



**IRRIGATION
COMMUNICATION CABLE**

STABLE COMMUNICATION, WITH TORO CABLES.

FEATURES

Paige® Electric manufactures and supplies irrigation communication cable for Toro® LYNX® LAC, LYNX Satellites and LYNX Smart Hub systems. Irrigation communication cable is designed to transmit and receive signals between irrigation satellites, central computers, weather stations and sensors while minimizing electrical, magnetic and radio frequency interferences.

■ TSW16AWG Toro® Irrigation Communication Cable

TSW16AWG is irrigation communication cable for Toro LYNX Satellites and LYNX Smart Hub systems. It is designed to transmit and receive signals between irrigation satellites, central computers, weather stations and sensors while minimizing electrical, magnetic and radio frequency interferences.



DESCRIPTION

- Irrigation communication cable
- Direct burial
- Two conductor, 16 AWG, stranded copper
- Shielded with an aluminum shield and drain wire

CONSTRUCTION

- Conductor
- Stranded (7 strands) 16 AWG soft annealed tin coated copper conforming to ASTM-B-3 and B-8.
- Insulation
- PVC; yellow and gray; 0.406 mm (0.016") thick

- Shield
- 2 mil aluminum backed polyester shielding with a 16 AWG solid tinned copper drain wire in contact with the aluminum side with a 25% minimum overlap
- Jacket
- Black Polyethylene; 1.143 mm (0.045") thick, sunlight and moisture resistant; 7.62 mm (0.300") O.D.
- Cable assembly
- Insulated conductors and drain wire are twisted together with a 7.62 cm (3") maximum lay. Nonhydroscopic fillers inserted in the valleys to insure roundness

- Print legend
- "PAIGE ELECTRIC P7162D listing agency and number 16 AWG 1PR SHIELDED 30V SPRINKLER SYSTEMS WIRE AND/OR UNDERGROUND LOW ENERGY CIRCUIT CABLE RoHS country of origin" printed every 2 feet

AGENCY LISTING

- Listed by UL, ETL or CSA to UL Standard 1493



TSW16AWG CABLE is offered in two spool sizes: 500 m or 1,000 m.

TSW16AWG – Part Numbers

Part No	Description	Jacket Color	Spool size (meters)
TSW16AWG-500	1 Pair Satellite and Smart Hub Communication Cable, Shielded DB, w/ Drain Wire	Black	500
TSW16AWG-1000	1 Pair Satellite and Smart Hub Communication Cable, Shielded DB, w/ Drain Wire	Black	1000

TSW16AWG – Packaging

Spool size	Spool Dimensions (mm)				Weights (Kg)		
	Flange Diameter	Height	Core Diameter	Arbor Hole	Spool	Cable Only	Total Shipping
500m	520	230	200	68	4.55	18.45	23
1000m	550	300	200	68	6	36.9	45

SPECIFYING INFORMATION

TSW16AWG

TSW16AWG-XXXX

Cable	Spool Size
TSW16AWG	XXXX
TSW16AWG— 1 Pair Satellite and Smart Hub Communication Cable, Shielded DB, w/ Drain Wire	500—500 meters 1000—1000 meters
Example: 1 Pair Satellite and Smart Hub Communication Cable, Shielded DB, w/ Drain Wire would be specified as: TSW16AWG-1000	

Irrigation Control Cables - 1.5 & 2.5 mm², 2 CORE

These cables were designed, and are manufactured and tested, based upon specifications provided by TORO® (Form No.: LUK200-AACA ©2005.)



CONSTRUCTION

- Conductor
 - Single core, round, solid bare copper, and soft annealed for maximum flexibility. Nominal diameters: 1.36 mm for 1.5 mm² and 1.76 for 2.5 mm².
 - Insulation
 - 0.7 mm wall thickness, polyethylene for high cut-through resistance and tensile strength.
- Colors: Black & White.
Nominal conductor diameters: 2.80 mm for 1.5 mm² and 3.16 mm for 2.5 mm².

- Inner Filler Core
- Extruded non-hydroscopic polyvinylchloride, white. Minimum inner cover thickness of 0.5 mm. Diameter: 6.52 mm for 1.5 mm² and 7.50 mm for 2.5 mm².
- Outer Sheath
- Red High Density Polyethylene for high abrasion resistance, cut-through resistance and tensile strength. Nominal wall thickness of 1.8mm. Nominal overall cable diameters: 10.2mm for 1.5mm² and 11.1mm for 2.5mm²

PRINT LEGEND

•TORO 2 CORE CABLE 2*_*_MM² ***METER, where *_* is 1.5 or 2.5 and *** is sequential random meters. Printed every meter

2.5 MM CABLE

- Available in 4 colours for easy installment and troubleshooting:
- red
- black
- green
- white

Electrical & Mechanical Design Details

	1.5 mm ²	2.5 mm ²
Maximum current, buried* (Amperes)	42	48
Maximum current, open air* (Amperes)	32	36
Maximum DC current at 20 °C (Ohms/km)	12	7.21
Maximum conductor temperature	90 °C	
Maximum short circuit conductor temperature	250 °C	

*Based on ambient temperature of 30 °C for cable in the open air, and based on 15°C (British standard ground temperature at 0.5 meters) for buried cable.

