

Habiasense Cables for measurement applications

Habiasense

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Introduction

Established in 1941, Habia Cable has developed a wealth of experience in the design and manufacture of high performance wires and cables to meet the requirements of international standards and exacting customer specifications. With over 30 years experience in the design and manufacture of wires and cables for demanding applications, our experience in the industrial market is strong and diverse. Manufacturing facilities in Sweden, Germany, China and Poland together with Research and Development provide a high level of support to Habia Cable's network of Sales Offices throughout Europe and the Far East. The company holds accreditation to ISO 9001 and ISO 14001.

Habia is owned by the Beijer Alma group of companies, an internationally active industrial group, focussed on production of components for customers in the high technology sectors. The company aim is to create competitive companies in selected market segments through active, long term development.

We have a vast experience of supplying custom design wires and cables to the sensor market. For many years we have pioneered a wide range of products to meet the high demands of this exacting industry. Typical sensor applications that Habia has been involved with include:

- Accelerometers, including positioning, speed, vibration and displacement.
- Chemical, including Lambda / O₂
- Level and flow
- Metrology
- Pressure
- Proximity
- Radiation

Our Habiasense solutions can significantly extend the lifetime of the cables you buy from us, giving you value for money and the confidence that you can rely on our cables to do their work. The information within this document should be considered very much as a starting point. The sizes, number of cores colours, and screening options offered for of each of the following four concepts is an indication of the sort of cable that Habia can produce and is not a definitive list. Should you require variations in any way, please feel free to contact one of our sales offices to discuss your requirements.

UL Yellow card



cUL Yellow card



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Habiasense

Additives...

Wire and cable is an inert product and so does not require ATEX certification (only the finished system can be approved). We can however modify our materials to help a system pass ATEX requirements.

ATEX Category 1 (long / frequent exposure)	Zone 0 (Gas) Zone 20 (Dust)
ATEX Category 2 (occasional exposure)	Zone 1 (Gas) Zone 21 (Dust)
ATEX Category 3 (short exposure)	Zone 2 (Gas) Zone 22 (Dust)

Adaptations

In addition to the 'standard' Habiasense product range, we understand that many of the applications our cables are used in will require extra performance. As such Habia Cable can modify our cables in the following ways:

- Colours. Each of these designs can be modified to use specific core or sheath colours.
- Low noise. Each of these designs can be made with low noise tapes and/or coatings to significantly reduce the electrical interference induced by mechanical movement of the cable.
- Water-blocking. Each of these designs can be manufactured with a bedding layer to prevent the movement of water along the cable.
- UL / CSA approval. Specifically for the HT types, the dimensions, marking and accompanying documentation can be modified to offer a fully UL / CSA approved product.

Measurement cable types

The variety of environments our cables are subjected to requires a varied range of Habiasense products. External factors such as high and low end temperature exposure, vibration and movement, oil, fuel and water immersion and even radiation all influence the cable's overall performance. To this end we offer four distinct concepts each with its own strengths and benefits.

Habiasense HT1

Rated to 600V, and with a temperature range from -200°C (static) and -65°C (dynamic) up to +260°C using our PTFE insulation and PFA as the outer sheath, Habiasense HT1 is intended to meet extreme environments where temperature and / or fluid resistance is of critical importance. Habiasense HT1 cables can be produced in a wide range of sizes, cores and colours in addition to the standard types offered and can also be adapted offer compliance and approval with UL AWM Style 20225 for 600V and 250°C.

Habiasense HT2

Rated to 600V and with a temperature range from -100°C (static) and -65°C (dynamic) up to +155°C. Our ETFE insulated, ETFE sheathed Habiasense HT2 is the foremost solution for fluid resistant cables. These cables can be manufactured as multi-cores in sizes up to and including 95sqmm and can also be adapted to offer compliance and approval with UL AWM Style 20222 for 600V and 150°C rated cable.

Habiasense ZH1

Rated to 600V with an HFI 147 insulation and our HFI 121 XL as outer sheath, Habiasense ZH1 provides a Low Smoke Zero Halogen (LSZH) and flame retardant solution for cables operating from -30°C up to +122°C. Habiasense ZH1 cables are ideal for use in areas where personal safety is of importance such as enclosed public areas and vehicles. The relatively high temperature and low corrosivity of the cables also makes them ideal for use in hot areas where valuable equipment and circuitry may be present as this is often susceptible to the fumes given off by most traditional cable.

