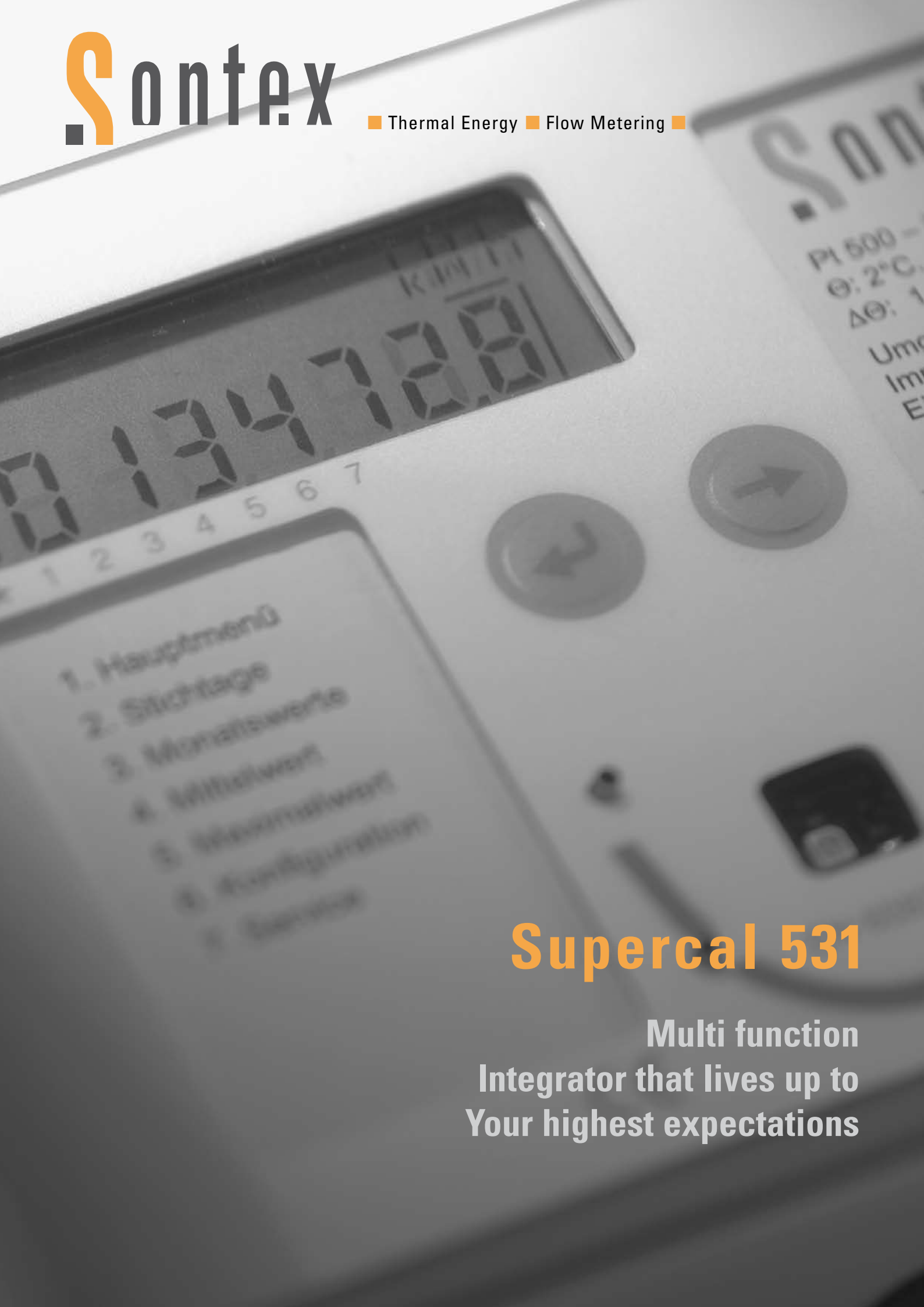
Sontex

Thermal Energy Flow Metering



Supercal 531

Multi function Integrator that lives up to Your highest expectations

Supercal 531
Multi functional integrator…

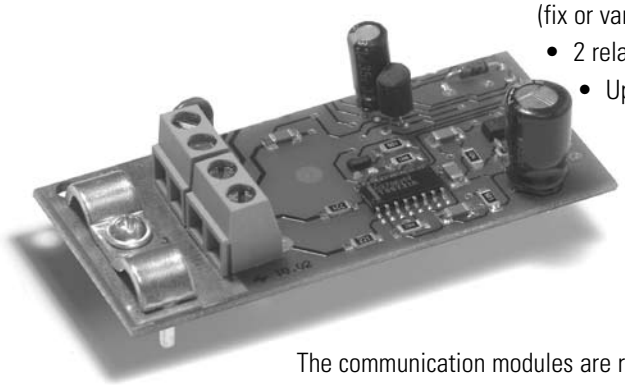
… with unlimited options

The Supercal 531 convinces using state of the art multi functional technologies and a modular concept. It satisfies the customer's every wish by its easy system integration, tariff function, data logger functions, universal data transfer or connection to system processors.
The Supercal 531 was designed aiming at high flexibility as top priority also keeping in mind future standards. The Supercal 531 is suitable for heat energy, cooling energy or flow measurement. The Supercal 531 is also suitable for combined energy measurement such as heating / cooling.

