

Single Fire Coil S22/S22-T

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Invented for life



- ▶ Max. 25 kV
- ▶ Max. 60 mJ
- ▶ Max. 5.0 kV/μs
- ▶ Max. 10,000 1/min

This single fire coil was developed for the use in high performance engines. It is designed to mount directly on the spark plug and

This coil optionally provides an ionic current measurement. The S22-T has an integrated transistor and requires an ECU with internal ignition drivers. The S22 has no integrated transistor and requires an ECU with internal ignition power stages.

The upper part (wire side) and the lower part (spark plug side) can be designed per customer specification. The main benefits of this high performance coil are its robustness in hard racing applications and high energy efficiency.

Application

Spark energy	≤ 60 mJ
Primary current	≤ 16 A
Operating temperature range at outer core	Please see Variations
Storage temperature range	-40 to 100°C
Max. vibration	≤ 800 m/s ² at 5 to 2,500 Hz

Technical Specifications

Variations

	S22	S22-T
Primary resistance with wire	330 mΩ	Incapable of measurement
Integrated power stage	-	+
Pin 1	U _{batt} red	U _{batt} red
Pin 2	ECU ignition power stage white	ECU ignition signal yellow
Pin 3	Engine GND black	ECU GND blue
Pin 4	Ion current signal screen wire white	Engine GND black
Pin 5	N.a.	Optional ion current signal screen wire white

Measured with power stage	IGBT IRG4BC40S ($U_{ce} = 600\text{ V}$)	IGBT IRF5036S ($U_{ce} = 400\text{ V}$)
Operating temperature range at outer core	0 to 160°C	0 to 150°C

Mechanical Data

Diameter	22 mm
Weight	150 g
Mounting	Pluggable / pressed

Electrical Data

Primary resistance with wire	Please see Variations
Secondary resistance	Incapable of measurement
High voltage rise time	$\leq 5.0\text{ kV}/\mu\text{s}$
Max. high voltage at 1 MΩ 10 pF	$\leq 25\text{ kV}$
Spark current	$\leq 300\text{ mA}$
Spark duration at 1 kV 1 MΩ	$\leq 0.43\text{ ms}$
Noise suppression	Inductive
Suppression diode / EFU	Integrated
Integrated power stage	Please see Variations
Ionic current signal	Optional

Characteristic

Measured with power stage	Please see Variations
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Connectors and Wires

Connector	Open end
Mating connector	-
Pin 1	U_{batt} red
Pin 2	Please see Variations
Pin 3	Please see Variations
Pin 4	Please see Variations
Pin 5	Please see Variations

Various motorsport and automotive connectors are available on request.

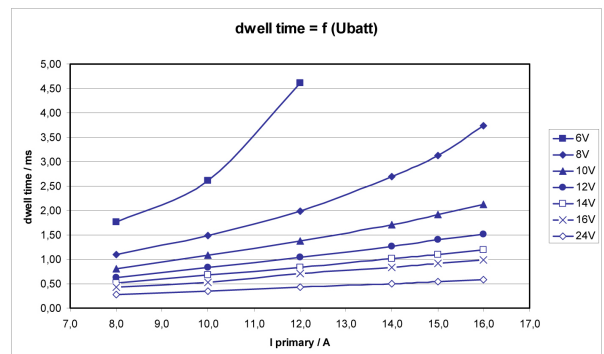
Wire size	AWG 20/22
Wire length L	Max. 100 cm
Please specify the required wire length with your order.	

Characteristic dwell times [ms]

U_{batt}	$I_{primary}$					
	8.0 A	10.0 A	12.0 A	14.0 A	15.0 A	16.0 A
6V	1.76	2.61	4.61			

8V	1.10	1.49	1.99	2.70	3.12	3.74
10V	0.80	1.08	1.37	1.71	1.91	2.12
12V	0.62	0.83	1.04	1.27	1.40	1.52
14V	0.51	0.68	0.84	1.01	1.10	1.19
16V	0.44	0.53	0.70	0.84	0.91	0.99
20V	0.34	0.44	0.53	0.63	0.68	0.73
24V	0.27	0.35	0.43	0.50	0.54	0.58

