTE 1
1.8750/1.8745	—	—	—	B17091	NOTE 1
2.1250/2.1245	B16783	B19084-2	A24381	B17092	NOTE 1
2.3750/2.3745	B16784	B19084-3	A24382	B17093	NOTE 1
2.8750/2.8745	B16785	B19084-4	A24386	B17094	NOTE 1
*2.3760/2.3750	B24664	B19084-7	A24392	—	—

* Pilot Diameter.

INSTALLATION HARDWARE KITS	
PART NUMBER	CONTENTS
B19084-1	Four Screws, Hex Hd. 1/2-13 x 3.25; Four Lockwashers, 1/2; One Spring Pin; One Screw, Hex Hd. 3/8-16 x 1.25; One Flatwasher, 3/8; One Lockwasher, 3/8
B19084-2	Four Screws, Hex Hd. 1/2-13 x 3.25; Four Lockwashers, 1/2; Two Screws, Hex Hd. 10-24 x 1; Two Lockwashers, #10
B19084-3	Four Screws, Hex Hd. 1/2-13 x 3.25; Four Lockwashers, 1/2; Two Screws, Hex Hd. 3/8-16 x 1.25; Two Lockwashers, 3/8
B19084-4	Four Screws, Hex Hd. 1/2-13 x 3.25; Four Lockwashers, 1/2; Two Screws, Hex Hd. 3/8-16 x 1.25; Two Lockwashers, 3/8
B19084-6	Four Screws, Hex Hd. 1/2-13 x 3.25; Four Lockwashers, 1/2; Two Screws, Hex Hd. 3/8-16 x 1.25; Two Lockwashers, 3/8

NOTE 1 Installation Hardware for Rotor P/Ns B17088 Through B17094 Consist of Two Set Screws, Oval Point, 10-32 x 1/4 with Chemical Thread Locking Adhesive.

INSTALLATION

In preparation for installing the Avtron SLAPTach™ Pulse Generator, it is first necessary to clean both the accessory motor shaft and the mounting face. These surfaces must be inspected and paint, burrs, and other surface imperfections removed. Coat the cleaned surfaces with a light grade of oil.

Position the rotor on the shaft and tighten with the hardware indicated. The B16782 uses a roll pin to prevent rotation of the rotor on the shaft. Install the pin in the rotor first, and then position the rotor on the shaft and lightly tap into place. Install the center bolt and flat washer with springlock washer and tighten.

Slide the through shaft type rotor onto the shaft with the set screw hub away from the motor face. Position the rotor 0.26 +/-0.06" away from the motor face. Use a chemical fastener on the set screw threads.

STATOR HOUSING INSTALLATION

The stator housing is retained to the motor using four 1/2-13 x 3-1/4" bolts and spring type lock washers (not furnished). If the stator is to be sandwich mounted between an accessory such as a fan and the motor, select the bolt length accordingly. Carefully move the stator housing into position, trying to avoid contact with the rotor. Install the four mounting bolts and torque 30 to 35 foot pounds.

WIRING

Electrical connections are made to the SLAPTach™ Pulse Generator through standard 1/2" conduit fittings. The nipple length may be changed to extend the outlet box if desired. Care must be taken not to allow an over-threaded nipple to penetrate the pulse generator housing by more than 1/2".

The single phase or unidirectional M191A has three wires per output side, color coded red, green, and black. The 2-phase or bidirectional M193A and M193B has four wires per output side. The "A" phase signal (green) will lead the "B" phase signal (blue) for clockwise rotation of the motor shaft as viewed from the anti-drive end.

Interconnection cables specified in the wiring diagrams below are based on typical applications. Reference system drawings for specific cable requirements where applicable. Physical properties of cable such as abrasion, temperature, tensile strength, solvents, etc., are dictated by the specific application. General electrical requirements are: stranded copper, 22 thru 16 gauge; braid or foil with drain wire shielding, 0.05 M maximum total mutual or direct capacitance; outer sheath insulator, 1,000 ft. maximum.

