

NGI-1000/NGI-1000RC

Generation Four Advanced Digital Ignition System for Small and Medium-Sized Industrial Engines. **NEW NGI-1000RC Option** Delivers Expansion of Remote Control Functionality through new Firmware, Terminal Program, and MODBUS data mapping.

- Universal, moderately-priced ignition system designed for 1-16 cylinder engines
- Ideal for both natural gas (CH₄ - Methane) and biogas-fueled applications
- Incorporates state-of-the-art spark energy control for lean-burn and other difficult to ignite air/fuel mixtures
 - Current vs. time energy control
 - Spark current selectable from 50-200mA and durations up to 1000µS
 - Standard, CD-style spark profiles also available
- Comprehensive system diagnostics for simple troubleshooting
- Easily configured for the application utilizing a Windows®-based Terminal Program
- Supports Modbus RTU serial communications
- Rugged aluminum enclosure for high reliability
- Accepts magnetic, Hall-Effect, and powered-inductive-style pickups for ease of retrofit with existing Altronic or third-party ignition systems

Since the introduction of the NGI-1000 users have regularly asked for the possibility to continuously adjust some specific parameters externally. In response to this desire, new features for "Remote Control" are available in the NGI-1000RC version of firmware.

Now, for example, it is possible to optimize the ignition timing per cylinder on the basis of detonation (knock) or temperature of the cylinder by a PLC. The new RC-firmware of the NGI-1000 offers the users to continuously adjust several

parameters via a Modbus communication and makes it possible to tune the ignition to the engine conditions. With the NGI-1000RC firmware the following parameters can be continuously written without impact to EEPROM write cycle durability:

- Spark duration (max. 1000 µs)
- Spark current (max. 200 mA)
- Ignition timing (by new global retard parameter "RMT Global")("Default Global")
- Cylinder offset (individual retard "Cylinder-CAL Table")("Default Indv")

The parameters mentioned above reside in the RAM memory of the NGI-1000, while EEPROM memory is used only for the default values for these parameters that are loaded by the NGI-1000RC when powered on.

Impact of the changes

In the RC-firmware the Remote Control parameters have been incorporated into the Modbus register list. Some other parameters were replaced or removed compared to the original firmware. The new parameters have a logical place in the register list in order to minimize the number of read/write commands. As a result a number of tables that also exist in the original firmware have different register numbers in the RC firmware version. For this reason, the original NGI-1000 as well as the NGI-1000 with RC are now both available for purchase. Module Part numbers ending in "RC" will be equipped with latest Remote Control firmware. While we expect the "RC" version to become the new standard; support of either option is provided through a new and separate revised RC terminal program as well as a new separate operation installation manual which can be referenced to both study and exercise these new RC features.

The Altronic NGI-1000 system is the first in a series of new ignition products and platforms from Altronic. This innovative, reliable, and capable system is designed for use on small and

CONTINUED



medium-sized industrial engines fueled by either natural gas (CH₄ – Methane) or biogas. Eliminating maintenance-intensive engine accessory drives and conventional ignition systems, these solid-state digital systems deliver high-end control capabilities and features and operational flexibility across the range of suitable applications.

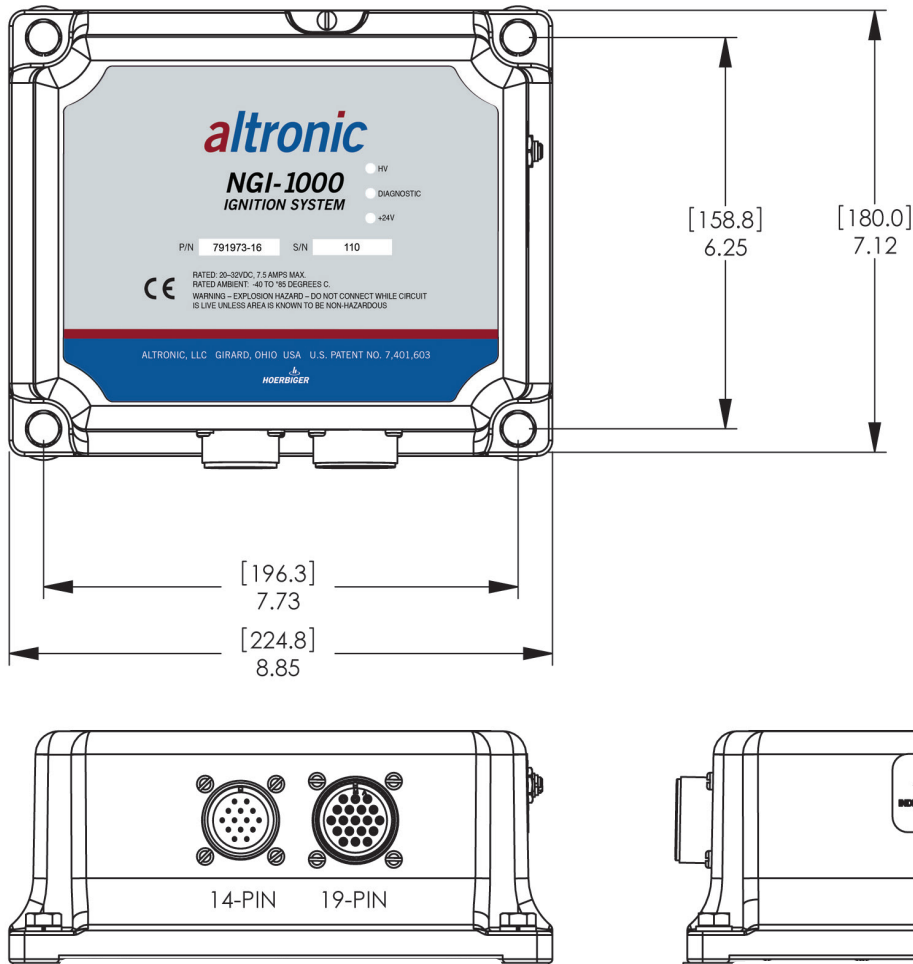
All NGI-1000 systems process angular pickup input signals from a single pickup (magnetic, Hall-Effect, or powered inductive) which senses drilled reference holes, magnets and/or protrusions on a steel disc. This flexible approach allows for a simple installation—including retrofit for existing Altronic or third-party applications—and for accurate/consistent timing inputs referenced directly to the engine's crankshaft or camshaft.

