

## TECWATER S1BN8-F



### Application

TECWATER rubber-sheathed cables S1BN8-F are intended for connection of electrical equipment in contaminated water and for medium mechanical stresses. Due to the various substances in the contaminated water, the cables may be used only in easily accessible areas that can be inspected (installation depth of approx. 10 m, as normally used in sewage water tanks). These cables are also suitable for use in process water, cooling water, mine surface water, rainwater and combined waste water. They further can be used in groundwater and seawater; less stringent specifications in terms of accessibility and inspection can be imposed (in such cases the cables can be used at depths up to 2000 m). Water types are defined in accordance with DIN 4045 and DIN 4046.

If the water concerned is aggressive or composed of special substances, the cable's resistance properties should be examined. These cables can be used indoors, outdoors, in explosion-hazard areas to DIN VDE 0165, in fire-hazard locations, on construction sites in accordance with DIN VDE 0100 Part 704, in open-cast mining and in quarries in accordance with DIN VDE 0168, in industry and in agriculture. They can also be permanently installed, e.g. on plaster, on excavators or on hoisting gear.

In other respects the specifications of DIN EN 50565-2 apply.

### Global data

Brand	TECWATER
Type designation	S1BN8-F
Standard	Based on EN 50525-2-21

### Notes on installation

Maximum Submersing Depth	2000 Meter
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### Design features

Conductor	Plain copper, finely stranded class 5 in accordance with DIN EN 60228 / IEC 60228
Insulation	Ozone, water and weather resistant insulation compound, base EPR (Ethylene-Propylene Rubber)
Core identification	up to 5 cores: colored in accordance with DIN VDE 0293-308 from 6 cores: more than 5 cores: Cores light, printed with black numbers 4G4+2X0,75: green-yellow, brown, black, grey; control cores light with black numbers; 7G..+5X1,5: green-yellow, other cores black with white numbers; control cores light with black numbers;
Inner sheath	For all multi core cables with cross-section more than 6mm <sup>2</sup> and all cables with more than 5 cores: Inner layer of CPE special compound; color: blue
Outer sheath	Special rubber compound based on CPE, water and oil-resistant
Outer sheath colour	Black

### Electrical parameters

Rated voltage	0.6/1 kV (600/1000V)
Max. permissible operating voltage AC	0.7/1.2 kV
Max. permissible operating voltage DC	0.9/1.8 kV
AC test voltage - main cores	3.5 kV (5 Min.)

### Chemical parameters

Flame propagation	DIN EN 60332-1-2
Resistance to oil	DIN EN 60811-404
Water resistance	DIN EN 50525-2-21

### Thermal parameters

Max. permissible temperature at conductor	90 °C
Max. short circuit temperature of the conductor	250 °C
Max. permissible water temperature	40 °C (At higher water temperatures, a shortened cable service life is to be expected)
Ambient temperature for fix installation min.	-40 °C
Ambient temp. in fully flex. operation min.	-25 °C

### Mechanical parameters

Max. tensile load on the conductor	15 N/mm <sup>2</sup>
Min. bending radius	Acc. to DIN VDE 0298 part 3