Habiasense ZH2

Rated to 300V, our entry level Habiasense product, ZH2 uses our TPS 130 as insulation with an HFS 100 outer sheath. These cables are fully zero halogen, are ideal for external use and also suitable for dynamic applications, operating in nominal ambient air temperatures from -40°C up to +90°C.

Low-noise

These cables have extremely low microphonic sensitivity due to integral carbon layers within the construction. Each of the Habiasense constructions can be modified to low-noise performance.



Multi core cable, unshielded

Voltage	600/1000V AC U ₀ /U
Test voltage	1500V AC
Flame retardant	IEC 60332-3
Smoke generation	IEC 61034-2
• Can be adapted for UL	

Construction

Conductor	Nickel Plated Copper (NPC)	Insulation	PTFE
Shield(s)	-	Sheath	PFA

Identification (Habia std: 31-20-001)





Cores	1: Red	2: White	3: Black	4: Blue	5: Yellow	6: Green	7: Orange
Sheath	Black						
Marking	TYPE CORES x SIZE VOLTAGE SCREEN ORDER REFERENCE YEAR-WEEK (e.g.: Habiasense HT1 2x 26 AWG 600V 700043976 2012-W39)						

Application

Intended to meet extreme environments where temperature and / or fluid resistance is of critical importance. Habiasense HT1 cables can be produced in a wide range of sizes, cores and colours and can also be adapted offer compliance and approval with UL AWM Style 20225 for 600V and 250°C.

Description	Construction							Electrical amps at 40°C max	NSN	Order reference
	no. / size AWG	conductor Ø	insulation Ø	cabled Ø	shield (s) Ø	sheath (s) Ø	weight g/m			
HT1 2x 26 AWG	2x 26	0,48	1,00	2,0	-	2,5	9,4	8	-	700043976
HT1 2x 24 AWG	2x 24	0,60	1,13	2,3	-	2,8	11,8	11	-	700043977
HT1 2x 22 AWG	2x 22	0,76	1,30	2,6	-	3,1	15,6	15	-	700043978
HT1 2x 20 AWG	2x 20	0,96	1,47	3,0	-	3,5	21,0	21	-	700043979
HT1 3x 26 AWG	3x 26	0,48	1,00	2,2	-	2,7	12,4	7	-	700043980
HT1 3x 24 AWG	3x 24	0,60	1,13	2,5	-	3,0	15,9	10	-	700043981
HT1 3x 22 AWG	3x 22	0,76	1,30	2,8	-	3,3	21,3	14	-	700043982
HT1 3x 20 AWG	3x 20	0,96	1,47	3,2	-	3,7	29,2	19	-	700043983
HT1 4x 26 AWG	4x 26	0,48	1,00	2,4	-	2,9	15,6	7	-	700043984
HT1 4x 24 AWG	4x 24	0,60	1,13	2,7	-	3,2	20,1	9	-	700043985
HT1 4x 22 AWG	4x 22	0,76	1,30	3,1	-	3,6	27,1	12	-	700043986
HT1 4x 20 AWG	4x 20	0,96	1,47	3,5	-	4,0	37,4	17	-	700043987
HT1 7x 26 AWG	7x 26	0,48	1,00	3,0	-	3,5	25,0	5	-	700043988
HT1 7x 24 AWG	7x 24	0,60	1,13	3,4	-	3,9	32,6	7	-	700043989
HT1 7x 22 AWG	7x 22	0,76	1,30	3,9	-	4,6	47,8	10	-	700043990
HT1 7x 20 AWG	7x 20	0,96	1,47	4,4	-	5,1	65,8	14	-	700043991

05

Cable Construction										
2 core	3 core	4 core	7 core	-	-	-	-	-	-	-
										

Ref: HSense_HT1_01 Created: CJV Approved: MLS Date: 2013-09-12

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Habiasense HT1 (PTFE / PFA)

600V
-65°C/+260°C

Multi core cable, screened

Voltage	600/1000V AC U ₀ /U
Test voltage	1500V AC
Flame retardant	IEC 60332-3
Smoke generation	IEC 61034-2
• Can be adapted for UL	

Construction

Conductor	Nickel Plated Copper (NPC)	Insulation	PTFE
Shield	Braid of Nickel Plated Copper (N)	Sheath	PFA

Identification (Habia std: 31-20-001)





Cores	1: Red	2: White	3: Black	4: Blue	5: Yellow	6: Green	7: Orange
Sheath	Black						
Marking	TYPE CORES x SIZE VOLTAGE SCREEN ORDER REFERENCE YEAR-WEEK (e.g.: Habiasense HT1 2x 26 AWG 600V S 700043960 2012-W39)						

Application

Intended to meet extreme environments where temperature and / or fluid resistance is of critical importance. Habiasense HT1 cables can be produced in a wide range of sizes, cores and colours and can also be adapted offer compliance and approval with UL AWM Style 20225 for 600V and 250°C.