Packaging Details

Put-Up		Spool Dimensions - mm (inches)					Weights Kg (lbs)		
m	ft	Cable Size (mm ²)	Flange Diameter	Height	Core	Arbor Hole	Cable Only	Spool Only	Total
500	1,640	1,5	500 (19.7)	400 (15.7)	160 (6,3)	42 (1.7)	59 (23.2)	6 (2,4)	65 (25.6)
1,000	3,280		600 (23.6)	500 (19.7)		42 (1.7)	118 (46.4)		124 (48.8)
500	1,640	2,5	500 (19.7)	400 (15.7)		42 (1.7)	76 (29.9)		82 (32.3)
1,000	3,280		600 (23.6)	500 (19.7)		42 (1.7)	152 (59.8)		158 (62.2)

SPECIFYING INFORMATION

TDW25M

TDWXXM-XXXXX

Cable	Cable Size	Spool Size	Colour
TDW	XXM	XXXX	X
TDW— Toro Wire Decoder	15—1,5 mm ² 25—2,5 mm ²	500—500 meters 1000—1000 meters	empty—coat red B—coat black G—coat green W—coat white
Example: When specifying a red coated 2.5 mm ² Toro Wire Decoder of 1000 meters, you would order: TDW25M-1000			

TDW0221T-1000 Toro® Jacketed Decoder Wire

DIRECT BURIAL. SIZES: 14 or 2.1 mm, SOLID COPPER, 2-CONDUCTOR, P7350D 1.0 SCOPE

This specification covers jacketed cables containing two listed Golf Course Sprinkler wires, single conductor, suitable for direct burial, for operation up to 600 volts, and temperatures up to 60 °C.



SPECIFICATIONS

CONSTRUCTION

- Inner Conductors
 - Soft drawn bare copper meeting the requirements of ASTM specification B-3 or B-8. Insulation shall be low density high molecular weight polyethylene and a thickness of 0.045", per Paige Electric specification P7079D. The two conductors (black and white) shall be twisted with a minimum lay of 4".
- An optional Mylar tape may be used over the conductors.
- A rip cord shall be placed directly below the outer jacket.
- Overall jacket
 - Red, high density polyethylene with a thickness of 0.035". Available with optional identification stripe colors as listed in the table below. Stripe to be integrally extruded into and through the complete wall of the jacket with an approximate width of 1/8". The jacket shall be sufficiently round, and loose, to facilitate its removal when being stripped. Minimum inner diameters of the outer jacket.

SURFACE PRINT:

- Inner Conductors
 - "Paige Electric P7079D 14 or 12 AWG or 2.1 mm PE Listing file Number 600V Sprinkler System Wire Direct Burial"
- Outer Jacket
 - "Paige Electric, P7350D, 14 or 12 AWG or 2.1 mm PE 600V Sprinkler System Wire Direct Burial Only for Toro Decoder Systems RoHS"

TEMPERATURE RATING

- -55 °C to +60 °C

PUT-UPS

- 1800m and some odd lengths.

SPLICING RECOMMENDATIONS

- Wire splices are the weak link of any electrical circuit. It is especially important to make proper joints in irrigation systems because the joints are exposed to wet and damp environments that can cause corrosion of the copper conductor, and premature failure. Paige Electric recommends the strict use of Model DBR/Y-6, as manufactured by the 3M Company (Paige specification P7364D) for 14 AWG 2 or 3 conductors. For 12 AWG and splices of 4 to 6 conductors, Paige Electric recommends its Re-enterable connectors (Paige Specification P7408D).

Construction	Inches	mm
14 AWG/2c - 2.1 mm	0.358	9.1

A "T" drill bit, whose diameter is 0.358", shall be used to measure the minimum inner diameter of 14 AWG/2c cables.

A "W" drill bit, whose diameter is 0.386", shall be used to measure the minimum inner diameter of 12 AWG/2c cables.