Number of cores x cross section	Part number	Conductor diameter max. mm	Outer diameter min. mm	Outer diameter max. mm	Bending radius fixed min. mm	Bending radius free moving min. mm	Weight (approx.) kg/km	Conductor resistance at 20°C max. Ω/km	Current carrying capacity in water A	Short Circuit Current (conductor) max. (1s) kA
1X1,5		1.6	5.8	6.6	20	20	53	13.3	40	0.21
1X2,5		2	6.3	7	21	21	65	7.98	52	0.36
1X4		2.4	6.7	7.5	23	23	82	4.95	70	0.57
1X6	20158587	2.9	7.2	8	24	24	103	3.3	91	0.86
1X10		3.9	8.3	9.1	27	36	160	1.91	127	1.43
1X16		5	9.1	10.1	30	40	210	1.21	170	2.29
1X25		6.3	10.8	12.4	50	62	315	0.7839	225	3.58
1X35	20172213	7.5	12.3	13.9	56	70	421	0.554	278	5.01
1X50	20026648	8.8	14.1	15.7	63	79	577	0.386	347	7.15
1X70	20140883	10.6	16.3	18.3	73	92	808	0.272	429	10.01
1X95	20014613	12.2	18.8	20.3	81	102	1024	0.206	517	13.59
1X120	20131473	14.2	20.9	22.9	92	115	1314	0.161	605	17.16
1X150	20036145	16	23.2	25.2	101	126	1627	0.129	694	21.45
1X185	20026006	17.8	26	28.3	113	142	1982	0.106	792	26.46
1X240		20.3	28.9	31.2	125	156	2548	0.0801	940	34.32
1X300	20035987	22.9	32.1	34.4	138	172	3151	0.0641	1087	42.9
1X400		26.5	36.3	38.6	154	193	4087	0.0486	1254	57.2
1X500		29.8	40.4	42.7	171	214	5160	0.0384	1443	71.5
2X1	20016674	1.3	8	9	27	36	94	19.5	23	0.14
2X1,5	20016673	1.6	8.6	9.6	29	38	111	13.3	29	0.21
2X2,5		2	9.4	10.4	31	42	141	7.98	38	0.36
2X4		2.4	10.2	11.8	35	47	182	4.95	52	0.57
2X6	20158588	2.9	11.2	12.8	51	64	239	3.3	67	0.86
2X10	20158589	3.9	15	17	68	85	420	1.91	93	1.43
2X16	20158590	5	17.6	19.6	78	98	597	1.21	125	2.29
2X25		6.3	21.6	23.6	94	118	890	0.7839	165	3.58
3G1		1.3	8.4	9.5	29	38	104	19.5	23	0.14
3G1,5	20026138	1.6	9.1	10.1	30	40	125	13.3	29	0.21
3G2,5		2	9.6	11.2	34	45	162	7.98	38	0.36
3G4		2.4	10.6	12.2	49	61	216	4.95	52	0.57
3G6	20214165	2.9	12.1	13.7	55	69	292	3.3	67	0.86
3X1		1.3	8.4	9.5	29	38	104	19.5	23	0.14
3X1,5		1.6	9.1	10.1	30	40	125	13.3	29	0.21
3X2,5		2	9.6	11.2	34	45	162	7.98	38	0.36
3X4		2.4	10.6	12.2	49	61	216	4.95	52	0.57
3X6	20066348	2.9	12.1	13.7	55	69	292	3.3	67	0.86
3X10		3.9	16.3	18.3	73	92	514	1.91	93	1.43
3X16	20217434	5	19.1	21.1	84	106	740	1.21	125	2.29
3X25		6.3	23.1	25.1	100	126	1094	0.7839	165	3.58
3X35	20195255	7.5	25.6	28.6	114	143	1459	0.554	205	5.01
3X50	20195256	8.9	29.9	32.9	132	165	2018	0.386	255	7.15
3X70	20140884	10.7	35.4	38.4	154	192	2808	0.272	316	10.01
3X95		12.3	39	42	168	210	3547	0.206	380	13.59
3X120	20131472	14.3	44.4	47.4	190	237	4542	0.161	445	17.16
3X150	20219045	16	49	53	212	265	5627	0.129	510	21.45
3X185		17.7	54.2	58.2	233	291	6819	0.106	582	26.46
3X240		20.3	61.4	65.4	262	327	8645	0.0801	691	34.32