Unique to the NGI-1000 is an advanced spark energy control system designed to provide maximized combustion assurance on both lean-burn and biogas engine applications where the air/fuel mixture is often difficult to ignite and maintain. Both spark current and duration can be automatically adjusted externally via Modbus RTU to insure complete dynamic control of the delivered spark energy for all engine operating conditions.

These same values, as well as the engine setup, overspeed setpoint, all analog/RPM timing adjustment curves, and system/spark diagnostics can be monitored/adjusted conveniently using the NGI-1000 Terminal Program. Like its predecessors, the system also incorporates a popular and unique LED "Blink System" to provide at-a-glance system diagnostics on the unit.

The NGI-1000 is housed in a rugged, die-cast aluminum enclosure, and all system circuit boards are custom manufactured and conformally coated for a maximum level of environmental protection and long-term reliability.

DIMENSIONS

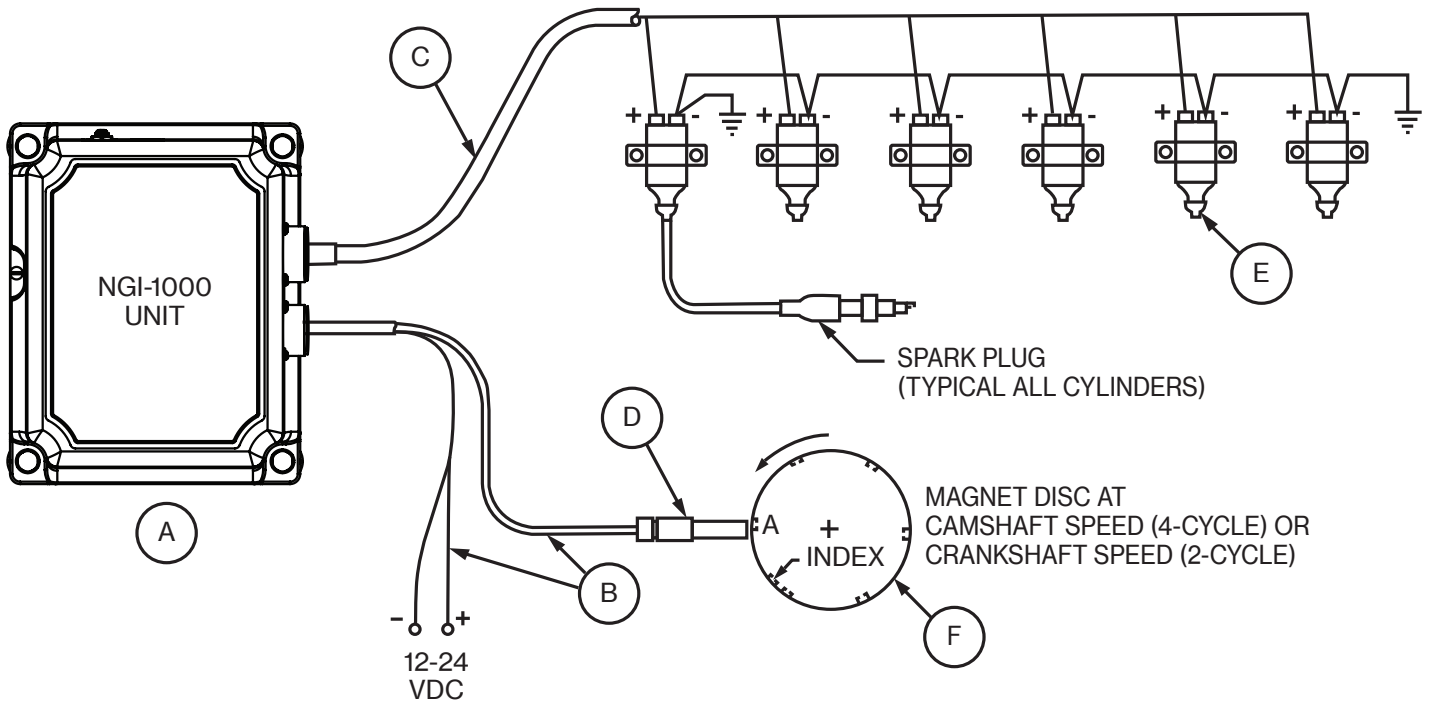


SPECIFICATIONS

No. of cylinders	1-16
Power required	24VDC, 7.5 Amp
System Pickup	Magnetic, Hall-Effect, or powered inductive
Enclosure.....	Die-cast, gasketed, MS-connectors
Max. voltage output	40kV
Spark duration	Adjustable, 150-1000 microsec*
Max. delivered current.....	Adjustable, 50-200 milliamps*
Timing adjustment:	
Manual (8 pos. switch).....	User-selectable increments
RPM range.....	25 to 2,500 RPM
Analog input range	4-20mA or 0-5Vdc
Overall max timing range.....	25° of retard
Overspeed setpoint range	25 to 2,500 RPM
Output switch rating	0.5 Amp, 32Vdc max.
Communications.....	Modbus RTU (RS-485)

* See NGI-1000 IOM for details of spark characteristic operating range

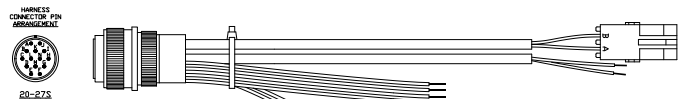
TO ORDER



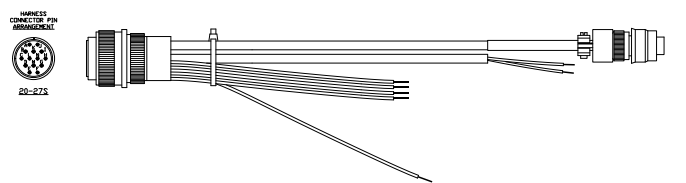
UNSHIELDED

- A** NGI-1000 (8 cylinder).....791973-8 or 791973-8RC
NGI-1000 (16 cylinder).....791973-16 or 791973-16RC