Description	Construction							Electrical amps at 40°C max	NSN	Order reference
	no. / size AWG	conductor Ø	insulation Ø	cabled Ø	shield (s) Ø	sheath (s) Ø	weight g/m			
HT1 2x 26 AWG (Screen)	2x 26	0,48	1,00	2,0	2,5	3,0	16,4	8	-	700043960
HT1 2x 24 AWG (Screen)	2x 24	0,60	1,13	2,3	2,7	3,2	18,8	11	-	700043961
HT1 2x 22 AWG (Screen)	2x 22	0,76	1,30	2,6	3,1	3,6	23,9	15	-	700043962
HT1 2x 20 AWG (Screen)	2x 20	0,96	1,47	3,0	3,4	3,9	29,5	21	-	700043963
HT1 3x 26 AWG (Screen)	3x 26	0,48	1,00	2,2	2,6	3,1	20,7	7	-	700043964
HT1 3x 24 AWG (Screen)	3x 24	0,60	1,13	2,5	2,9	3,4	24,5	10	-	700043965
HT1 3x 22 AWG (Screen)	3x 22	0,76	1,30	2,8	3,3	3,8	30,9	14	-	700043966
HT1 3x 20 AWG (Screen)	3x 20	0,96	1,47	3,2	3,7	4,2	40,0	19	-	700043967
HT1 4x 26 AWG (Screen)	4x 26	0,48	1,00	2,4	2,9	3,4	24,0	7	-	700043968
HT1 4x 24 AWG (Screen)	4x 24	0,60	1,13	2,7	3,2	3,7	29,6	9	-	700043969
HT1 4x 22 AWG (Screen)	4x 22	0,76	1,30	3,1	3,6	4,1	38,0	12	-	700043970
HT1 4x 20 AWG (Screen)	4x 20	0,96	1,47	3,5	4,0	4,7	52,3	17	-	700043971
HT1 7x 26 AWG (Screen)	7x 26	0,48	1,00	3,0	3,5	4,0	35,3	5	-	700043972
HT1 7x 24 AWG (Screen)	7x 24	0,60	1,13	3,4	3,9	4,6	47,1	7	-	700043973
HT1 7x 22 AWG (Screen)	7x 22	0,76	1,30	3,9	4,4	5,1	61,1	10	-	700043974
HT1 7x 20 AWG (Screen)	7x 20	0,96	1,47	4,4	4,9	5,6	80,5	14	-	700043975

05

Cable Construction										
2 core	3 core	4 core	7 core	-	-	-	-	-	-	-
										

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Multi core cable, unshielded

Voltage	600/1000V AC U ₀ /U
Test voltage	1500V AC
Flame retardant	IEC 60332-1-2
Smoke generation	IEC 61034-2
• Can be adapted for UL	

Construction

Conductor	Tin Plated Copper (TPC)	Insulation	ETFE
Shield(s)	-	Sheath	ETFE

Identification (Habia std: 31-20-001)





Cores	1: Red	2: White	3: Black	4: Blue	5: Yellow	6: Green	7: Orange
Sheath	Black						
Marking	TYPE CORES x SIZE VOLTAGE SCREEN ORDER REFERENCE YEAR-WEEK (e.g.: Habiasense HT2 2x 26 AWG 600V 700044881 2012-W39)						

Application

Our ETFE insulated, ETFE sheathed solution. Habiasense HT2 is the foremost solution for fluid resistant cables. These cables can be manufactured as multi-cores in sizes up to and including 95sqmm and can also be adapted to offer compliance and approval with UL AWM Style 20222 for 600V and 150°C