SPECIFICATIONS:

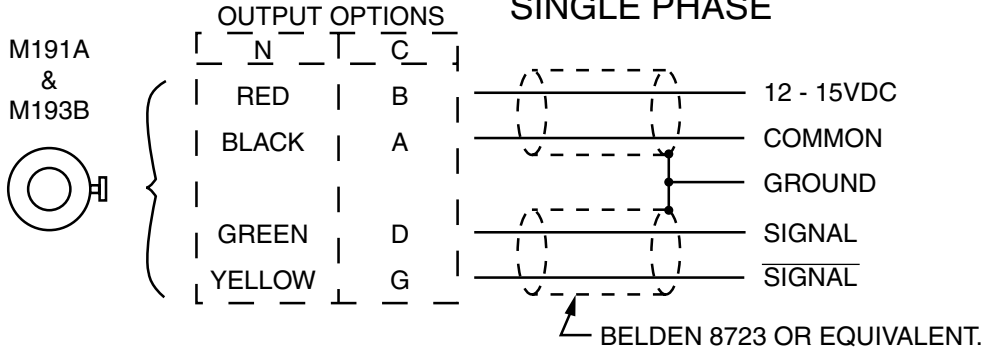
ELECTRICAL	M191A UNIDIRECTIONAL	M193A/M193B BIDIRECTIONAL
OPERATING POWER	12-15 VDC, 50mA	12-15VDC, 50mA
PULSES PER REVOLUTION	240	240
MAX. FREQUENCY OUTPUT	20 KILOHERTZ	20 KILOHERTZ
SPEED RANGE	0-5000 RPM	0-5000 RPM
OPERATING TEMPERATURE	-10° F TO 180° F	-10° F TO 180° F
OUTPUT SIGNAL	SINGLE PHASE	TWO PHASE QUADRATURE
WAVE SHAPE	SQUARE WAVE	SQUARE WAVE
VOLTAGE OUTPUT	LOW: 0.5 VOLTS MAXIMUM 35 mA SINK HIGH: SUPPLY VOLTAGE MINUS 1 VOLT (NO LOAD) 1000 OHM PULL-UP	LOW: 0.5 VOLTS MAXIMUM 35mA SINK HIGH: SUPPLY VOLTAGE MINUS 1 VOLT (NO LOAD) 1000 OHM PULL-UP
DUTY CYCLE	50/50 ±15%	50/50 ±15%
TRANSITION SEPARATION	NOT APPLICABLE	15% MINIMUM
OUTPUT PROTECTION	SHORT CIRCUIT PROTECTED TO COMMON OR + SUPPLY AND POWER REVERSAL	SHORT CIRCUIT PROTECTED TO COMMON OR + SUPPLY AND POWER REVERSAL
WEIGHT	9 POUNDS WITHOUT ROTOR 13 POUNDS WITH ROTOR	9 POUNDS WITHOUT ROTOR 13 POUNDS WITH ROTOR

NOTE: AVTRON STANDARD WARRANTY APPLIES.
COPIES AVAILABLE UPON REQUEST.