- B** Input Harness, unshielded.....793140-4 (MPU Plastic 80")
793143-4 (MPU MS 80")
793105-4 (HE 80")



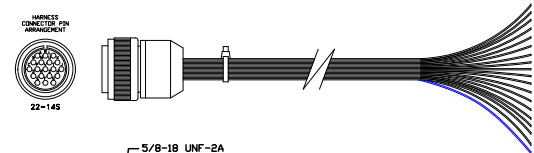
- Input Harness, unshielded.....793140-5 (MPU Plastic 120")
793143-5 (MPU MS 120")
793105-5 (HE 120")



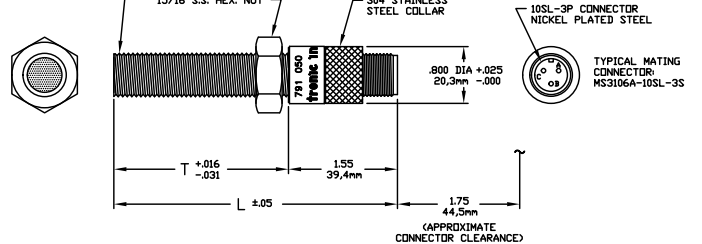
- Input Harness, unshielded.....793140-7 (MPU Plastic 180")
793143-7 (MPU MS 180")
793105-7 (HE 180")

NOTE: RS-485, Power, and D wires are all 72".
Pickup cable lengths vary as indicated.

- C** Output Harness, 180" unshielded (180°).....793012-8
793012-12
793012-16

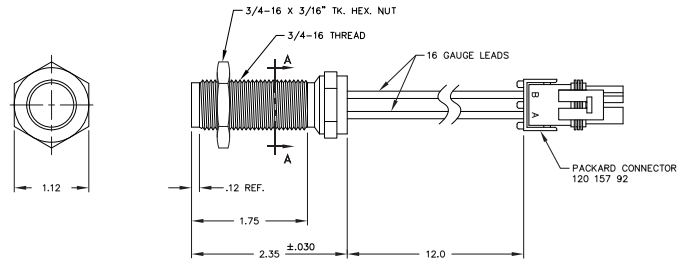


- D** Hall-effect Pickup791050-1 (5/8"-18 x 1.75")
791050-2 (5/8"-18 x 2.50")
791050-4 (5/8"-18 x 4.50")

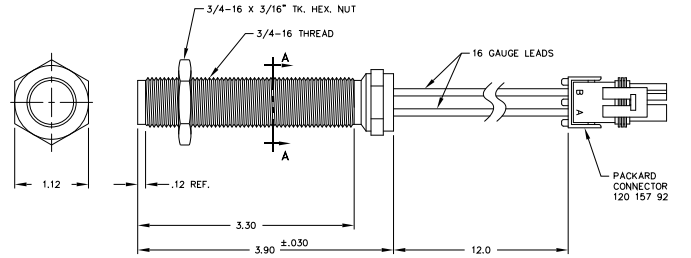


Hall-effect Pickup Cables included in unshielded Input Harness

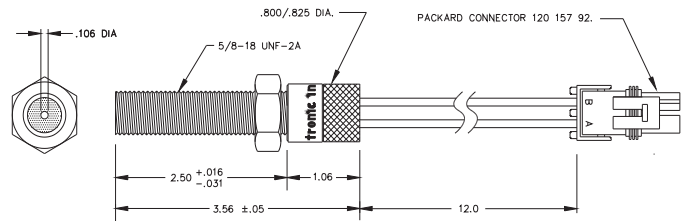
Unshielded Magnetic Pickup.....791015-1 (3/4"-16 X 1.9")



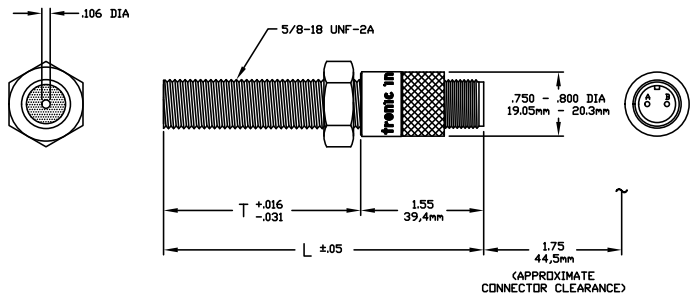
Unshielded Magnetic Pickup.....791016-2 (3/4"-16 X 3.4")



Unshielded Magnetic Pickup.....791018-2 (5/8"-18 X 2.5")

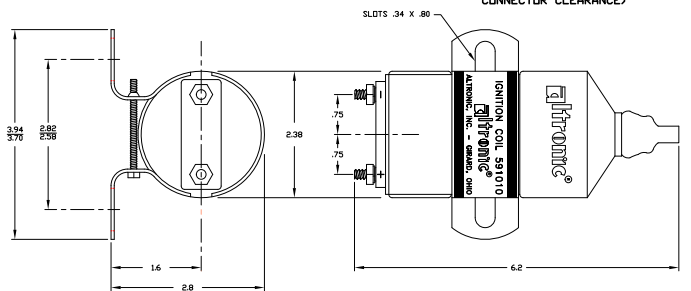


Magnetic Pickup MS.....691118-1 (5/8"-18 x 1.75")
 691118-2 (5/8"-18 x 2.50")
 691118-3 (5/8"-18 x 3.00")
 691118-4 (5/8"-18 x 4.50")

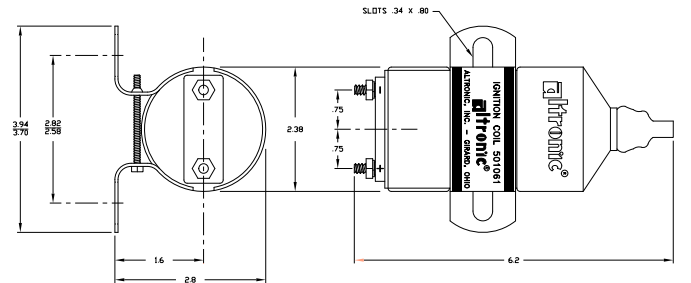


Magnetic Pickup Cables included in unshielded Input Harness

E Ignition Coils, unshielded.....591010 (RED)