Description	Construction							Electrical amps at 40°C max	NSN	Order reference
	no. / size AWG	conductor Ø	insulation Ø	cabled Ø	shield (s) Ø	sheath (s) Ø	weight g/m			
HT2 2x 26 AWG	2x 26	0,48	0,81	1,6	-	2,1	6,4	6	-	700043881
HT2 2x 24 AWG	2x 24	0,60	0,91	1,8	-	2,3	8,4	8	-	700043882
HT2 2x 22 AWG	2x 22	0,76	1,09	2,2	-	2,7	11,9	11	-	700043883
HT2 2x 20 AWG	2x 20	0,96	1,30	2,6	-	3,1	17,0	15	-	700043884
HT2 3x 26 AWG	3x 26	0,48	0,81	1,8	-	2,3	8,6	5	-	700043885
HT2 3x 24 AWG	3x 24	0,60	0,91	2,0	-	2,5	11,4	7	-	700043886
HT2 3x 22 AWG	3x 22	0,76	1,09	2,4	-	2,9	16,3	10	-	700043887
HT2 3x 20 AWG	3x 20	0,96	1,30	2,8	-	3,3	23,9	14	-	700043888
HT2 4x 26 AWG	4x 26	0,48	0,81	2,0	-	2,5	10,9	5	-	700043889
HT2 4x 24 AWG	4x 24	0,60	0,91	2,2	-	2,7	14,5	7	-	700043890
HT2 4x 22 AWG	4x 22	0,76	1,09	2,7	-	3,2	21,0	9	-	700043891
HT2 4x 20 AWG	4x 20	0,96	1,30	3,1	-	3,6	30,9	13	-	700043892
HT2 7x 26 AWG	7x 26	0,48	0,81	2,5	-	3,0	17,5	4	-	700043893
HT2 7x 24 AWG	7x 24	0,60	0,91	2,8	-	3,3	23,8	5	-	700043894
HT2 7x 22 AWG	7x 22	0,76	1,09	3,3	-	3,8	34,9	7	-	700043895
HT2 7x 20 AWG	7x 20	0,96	1,30	3,9	-	4,6	54,3	10	-	700043896

05

Cable Construction										
2 core	3 core	4 core	7 core	-	-	-	-	-	-	-
										

Ref: HSense_HT2_01 Created: CJV Approved: TN Date: 2013-09-12

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Habiasense HT2 (ETFE / ETFE)

600V
-65°C/+155°C

Multi core cable, screened

Voltage	600/1000V AC U ₀ /U
Test voltage	1500V AC
Flame retardant	IEC 60332-1-2
Smoke generation	IEC 61034-2
• Can be adapted for UL	

Construction

Conductor	Tin Plated Copper (TPC)	Insulation	ETFE
Shield	Braid of Tin Plated Copper (T)	Sheath	ETFE

Identification (Habia std: 31-20-001)





Cores	1: Red	2: White	3: Black	4: Blue	5: Yellow	6: Green	7: Orange
Sheath	Black						
Marking	TYPE CORES x SIZE VOLTAGE SCREEN ORDER REFERENCE YEAR-WEEK (e.g.: Habiasense HT2 2x 26 AWG 600V S 700043904 2012-W39)						

Application

Our ETFE insulated, ETFE sheathed solution. Habiasense HT2 is the foremost solution for fluid resistant cables. These cables can be manufactured as multi-cores in sizes up to and including 95sqmm and can also be adapted to offer compliance and approval with UL AWM Style 20222 for 600V and 150°C

Description	Construction							Electrical amps at 40°C max	NSN	Order reference
	no. / size AWG	conductor Ø	insulation Ø	cabled Ø	shield (s) Ø	sheath (s) Ø	weight g/m			
HT2 2x 26 AWG (Screen)	2x 26	0,48	0,81	1,6	2,1	2,6	12,1	6	-	700043904
HT2 2x 24 AWG (Screen)	2x 24	0,60	0,91	1,8	2,3	2,8	14,0	8	-	700043905
HT2 2x 22 AWG (Screen)	2x 22	0,76	1,09	2,2	2,7	3,2	18,7	11	-	700043906
HT2 2x 20 AWG (Screen)	2x 20	0,96	1,30	2,6	3,1	3,6	25,2	15	-	700043907
HT2 3x 26 AWG (Screen)	3x 26	0,48	0,81	1,8	2,2	2,7	15,5	5	-	700043908
HT2 3x 24 AWG (Screen)	3x 24	0,60	0,91	2,0	2,4	2,9	18,4	7	-	700043909
HT2 3x 22 AWG (Screen)	3x 22	0,76	1,09	2,4	2,8	3,3	24,5	10	-	700043910
HT2 3x 20 AWG (Screen)	3x 20	0,96	1,30	2,8	3,3	3,8	33,4	14	-	700043911
HT2 4x 26 AWG (Screen)	4x 26	0,48	0,81	2,0	2,4	2,9	17,8	5	-	700043912
HT2 4x 24 AWG (Screen)	4x 24	0,60	0,91	2,2	2,7	3,2	22,6	7	-	700043913
HT2 4x 22 AWG (Screen)	4x 22	0,76	1,09	2,7	3,1	3,6	30,3	9	-	700043914
HT2 4x 20 AWG (Screen)	4x 20	0,96	1,30	3,1	3,6	4,1	41,5	13	-	700043915
HT2 7x 26 AWG (Screen)	7x 26	0,48	0,81	2,5	2,9	3,4	26,9	4	-	700043916
HT2 7x 24 AWG (Screen)	7x 24	0,60	0,91	2,8	3,2	3,7	33,1	5	-	700043917
HT2 7x 22 AWG (Screen)	7x 22	0,76	1,09	3,3	3,8	4,3	45,8	7	-	700043918
HT2 7x 20 AWG (Screen)	7x 20	0,96	1,30	3,9	4,4	5,1	67,3	10	-	700043919

