

SmartSwitch Communications cable

Compliant to Latest International Standards*

- ▶ ICAO Annex 14. Vol 1
- ▶ IEC 61827
- ▶ EASA

Applications

For use in combination with the SmartSwitch as part of an ILCMS airfield lighting system

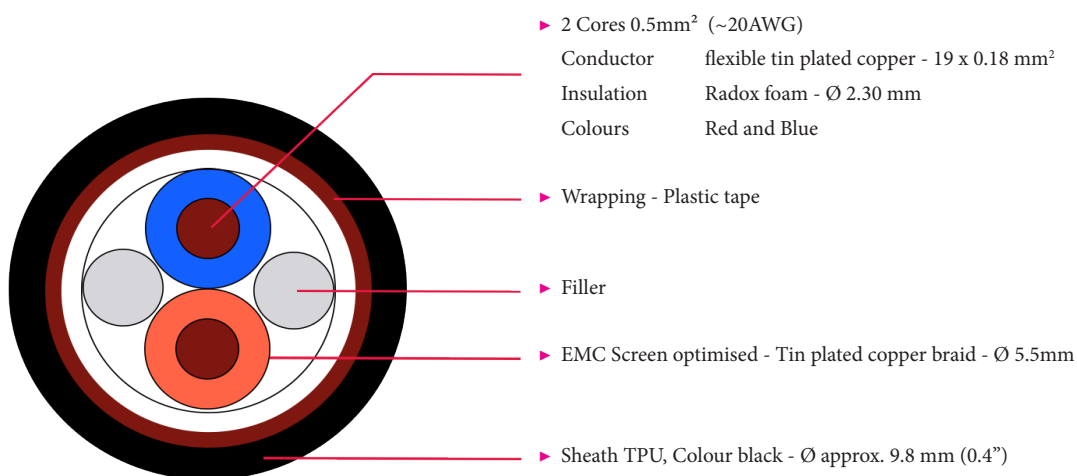
Application

The communications cable is designed for use with the ILCMS infrastructure connecting the the SmartSwitch (SSU) in the airfield lighting environment. As such it has an outer insulation rated to 5kV, it has a tinned copper braided shield capable of carrying 6.6A with a resistance of less than 14 ohms per km. The conductors are a twisted pair with a characteristic impedance of 180 ohms, a capacitance between cores of less than 50 picoFarads and a core resistance of less than 40 ohms.

Installation Procedure

The following procedure is a general guide to installation:

- ▶ **Cable Run**
It is usually best to install all of the cable in a run in one go and then to go back and install the SmartSwitch connectors. Enough slack should be left at each switch position/pit through joint location to permit installation of the connectors. Care should be taken not to exceed the maximum pull strength.
 - ▶ **Fit Cable Connectors**
Where there is just one SmartSwitch at a location the cable should be cut and a resin socket joint installed (type CEG-72R, see Locking Style Communications Joint Kit data sheet).
 - ▶ **Cable Run**
It is usually best to install all of the cable in a run in one go and then to go back and install the SmartSwitch connectors.
 - ▶ **Electrically test cable connections**
(see Cable Connection Test Unit datasheet)
 - ▶ **Resin fill all connectors**
For additional protection seal all plug & socket joints with amalgamating tape or PVC insulation tape with sealing varnish
 - ▶ **Electrically test cable insulation**
(see Cable Connection Test Unit datasheet)
- Fit SmartSwitches to sockets and add additional protection as required (see above). If a SmartSwitch is not to be fitted immediately then ensure socket is thoroughly sealed and protected against fluid ingress.



Technical Data

Conductor resistance at 20°C		≤ 40.1	Ω/km
Voltage rating (core/core/screen)		300	V
Test voltage AC, 5 min. (core/core/screen)		5,000	V
Test Voltage AC, 15 min. (screen / ground)		5,000	V
Breakdown voltage (screen / ground) (Typetest)		≥ 20,000	V
Mutual capacitance (core/core)		≤ 50	pF/m
Impedance (typical values)	f = 10kHz	180	Ω
	f = 100kHz	130	Ω
	f = 1MHz	120	Ω
Attenuation	1 MHz	≤ 14	dB/km
Braid resistance at 20°C		≤ 13.5	Ω/km
Transfer impedance	f ≤ 30 MHz	≤ 30	mΩ/m
Temperature range		-40	+90°C
Min. bending radius	fixed	3 x cable dia.	
	flexing	5 x cable dia.	
Cable weight per 100m	approx. 10.0	kg	
Pull Strength			up to 1000N (224 lbs)

Environmental Conditions

► Ambient Temperature	-40 °C to +90°C (-40 °F to +194°F)	► Atmospheric Altitude	up to 10,000 feet (3000m)
► Storage Temperature	-20°C to +70°C (-4 °F to +158°F)	► Relative Humidity	0-100% (sealed unit)

Standards

Notes

- ▶ Where several SmartSwitches are to be installed at one location (e.g. in an AGL chamber) it is better to cut the cable and fit a resin through joint (CEG-72 PR, see Locking Style Communications Joint Kit datasheet). A ready made daisy chain can then be installed. The through joint also permits the cable to be jointed straight through if there is a fault in the pit.
- ▶ A daisy chain is a factory assembled communications cable assembly comprising of a number of connectors (one for each SSU) linked together and terminating with a male connector at one end and a female connector at the other.
- ▶ It is useful to be able to break the cable for fault finding during the installation process and therefore if through joints are not used as described above they can be installed at regular intervals along the cable.
- ▶ It is recommended that before any SmartSwitches are installed on a link the cable is checked for continuity and insulation checks done between signal cores and screen, and between the screen and earth. Fault finding a cross in the wiring, low impedance path or open circuit becomes more difficult once SmartSwitches are fitted.
- ▶ For convenience of maintenance it is preferable that SmartSwitch communication cable is located in separate ducts to power cables where available.

Dimensions

- ▶ Cable supplied on drum so overall size is dependant on quantity of cable to be supplied

Packaging

- ▶ Net weight 10.0Kg per 100Mts
- ▶ Gross weight 10.0Kg per 100Mts plus weight of cable drum which will be advised



Head Office:
atg airports ltd
Lowton Business Park | Newton Road
Lowton St. Mary's | Warrington
WA3 2AP | United Kingdom

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