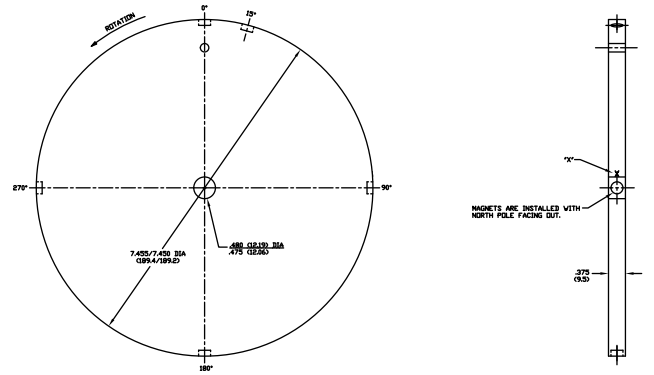


Ignition Coils, unshielded..... 501061 (BLUE)

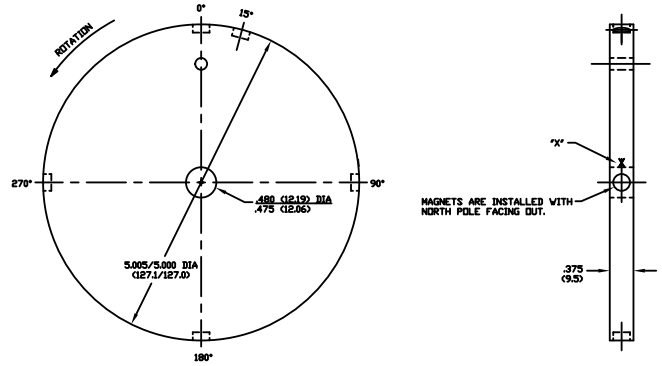


F Magnet Disc (HE systems only) - two sizes available (see listing)

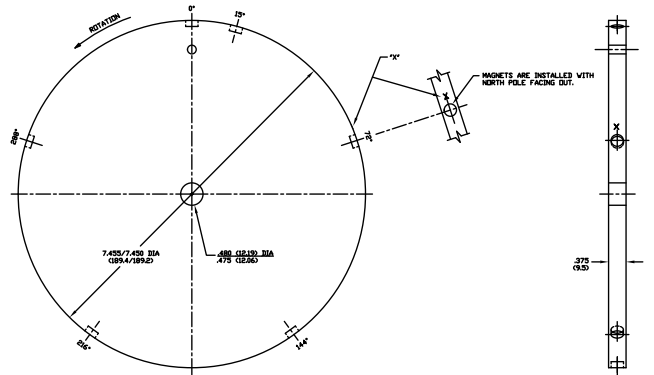
790104-1..... 4+1 magnets, 7.45" diameter



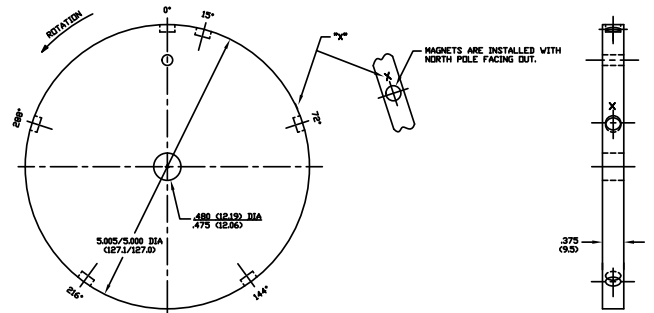
790114-1..... 4+1 magnets, 5.00" diameter



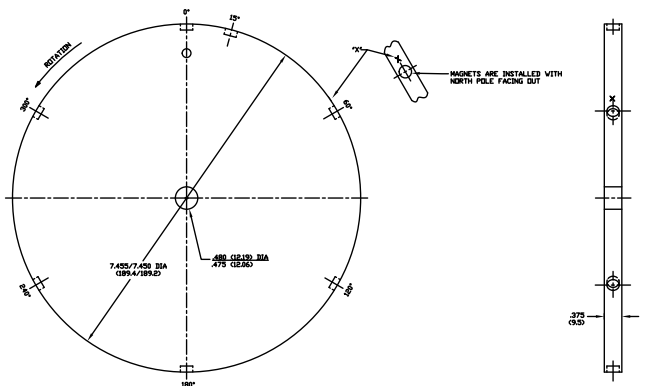
790105-1..... 5+1 magnets, 7.45" diameter



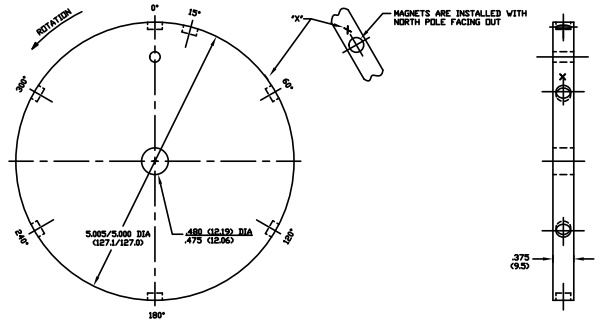
790115-1..... 5+1 magnets, 5.00" diameter



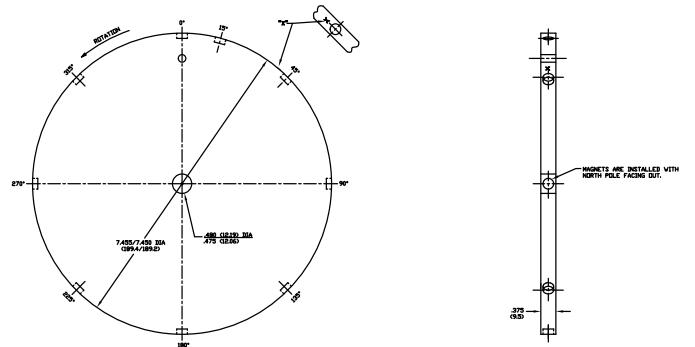
790106-1..... 6+1 magnets, 7.45" diameter