05

Cable Construction										
2 core	3 core	4 core	7 core	-	-	-	-	-	-	-
										

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Multi core cable, unscreened

Voltage	600/1000V AC U ₀ /U
Test voltage	1500V AC
Flame retardant	IEC 60332-1-2
Smoke generation	IEC 61034-2
Corrosivity	IEC 60754-2

- Can be adapted for low noise
- Can be adapted for water-blocking

Construction

Conductor	Tin Plated Copper (TPC)	Insulation	HFI 147
Shield(s)	-	Sheath	HFI 121 XL

Identification (Habia std: 31-20-001)

Cores	1: Red	2: White	3: Black	4: Blue	5: Yellow	6: Green	7: Orange
Sheath	Black						





Marking	TYPE	CORES x SIZE	VOLTAGE	SCREEN	ORDER REFERENCE	YEAR-WEEK
	(e.g.: Habiasense ZH1	2x 26 AWG	600V	700044033	2012-W39)	

Application

With an HFI 147 insulation and our HFI 121 XL as outer sheath, Habiasense ZH1 provides a Low Smoke Zero Halogen (LSZH) and flame retardant solution for cables up to +122°C

Description	Construction							Electrical amps at 40°C max	NSN	Order reference
	no. / size AWG	conductor Ø	insulation Ø	cabled Ø	shield (s) Ø	sheath (s) Ø	weight g/m			
ZH1 2x 26 AWG	2x 26	0,48	0,88	1,8	-	3,4	12,6	5	-	700044033
ZH1 2x 24 AWG	2x 24	0,60	1,00	2,0	-	3,6	15,1	7	-	700044034
ZH1 2x 22 AWG	2x 22	0,76	1,16	2,3	-	3,9	19,0	9	-	700044035
ZH1 2x 20 AWG	2x 20	0,96	1,36	2,8	-	4,3	24,9	13	-	700044036
ZH1 3x 26 AWG	3x 26	0,48	0,88	1,9	-	3,5	15,0	4	-	700044037
ZH1 3x 24 AWG	3x 24	0,60	1,00	2,2	-	3,8	18,5	6	-	700044038
ZH1 3x 22 AWG	3x 22	0,76	1,16	2,5	-	4,1	23,9	8	-	700044039
ZH1 3x 20 AWG	3x 20	0,96	1,36	2,9	-	4,5	32,1	12	-	700044040
ZH1 4x 26 AWG	4x 26	0,48	0,88	2,1	-	3,7	17,7	4	-	700044041
ZH1 4x 24 AWG	4x 24	0,60	1,00	2,4	-	4,0	22,2	5	-	700044042
ZH1 4x 22 AWG	4x 22	0,76	1,16	2,8	-	4,4	29,2	8	-	700044043
ZH1 4x 20 AWG	4x 20	0,96	1,36	3,3	-	4,9	39,9	11	-	700044044
ZH1 7x 26 AWG	7x 26	0,48	0,88	2,7	-	4,3	25,5	3	-	700044045
ZH1 7x 24 AWG	7x 24	0,60	1,00	3,0	-	4,6	32,8	4	-	700044046
ZH1 7x 22 AWG	7x 22	0,76	1,16	3,5	-	5,1	44,5	6	-	700044047
ZH1 7x 20 AWG	7x 20	0,96	1,36	4,1	-	5,7	62,4	9	-	700044048