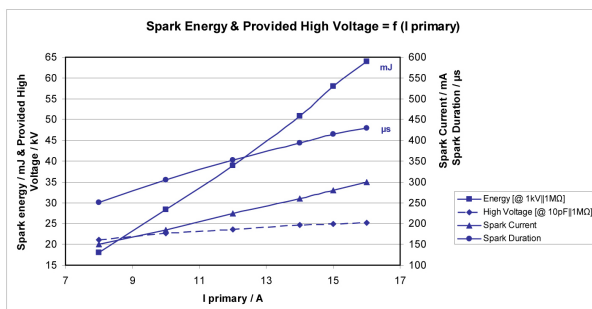
Measured values are without loom resistance. Loom resistance must be less than the primary resistance. The needed dwell time is to be verified through current measurement



Dwell time

Spark energy and provided high voltage

I prim.	Spark energy	-duration	-current	Hi voltage
8 A	18.1 mJ	251 μs	150 mA	21.1 kV
10 A	28.3 mJ	305 μs	185 mA	22.7 kV
12 A	39 mJ	353 μs	225 mA	23.6 kV
14 A	50.8 mJ	394 μs	260 mA	24.6 kV
15 A	58 mJ	415 μs	280 mA	24.9 kV
16 A	64 mJ	430 μs	300 mA	25.2 kV



Spark energy

Installation Notes

During mounting of the spark plug please pay attention that full clamping and proper contacts are made to ensure safe connection between coil and spark plug.

The S22-T has an integrated transistor and requires an ECU with internal ignition drivers.

The S22 has no integrated transistor and requires an ECU with internal ignition power stages, e.g. IGBT IRG4BC40S.

For technical reasons the values of the coils may vary.

Please regard the specified limit values.

Operation with limit values of 16 A can reduce the life time of the ignition coil. In case of permanent operation please use 12 A. This will bring a spark energy of 40 mJ.

Please find further application hints at our homepage.

In case of ignition-caused malfunctions, please use screened sensor wires.

Ordering Information

Coil S22

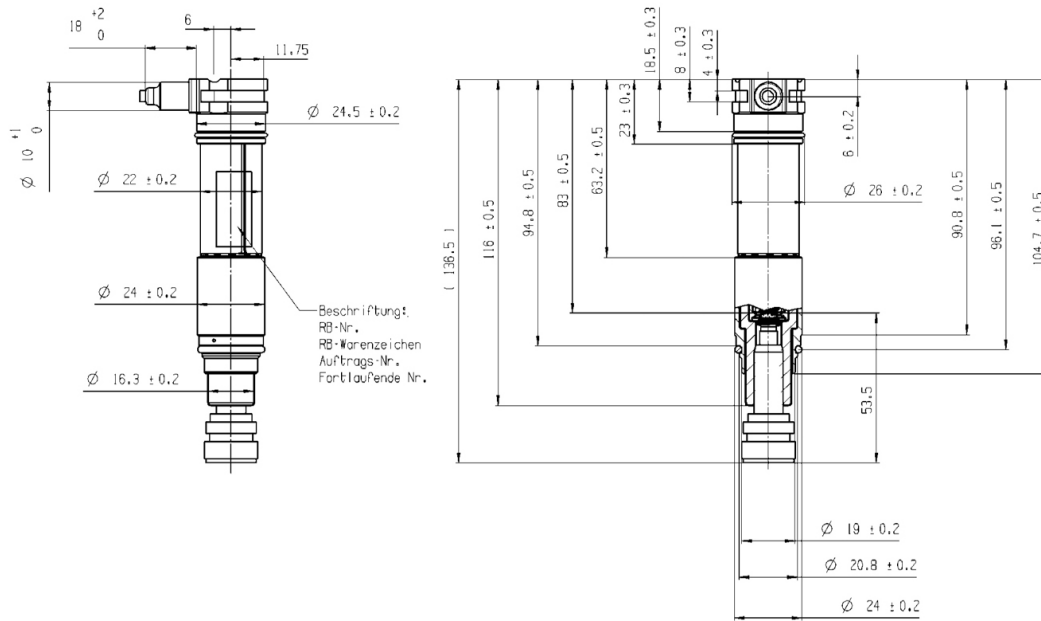
Order number **0 221 B00 115-01**

Coil S22-T

Integrated transistor

Order number **0 221 B00 116-01**

Dimensions



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