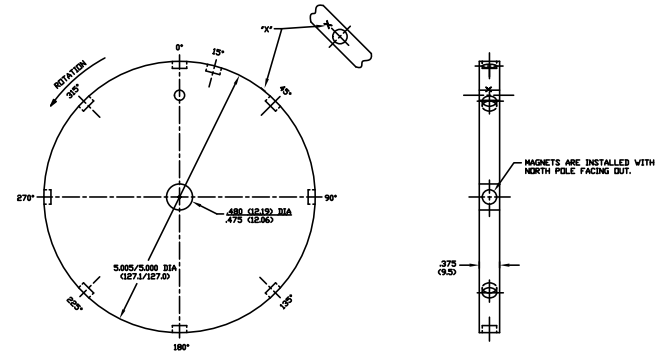
790116-1..... 6+1 magnets, 5.00" diameter



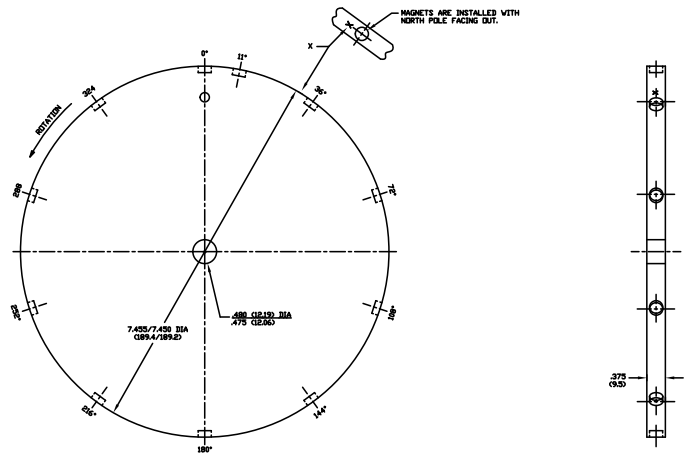
790108-1..... 8+1 magnets, 7.45" diameter



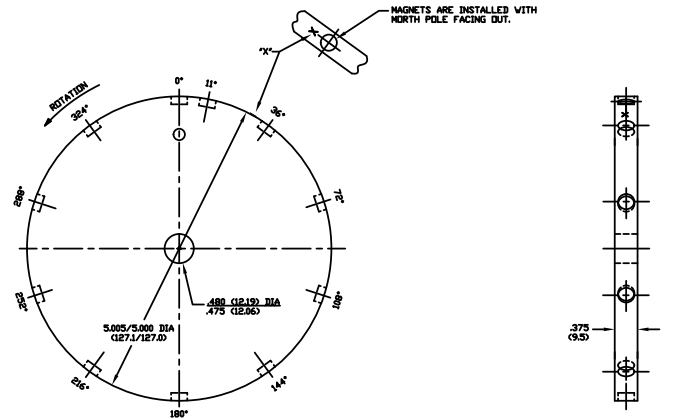
790118-1..... 8+1 magnets, 5.00" diameter



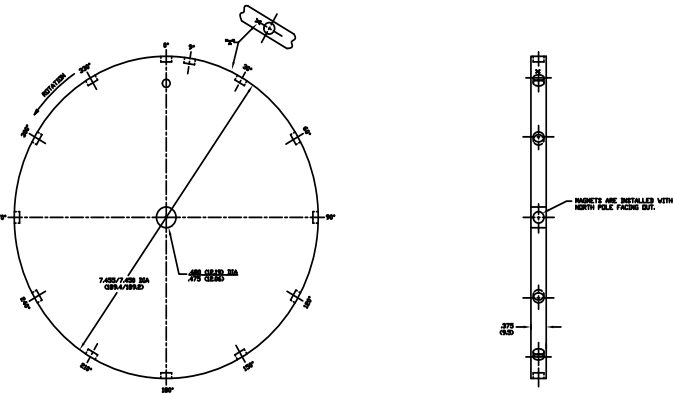
790120-1..... 10+1 magnets, 7.45" diameter



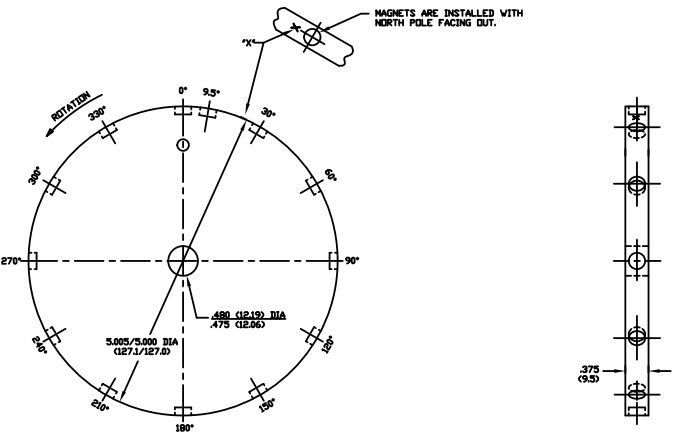
790130-1.....10+1 magnets, 5.00" diameter



790122-1.....12+1 magnets, 7.45" diameter

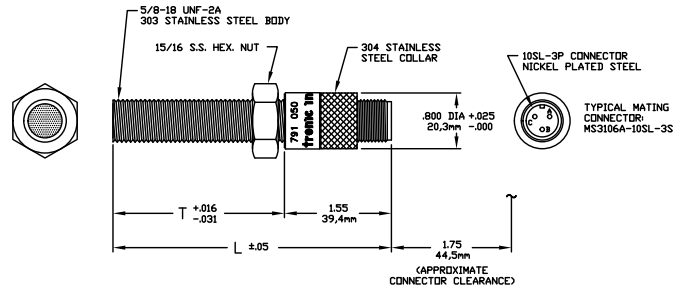


790132-1.....12+1 magnets, 5.00" diameter

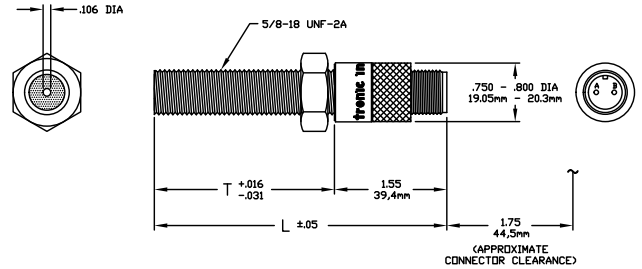


"NOTE:
 1) Reference IOM for manufacturing discs"
 2) Same hall effect sensors used in both shielded and unshielded applications