SPECIFYING INFORMATION

TDW0221T-1000

TDWXXM-XXXXX

Toro Part No.	Size	Jacket Color	Shipping Weight (kg/ 1,000 m)
TDW0221T-1000	14 AWG 2 Cond.	Red	96.72

Bare Copper Wire (refer to Grounding Guidelines for installation)

- Soft-Annealed, uncoated copper, 18AWG - 1/0AWG.
- 250, 500, and 1,000 foot spools. Custom lengths possible.
- Solid or stranded.

Note: Paige part numbers



Wire Size (AWG)

	18	16	14	12	10	8	6	4	2	1/0
Solid	160120	160137	160248	160364	160465	160629	160635	160678	160738	-
Stranded	-	-	-	160365	160466	160630	160636	160679	160739	160074

**Grounding, Bonding And Shielding Products
Copper Ground Plates**

Paige® Part #	Toro® Part #	Ground Plate	Thickness	Wire AWG	Wire Feet
182199IC		4" x 96"	0.060" Minimum	6	25
182201IC	182201PW	4" x 36"	0.060" Minimum	10	10

Copper-Clad Ground Rods

Part #	Description
182000	5/8" x 8'
182007	5/8" x 10'

Ground Rod Clamps, Cast Bronze

For 5/8" Diameter ground rods. Paige part number 182005

Copper-Clad Ground Rods With Welded Insulated Conductor

Part #	Ground Rod	Wire AWG	Wire Feet
182000IC10	5/8" x 8'	10	15
182000IC6	5/8" x 8'	6	15
182007IC6	5/8" x 10'	6	25



Toro Part No.:
182201PW same as Paige
Part No.:
182201IC



CADWELD PLUS "ONE-SHOT" - FEATURES

Cadweld Plus "One-Shot"

- Permanently welds multiple bare copper wires together or bare copper wire to 5/8" diameter ground rods, so the connection doesn't loosen or corrode
- UL® listed. Exothermic reaction welding process meets National Electrical Code® requirements

SPECIFICATIONS

Cadweld Connections			
Wire Sizes (AWG)	No. of Connections	Cadweld Part No.	Paige Part No.
6 & 8	1	GR1161GPLUS	1820037P
6 & 8	2	GT1161GPLUS	1820039P
6 & 8	3	NT1161GPLUS	1820038P
6 & 8	4	NX1161GPLUS	1820060P
4	1	GR1161LPLUS	1820043P
4	2	GT1161LPLUS	1820053P
4	3	NT1161LPLUS	1820054P
4	4	NX1161LPLUS	1820061P
6 & 8	4	PG11LPLUS	1820074P
PLUSCU Battery Control Unit			1820040CU



TORO® DBRY-100 - 3M™ DIRECT BURY SPLICE KIT - DBO/B-6 AND DBR/Y-6

Toro® DBRY-100 - 3M™ Direct Bury Splice Kit - DBO/B-6 and DBR/Y-6

The 3M™ Direct Bury Splice Kits are used to electrically connect two or more pre-stripped copper wires and moisture seal the connection for direct burial. It includes the 3M "Performance Plus" Electrical Spring Connector and a high impact, UV-resistant polypropylene tube prefilled with moisture-resistant gel. They are ideal for splicing wires and cables in irrigation and Low Voltage Lighting systems. For residential, commercial, golf, and other green industry applications.

Water Proof and Sunlight Resistant

- The DBRY-100 may be installed above or below ground, inside a "valve box" or buried next to a valve-in-head sprinkler or light fixture, or submerged in water
- Meets European Standard EN 61984
 - Applicable ratings under this standard: IP68, Pollution Degree 3

Strain relief

The gel-filled tube includes a lid that compresses the wire insulation when closed. This applies a pressure, known as "strain relief" that keeps the connection inside the tube when the wires are pulled-upon. The connector tube includes channels for three sets of wires.

Made in the USA by the 3M Company

Unquestioned quality by a name you can trust.

The "Performance Plus" connectors have an aggressive quick-bite: It makes a fast and reliable mechanical connection over a wide temperature range. The R/Y+ connector locks in place when inserted into the gel-filled tube. It accepts a multitude of direct burial copper wire combinations, as listed in the Table below.



GROUND ENHANCEMENT MATERIALS - FEATURES

Ground Enhancement Materials/ Earth Contact Backfills

Superior conductive material

Improves the effectiveness of ground rods/plates

Permanently reduces resistance-to-ground Regardless of soil conditions

Ideal for use in dry conditions, rocky ground and sandy soils

50 pound bags

PowerSet™ hardens when wetted

Can be used in any application

Paige part number 1820058

PowerFill™ is non-hardening

Must be used in non-porous soils.

Paige part number 1820059.

Non-flammable

Safe to use while igniting CADWELDS and in storage



Toro Part No.: 18200059