05

Cable Construction										
2 core	3 core	4 core	7 core	-	-	-	-	-	-	-
										

Ref: HSense_ZH1_01 Created: CJV Approved: MLS Date: 2013-09-12

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Habiasense ZH1 (HFI 147 / HFI 121 XL)

600V
-30°C/+122°C

Multi core cable, screened

Voltage	600/1000V AC U ₀ /U
Test voltage	1500V AC
Flame retardant	IEC 60332-1-2
Smoke generation	IEC 61034-2
Corrosivity	IEC 60754-2

- Can be adapted for low noise
- Can be adapted for water-blocking

Construction

Conductor	Tin Plated Copper (TPC)	Insulation	HFI 147
Shield	Braid of Tin Plated Copper (T)	Sheath	HFI 121 XL

Identification (Habia std: 31-20-001)

Cores	1: Red	2: White	3: Black	4: Blue	5: Yellow	6: Green	7: Orange
Sheath	Black						





Marking	TYPE	CORES x SIZE	VOLTAGE	SCREEN	ORDER REFERENCE	YEAR-WEEK
	(e.g.: Habiasense ZH1	2x 26 AWG	600V	S	700044049	2012-W39)

Application

With an HFI 147 insulation and our HFI 121 XL as outer sheath, Habiasense ZH1 provides a Low Smoke Zero Halogen (LSZH) and flame retardant solution for cables up to +122°C

Description	Construction							Electrical amps at 40°C max	NSN	Order reference
	no. / size AWG	conductor Ø	insulation Ø	cabled Ø	shield (s) Ø	sheath (s) Ø	weight g/m			
ZH1 2x 26 AWG (Screen)	2x 26	0,48	0,88	1,8	2,2	3,8	19,1	5	-	700044049
ZH1 2x 24 AWG (Screen)	2x 24	0,60	1,00	2,0	2,5	4,1	23,0	7	-	700044050
ZH1 2x 22 AWG (Screen)	2x 22	0,76	1,16	2,3	2,8	4,4	26,8	9	-	700044051
ZH1 2x 20 AWG (Screen)	2x 20	0,96	1,36	2,8	3,2	4,8	34,1	13	-	700044052
ZH1 3x 26 AWG (Screen)	3x 26	0,48	0,88	1,9	2,4	4,0	22,8	4	-	700044053
ZH1 3x 24 AWG (Screen)	3x 24	0,60	1,00	2,2	2,6	4,2	27,5	6	-	700044054
ZH1 3x 22 AWG (Screen)	3x 22	0,76	1,16	2,5	3,0	4,6	34,2	8	-	700044055
ZH1 3x 20 AWG (Screen)	3x 20	0,96	1,36	2,9	3,4	5,0	42,9	12	-	700044056
ZH1 4x 26 AWG (Screen)	4x 26	0,48	0,88	2,1	2,6	4,2	26,7	4	-	700044057
ZH1 4x 24 AWG (Screen)	4x 24	0,60	1,00	2,4	2,9	4,5	31,4	5	-	700044058
ZH1 4x 22 AWG (Screen)	4x 22	0,76	1,16	2,8	3,3	4,9	39,7	8	-	700044059
ZH1 4x 20 AWG (Screen)	4x 20	0,96	1,36	3,3	3,8	5,4	51,9	11	-	700044060
ZH1 7x 26 AWG (Screen)	7x 26	0,48	0,88	2,7	3,1	4,7	35,7	3	-	700044061
ZH1 7x 24 AWG (Screen)	7x 24	0,60	1,00	3,0	3,5	5,1	44,5	4	-	700044062
ZH1 7x 22 AWG (Screen)	7x 22	0,76	1,16	3,5	4,0	5,6	57,0	6	-	700044063
ZH1 7x 20 AWG (Screen)	7x 20	0,96	1,36	4,1	4,6	6,2	77,1	9	-	700044064

05

Cable Construction										
2 core	3 core	4 core	7 core	-	-	-	-	-	-	-
										

Ref: HSense_ZH1S_01 Created: CJV Approved: MLS Date: 2013-09-12
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Multi core cable, unscreened

Voltage	300/500V AC U ₀ /U
Test voltage	1500V AC
Corrosivity	IEC 60754-2
<ul style="list-style-type: none"> Can be adapted for ATEX Can be adapted for water-blocking 	

Construction

Conductor	Tin Plated Copper (TPC)	Insulation	TPS 130
Shield(s)	-	Sheath	HFS 100

Identification (Habia std: 31-20-001)