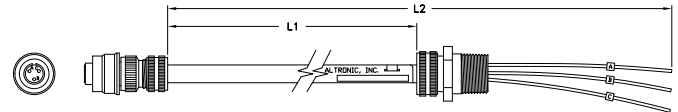
- D Hall-effect Pickup.....791050-1 (5/8"-18 x 1.75")
791050-2 (5/8"-18 x 2.50")
791050-4 (5/8"-18 x 4.50")



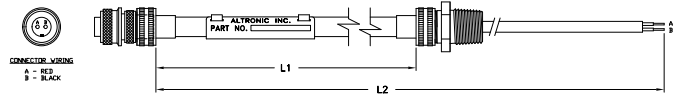
- Shielded Magnetic Pickup.....691118-1 (5/8"-18 x 1.75")
691118-2 (5/8"-18 x 2.50")
691118-3 (5/8"-18 x 3.00")
691118-4 (5/8"-18 x 4.50")



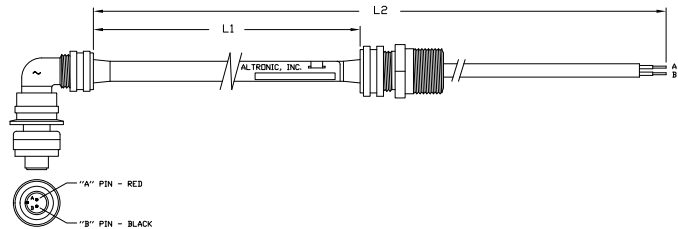
- E Shielded Cable, Hall Effect Pickup (180°) 24".....593052-24
Shielded Cable, Hall Effect Pickup (180°) 36".....593052-36



- Magnetic Pickup Cables, shielded (180°).....593048 Series

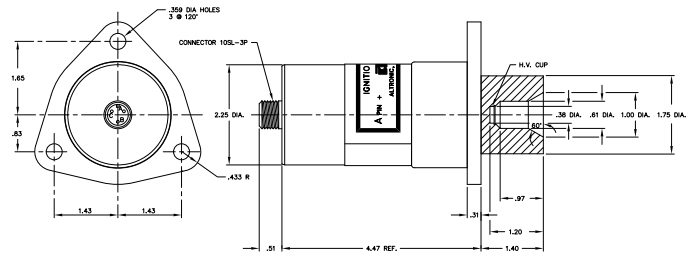


- Magnetic Pickup Cables, shielded (90°).....593054 Series

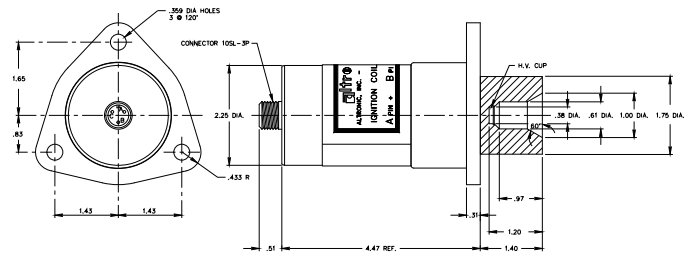


GROUP#	L1	L2
12	12.0"	50'-0"
18	18.0"	50'-0"
24	24.0"	50'-0"
24A	24.0"	100'-0"
36	36.0"	50'-0"
48	48.0"	50'-0"
48A	48.0"	100'-0"
72	72.0"	50'-0"
72A	72.0"	100'-0"
96	96.0"	50'-0"
96A	96.0"	100'-0"
120	120.0"	50'-0"
150	150.0"	50'-0"
180	180.0"	50'-0"

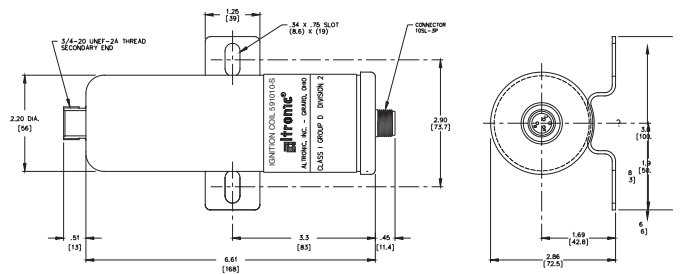
F Ignition Coils, flange.....591012 (RED)



Ignition Coils, flange.....591018 (BLUE)

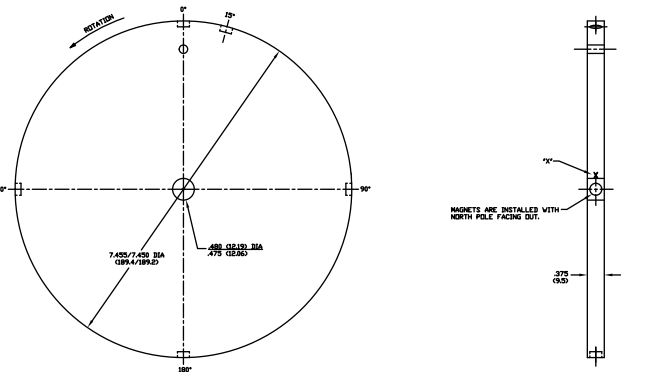


Shielded Coil (Blue or Red).....591061-S or 591010-S

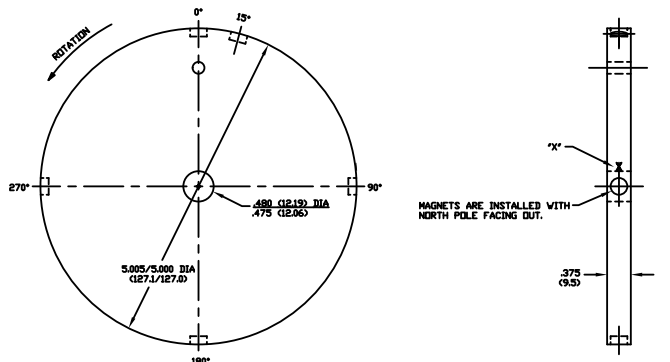


G Magnet Disc (HE systems only) - two sizes available (see listing)