Number of cores x cross section	Part number	Conductor diameter max. mm	Outer diameter min. mm	Outer diameter max. mm	Bending radius fixed min. mm	Bending radius free moving min. mm	Weight (approx.) kg/km	Conductor resistance at 20°C max. Ω/km	Current carrying capacity in water A	Short Circuit Current (conductor) max. (1s) kA
4G1	20036387	1.3	9.1	10.1	30	40	123	19.5	23	0.14
4G1,5	20026055	1.6	9.5	11.1	33	44	148	13.3	29	0.21
4G2,5	20026139	2	10.5	12.1	48	61	201	7.98	38	0.36
4G4	20026048	2.4	11.8	13.4	54	67	276	4.95	52	0.57
4G6	20026128	2.9	13.6	15.2	61	76	378	3.3	67	0.86
4G10	20025842	3.9	17.8	19.8	79	99	464	1.91	93	1.43
4G16	20026004	5	20.9	22.9	92	115	934	1.21	125	2.29
4G25	20026081	6.3	25.3	28.3	113	142	1418	0.7839	165	3.58
4G35	20036142	7.5	28.3	31.3	125	157	1877	0.554	205	5.01
4G50	20026158	8.9	33.2	36.2	145	181	2613	0.386	255	7.15
4G70	20025843	10.7	38.7	41.7	167	209	3638	0.272	316	10.01
4G95	20026007	12.3	43.7	47.7	191	239	4643	0.206	380	13.59
4G120	20036143	14.3	48.7	52.7	211	264	5833	0.161	445	17.16
4G150	20016681	16	54.5	58.5	234	293	7222	0.129	510	21.45
4G185		17.7	60.6	64.6	258	323	8830	0.106	582	26.46
4G240		20.3	68.2	72.2	289	361	11457	0.0801	691	34.32
4G300		22.9	77	81	324	405	14368	0.0641	800	42.9
5G1,5	20068720	1.6	10.4	12	36	48	186	13.3	29	0.21
5G2,5		2	11.6	13.2	53	66	250	7.98	38	0.36
5G4		2.4	12	13.6	54	68	340	4.95	52	0.57
5G6		2.9	14.6	15.3	61	77	480	3.3	67	0.86
5G10		3.9	19.9	21.9	88	110	810	1.91	93	1.43
5G16		5	23.2	25.2	101	126	1192	1.21	125	2.29
5G25		6.3	28	31	124	155	1810	0.7839	165	3.58
5G70		10.7	42.5	46.5	186	233	4500	0.272	316	10.01
6G1	20215684	1.3		12	48	72	210	19.5	23	0.14
7G1,5	20026053	1.6	12.9	14.5	58	73	276	13.3	29	0.21
8G1,5	20026049	1.6	14.5	16.5	66	83	305	13.3	29	0.21
10G1,5	20026054	1.6	15.6	17.6	70	88	376	13.3	29	0.21
11G1,5	20026207	1.6	16.6	17.6	72	90	400	13.3	29	0.21
12G1,5	20026051	1.6	16	18	72	90	413	13.3	29	0.21
7G2,5	20036709	2	14.7	16.7	67	84	381	7.98	38	0.36
8G2,5		2	16.3	18.3	73	92	410	7.98	38	0.36
10G2,5	20025847	2	17.4	19.4	78	97	480	7.98	38	0.36
12G2,5	20102524	2	17.9	19.9	80	100	555	7.98	38	0.36
4G4+2X0,75ST	20026080	2.4	15.3	17.3	69	104	386	4.95	52	0.57
7G4+5X1,5ST	20039852	2.4	21.2	22.8	91	137	698	4.95	52	0.57
7G6+5X1,5ST	20039853	2.9	24.5	26.1	104	157	909	3.3	67	0.86
7G10+5X1,5ST	20039854	3.9	25.3	26.8	107	161	1174	1.91	93	1.43

Current carrying capacity in water: The values are valid for permanent operation with DC or AC with 50 up to 60 Hz at 30 °C ambient water temperature, two or three cores loaded (cable compete immersed in water).

(2) Current carrying capacity free in air: The values are valid for permanent operation with DC or AC with 50 up to 60 Hz at 30 °C ambient temperature, two or three cores loaded (see also DIN VDE 298-4).