Cores	1: Red	2: White	3: Black	4: Blue	5: Yellow	6: Green	7: Orange
Sheath	Black						
Marking	TYPE CORES x SIZE VOLTAGE SCREEN ORDER REFERENCE YEAR-WEEK (e.g.: Habiasense ZH2 2x 26 AWG 300V 700044071 2012-W39)						

Application

Our entry level Habiasense product, ZH2 uses our TPS 130 as insulation with an HFS 100 outer sheath. These cables are fully zero halogen and ideal for external use and suitable for dynamic applications, operating in nominal ambient air temperatures up to +90°C Like the ZH1 version, Habiasense ZH2 can be made void-free for water-blocking and low-static for ATEX applications.

Description	Construction							Electrical amps at 40°C max	NSN	Order reference
	no. / size AWG	conductor Ø	insulation Ø	cabled Ø	shield (s) Ø	sheath (s) Ø	weight g/m			
ZH2 2x 26 AWG	2x 26	0,48	0,88	1,8	-	2,4	6,3	3	-	700044071
ZH2 2x 24 AWG	2x 24	0,60	1,00	2,0	-	3,2	11,7	4	-	700044072
ZH2 2x 22 AWG	2x 22	0,76	1,16	2,3	-	3,5	15,2	6	-	700044073
ZH2 2x 20 AWG	2x 20	0,96	1,36	2,8	-	3,9	20,6	9	-	700044074
ZH2 3x 26 AWG	3x 26	0,48	0,88	1,9	-	3,1	11,6	3	-	700044075
ZH2 3x 24 AWG	3x 24	0,60	1,00	2,2	-	3,4	14,8	4	-	700044076
ZH2 3x 22 AWG	3x 22	0,76	1,16	2,5	-	3,7	19,9	6	-	700044077
ZH2 3x 20 AWG	3x 20	0,96	1,36	2,9	-	4,1	27,6	8	-	700044078
ZH2 4x 26 AWG	4x 26	0,48	0,88	2,1	-	3,3	14,0	3	-	700044079
ZH2 4x 24 AWG	4x 24	0,60	1,00	2,4	-	3,6	18,2	4	-	700044080
ZH2 4x 22 AWG	4x 22	0,76	1,16	2,8	-	4,0	24,8	5	-	700044081
ZH2 4x 20 AWG	4x 20	0,96	1,36	3,3	-	4,5	35,0	7	-	700044082
ZH2 7x 26 AWG	7x 26	0,48	0,88	2,7	-	3,9	21,2	2	-	700044083
ZH2 7x 24 AWG	7x 24	0,60	1,00	3,0	-	4,2	28,1	3	-	700044084
ZH2 7x 22 AWG	7x 22	0,76	1,16	3,5	-	4,7	39,2	4	-	700044085
ZH2 7x 20 AWG	7x 20	0,96	1,36	4,1	-	5,3	56,4	6	-	700044086

05

Cable Construction										
2 core	3 core	4 core	7 core	-	-	-	-	-	-	-
										

Ref: HSense_ZH2_01 Created: CJV Approved: MLS Date: 2013-09-12

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Habiasense ZH2 (TPS 130 / HFS 100)

300V
-40°C/+90°C

Multi core cable, screened

Voltage	300/500V AC U ₀ /U
Test voltage	1500V AC
Corrosivity	IEC 60754-2

- Can be adapted for ATEX
- Can be adapted for water-blocking

Construction

Conductor	Tin Plated Copper (TPC)	Insulation	TPS 130
Shield	Braid of Nickel Plated Copper (N)	Sheath	HFS 100

Identification (Habia std: 31-20-001)

Cores	1: Red	2: White	3: Black	4: Blue	5: Yellow	6: Green	7: Orange
Sheath	Black						





Marking	TYPE	CORES x SIZE	VOLTAGE	SCREEN	ORDER REFERENCE	YEAR-WEEK
	(e.g.: Habiasense ZH2	2x 26 AWG	300V	S	700044087	2012-W39)

Application

Our entry level Habiasense product, ZH2 uses our TPS 130 as insulation with an HFS 100 outer sheath. These cables are fully zero halogen and ideal for external use and suitable for dynamic applications, operating in nominal ambient air temperatures up to +90°C Like the ZH1 version, Habiasense ZH2 can be made void-free for water-blocking and low-static for ATEX applications.