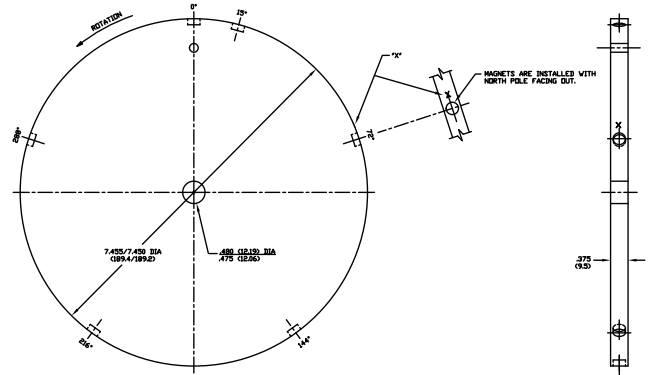
790104-1..... 4+1 magnets, 7.45" diameter



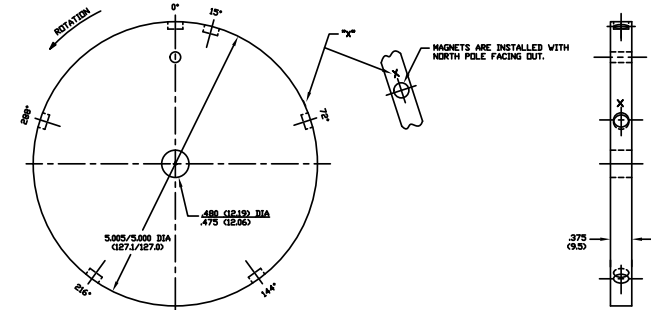
790114-1..... 4+1 magnets, 5.00" diameter



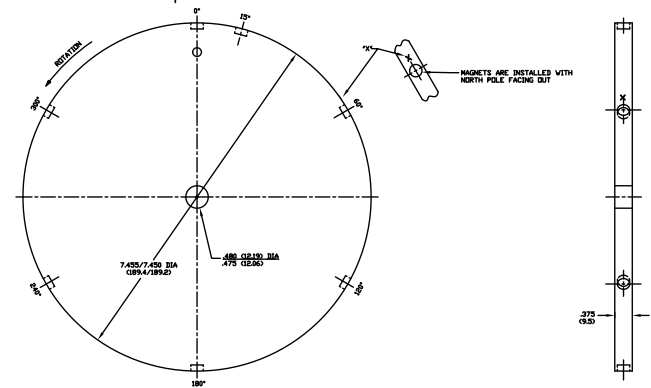
790105-1..... 5+1 magnets, 7.45" diameter



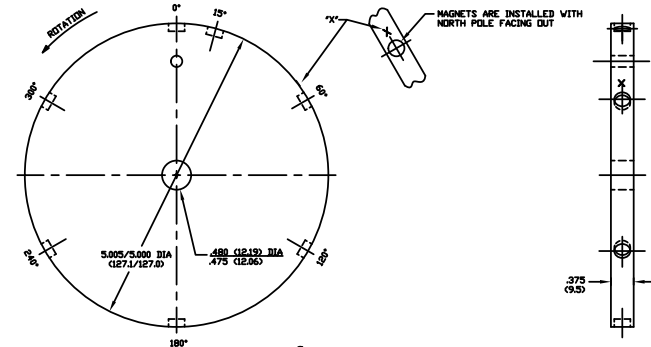
790115-1..... 5+1 magnets, 5.00" diameter



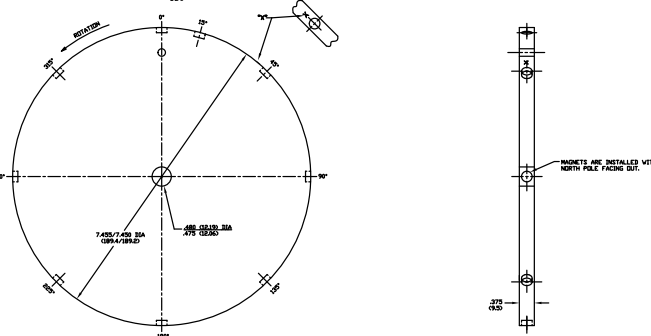
790106-1..... 6+1 magnets, 7.45" diameter



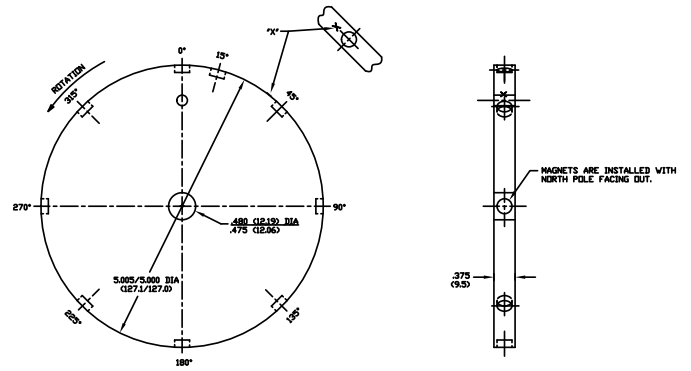
790116-1..... 6+1 magnets, 5.00" diameter



