

# ICS IE ToughCat MUD 5e S/FTP

Mud protected, installation cable for tougher environments



## Application

Generic Data transmission. This Cat.5e S/FTP cable is based on our DNV and Lloyd Register certified ToughCat, but with an additional fire retardant, halogen-free, low smoke MUD protecting outer jacket. This cable is meant for use as installation/horizontal cable in tougher electrical and mechanical environment, including ships and offshore units.

## Construction

<b>Conductor</b>	: Stranded copper wire Ø 0.22 mm <sup>2</sup>
<b>Insulation</b>	: PE, Ø 1.4 mm
<b>Twisting</b>	: 2 Cores to the pair
<b>Lay up</b>	: 4 Pairs
<b>Pair screen</b>	: Al-laminated plastic foil around each pair
<b>Overall screen</b>	: Copper braid, tinned Ø 6.2 mm
<b>Inner sheath</b>	: Oil resistant, fire retardant and halogen free LSHF-FR (SHF1) Ø 7.7 mm
<b>Outer sheath</b>	: MUD protecting
<b>Marking text</b>	: E.g. "meter" "year" manufacturer ToughCat MUD C5e S/FTP P 4Px0.22mm <sup>2</sup>

## Outer Sheath Colours

**Available colours** : Black and Grey

## Installation recommendations

<b>Min. Bending Radius during Installation</b>	: 8xD
<b>Min. Bending Radius Fix Installed</b>	: 4xD
<b>Max. Conductor Operating Temperature</b>	: 85°C

**T** : +31 (0)168 468 100

**E** : [sales@incore-cables.com](mailto:sales@incore-cables.com)

**I** : [www.incore-cables.com](http://www.incore-cables.com)

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## Standards applied

IEC 61156-5	Transmission characteristics
EN 50173-1	Generic cabling systems
EN 50288-2-1	Multi-Element Metallic Cables
ISO/IEC 11801	Information technology
IEC 60332-3-24	Flame Retardant
IEC 60754-2	Halogen Free
IEC 61034	Low Smoke
IEC 60811-2-1	Chemical resistance:
	- Mineral oils IRM 902 7 days/100°C
	- Diesel - IRM 903 : 7 days/100°C

## Range and Dimensions

Article Code	Nominal diameter outer sheath, mm	MJ/km	kWh/m	Weight of Cable Approx. (Kg/Km)
P82B04P0.22BAZBK1Z	9.6	*	*	100

\* On request

## Electrical properties at 20°C

DC loop resistance		< 158 Ω/km
Resistance unbalance		< 2%
Insulation resistance	500 V	> 5000 MΩxkm
Capacitance	at 800 Hz	Nom. 43 nF/km
Capacitance unbalance	pair to ground	< 1500 pF/km
Mean Characteristic impedance	at 100 MHz	100 ± 5 Ω
Nominal velocity of propagation		0.75c
Propagation delay		< 450 ns/100 m
Delay skew		< 15 ns/100 m
Transfer impedance	At 1 MHz	< 10 mΩ/m
	At 10 MHz	< 8 mΩ/m
	At 30 MHz	< 10 mΩ/m
Coupling attenuation		> 85 dB

## Nominal Transmission characteristics at 20°C

F (MHz)	Attenuation (dB/100m)	NEXT (dB)	ACR (dB/100m)	Return loss (dB)	PS-NEXT (dB)	PS-ACR (dB/100m)	ELFEXT (dB/100m)	PS-ELFEXT (dB/100m)
1	1,8	100	98	-	97	95	105	105
4	3,4	100	97	27	97	94	105	102
10	5,4	100	95	30	97	92	97	94
16	6,8	100	93	30	97	90	93	90
20	7,7	100	92	30	97	89	91	88
31,2	9,6	100	90	30	97	87	87	84
62,5	13,7	100	86	30	97	83	81	78
100	17,4	100	83	30	97	80	77	74
125	19,5	95	75	26	92	72	75	72
155,5	21,9	94	72	26	91	69	73	70
175	23,3	93	70	25	90	67	72	69
200	25,0	92	67	25	89	64	71	68
250	28,1	90	62	24	87	59	69	66
300	30,9	89	58	24	86	55	67	64
450	38,3	87	48	23	84	45	64	61
600	44,8	85	40	22	82	37	61	58

### NOTICE

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T : +31 (0)168 468 100

E : sales@incore-cables.com

I : www.incore-cables.com