Description	Construction							Electrical amps at 40°C max	NSN	Order reference
	no. / size AWG	conductor Ø	insulation Ø	cabled Ø	shield (s) Ø	sheath (s) Ø	weight g/m			
ZH2 2x 26 AWG (Screen)	2x 26	0,48	0,88	1,8	2,2	3,4	15,4	3	-	700044087
ZH2 2x 24 AWG (Screen)	2x 24	0,60	1,00	2,0	2,5	3,7	19,0	4	-	700044088
ZH2 2x 22 AWG (Screen)	2x 22	0,76	1,16	2,3	2,8	4,0	22,5	6	-	700044089
ZH2 2x 20 AWG (Screen)	2x 20	0,96	1,36	2,8	3,2	4,4	29,3	9	-	700044090
ZH2 3x 26 AWG (Screen)	3x 26	0,48	0,88	1,9	2,4	3,6	18,9	3	-	700044091
ZH2 3x 24 AWG (Screen)	3x 24	0,60	1,00	2,2	2,6	3,8	23,4	4	-	700044092
ZH2 3x 22 AWG (Screen)	3x 22	0,76	1,16	2,5	3,0	4,2	29,6	6	-	700044093
ZH2 3x 20 AWG (Screen)	3x 20	0,96	1,36	2,9	3,4	4,6	37,8	8	-	700044094
ZH2 4x 26 AWG (Screen)	4x 26	0,48	0,88	2,1	2,6	3,8	22,6	3	-	700044095
ZH2 4x 24 AWG (Screen)	4x 24	0,60	1,00	2,4	2,9	4,1	26,9	4	-	700044096
ZH2 4x 22 AWG (Screen)	4x 22	0,76	1,16	2,8	3,3	4,5	34,8	5	-	700044097
ZH2 4x 20 AWG (Screen)	4x 20	0,96	1,36	3,3	3,8	5,0	46,4	7	-	700044098
ZH2 7x 26 AWG (Screen)	7x 26	0,48	0,88	2,7	3,1	4,3	31,0	2	-	700044099
ZH2 7x 24 AWG (Screen)	7x 24	0,60	1,00	3,0	3,5	4,7	39,3	3	-	700044100
ZH2 7x 22 AWG (Screen)	7x 22	0,76	1,16	3,5	4,0	5,2	51,2	4	-	700044101
ZH2 7x 20 AWG (Screen)	7x 20	0,96	1,36	4,1	4,6	5,8	70,6	6	-	700044102

05

Cable Construction										
2 core	3 core	4 core	7 core	-	-	-	-	-	-	-
										

Ref: HSense_ZH2S_01 Created: CJV Approved: MLS Date: 2013-09-12

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Low-noise cables

Additives...

Cables can usually be modified to be low-noise with little or no impact on the overall dimensions of the cable.

A range of coaxial-based low noise cables is also available. Designated RGL and SML, details of these can be found in Habia Cable's RG Coaxials product literature.

Examples of applications

Habiasense cables may be modified to use low-noise variants for the following applications:

- Instruments for precision acoustic measurements
- Cables between sensors and (for example) accelerometers and photo-electric pickups
- Charge amplifiers
- Medical instruments (e.g. ECG, EET or ultra-sonic equipment)
- Nuclear technology

Should you require a low-noise variant of a Habiasense cable please contact one of our sales offices for a design and quotation.

The purpose of low-noise

Due to the effects of microphony, ordinary cables generate unwanted electrical noise when exposed to external influences such as light contact, general movement and vibration. This interference can be sufficient to affect the signal being transmitted through the cable resulting in incorrect values.

Habia Cable's low-noise cables are suitable for use in, or with highly sensitive precision equipment; generally involving the detection or measurement of extremely small currents.

Low-noise

An integral carbon layer is applied between the core/s and the overall screen of the cable. This means that any electrical charge formed by movement or pressure are rapidly returned to and from the screen, effectively trapping these unwanted signals so that no charge can reach the equipment that is connected to the cable.

The noise reduction resulting from this method is in the order of one thousand times better than that of an ordinary cable.

Super-low-noise

A further refined variant is available for use with extremely sensitive instruments and the most extreme of environments. Super-low-noise cables can withstand even greater external influences such as sudden impact without generating any noise signals. The design incorporates several semi-conducting protective layers throughout which in turn improve the noise reduction value by a further factor of a thousand in comparison to Habia's standard low-noise cables.

Super-low-noise cables have also successfully passed destructive testing where the inner and outer conductors are squeezed until they come into direct contact with one another. During this test, the cable exhibits a noise level in the order of 0.05 pC.