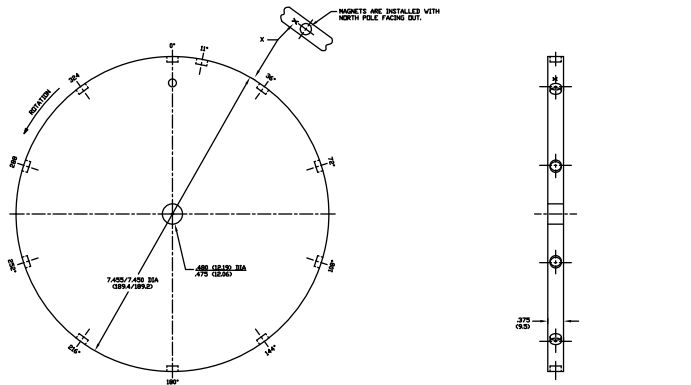
790108-1..... 8+1 magnets, 7.45" diameter



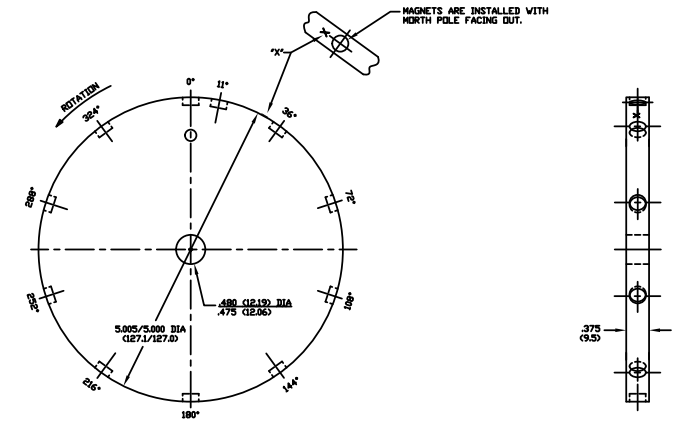
790118-1..... 8+1 magnets, 5.00" diameter



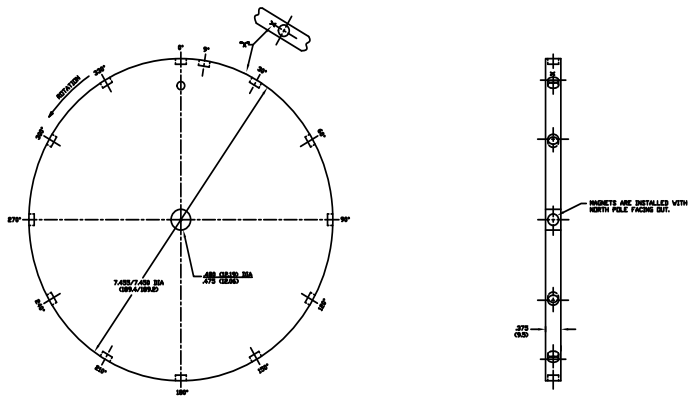
790120-1..... 10+1 magnets, 7.45" diameter



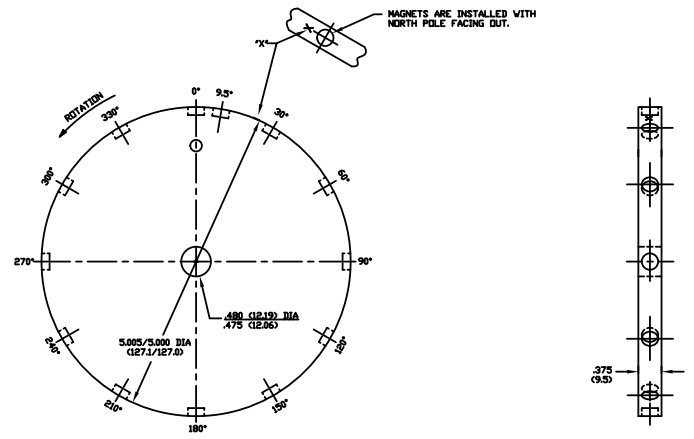
790130-1..... 10+1 magnets, 5.00" diameter



790122-1..... 12+1 magnets, 7.45" diameter

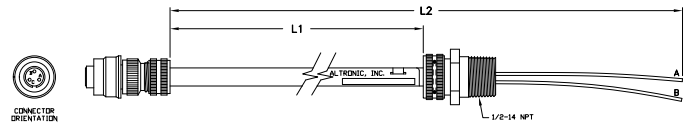


790132-1.....12+1 magnets, 5.00" diameter

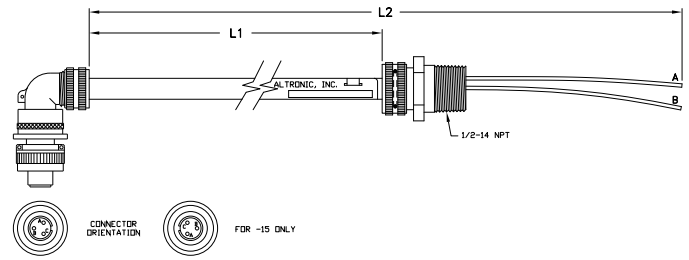


H Shielded Primary Cable Assemblies - Coil to Junction Box

593022-XX (180°) connector.....



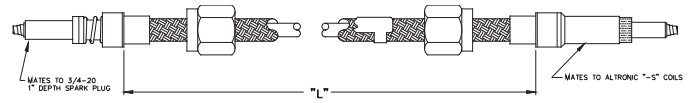
593027-Xx (90°) connector.....



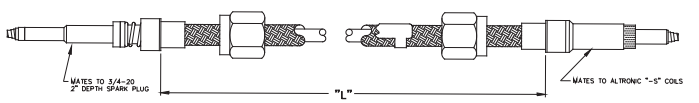
GROUP#	L1	L2
6	6"	42"
9	9"	42"
12	12"	42"
15	15"	42"
18	18"	42"
24	24"	42"
30	30"	42"
36	36"	60"
42	42"	60"
48	48"	60"
54	54"	96"
60	60"	96"
72	72"	96"
135	135"	180"
138	138"	180"

Shielded Spark Plug Lead Assemblies
(591010-S or 591061-S Coils)

1" spark plug connector.....593020-10
593020-13
593020-16
593020-18



2" spark plug connector.....593030-10
593030-13
593030-16
593030-18





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