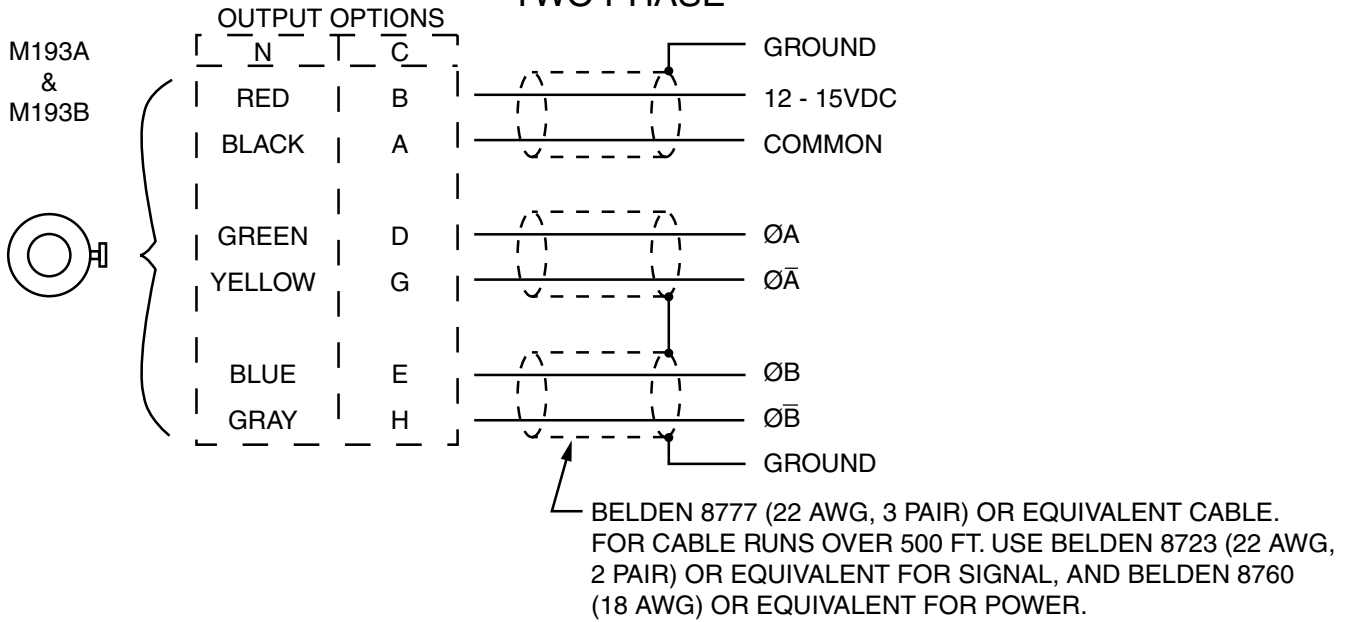
SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

WIRING DIAGRAMS

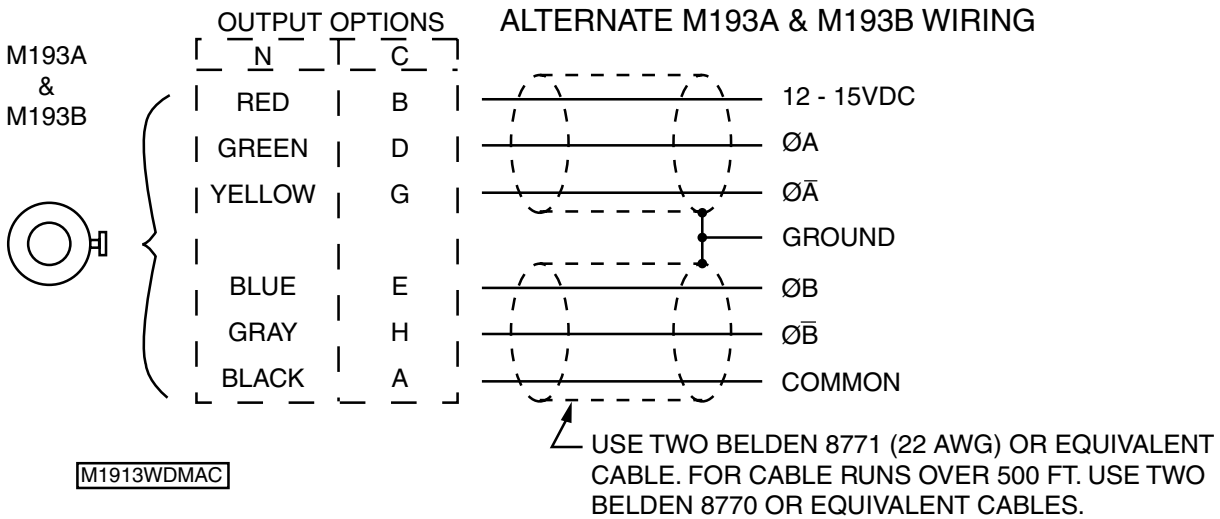
SINGLE PHASE



TWO PHASE



ALTERNATE M193A & M193B WIRING



M1913WDMAC

NOTE: The M193B is used as a replacement for M191A and M193A applications.