Owing to the extensive data communication range of options, and a flexible data collection and recording, the Supercal 531 is entirely suitable for applications in district heating networks, heat cost allocation and industry installations.

Flexible with almost unlimited communication possibilities

As standard the Supercal 531 has an optical interface according to IEC 1107, two open collector outputs as well as two pulse inputs for integration of additional meters .
When desired the standard version can become equipped aditionally with a M-Bus or radio module (factory assembly).
Two of the following galvanically seperated communication modules can be connected:



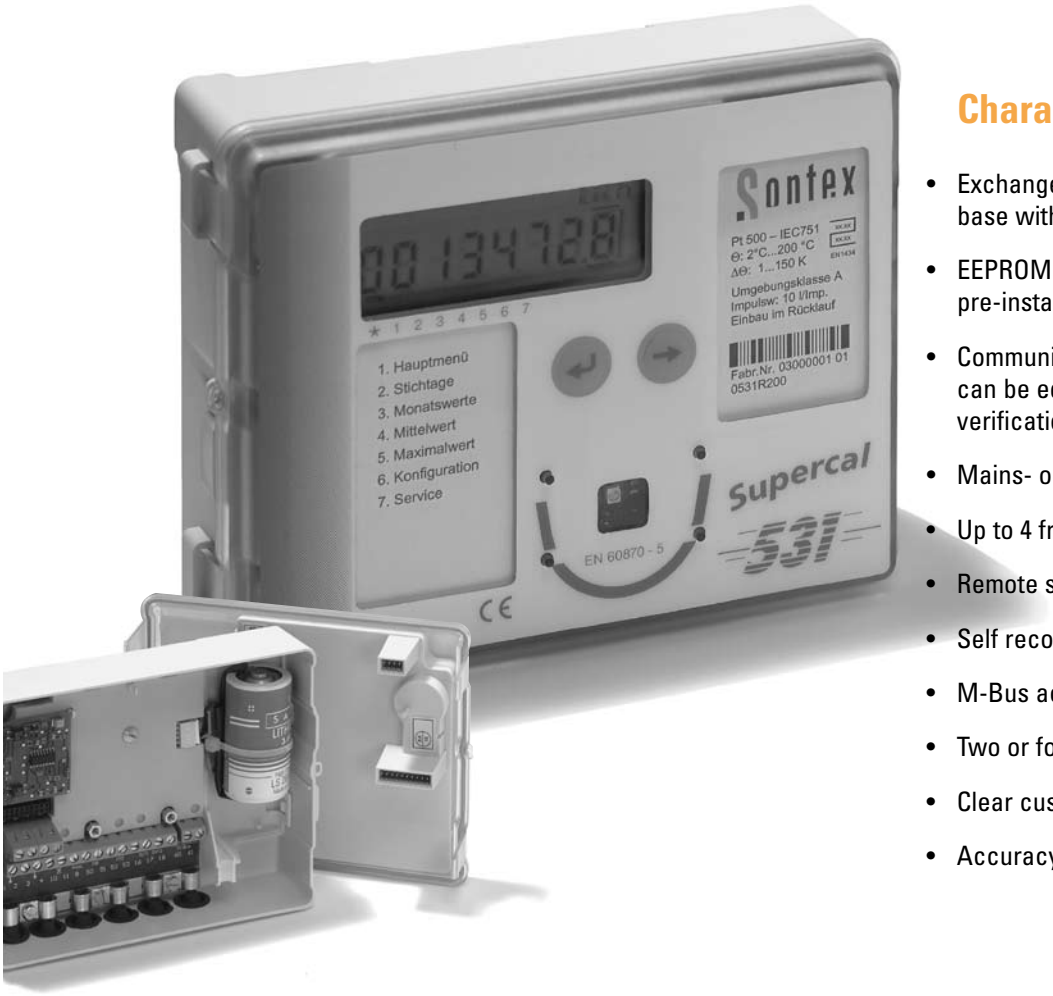
- M-Bus interface according to EN1434 (fix or variable data structure)
- 2 relay outputs
- Up to 4 passive, freely programmable analogue outputs
- Modem output
- LON
- RS-232

The communication modules are reactionless and can be equipped when in operation without damaging the validity of the calibration. The integrator identifies the communication module.

Owing to three communication channels that are operational in parallel, the Supercal 531 simultaneously enables data collection and the connection to several processing control and building management systems.

Supercal 531
Universal and 'future proofed' integrator

The battery or mains powered integrator is designed to connect Pt500 or Pt100 temperature sensors, two or four wire. A high-resolution temperature measurement guarantees the highest accuracy of measurement.
The modular concept of the integrator enables simple and low cost replacement of the meter. For example only the certification and measurement relevant part of the integrator has to be replaced while the base part with all the connections and non-volatile memory for communication adjustment stays in place. This optimizes replacement time and reduces the costs when replacing the meter.
Supercal 531 can accept volume inputs with a frequency of up to 5 Hz (battery powered) or up to 12 kHz (mains powered). It can be combined with either mechanical, magnet-inductive, ultrasonic or oscillating flow sensors of up to qp 10'000 m^3/h.



Characteristics

- Exchangeable integrator module; the wiring base with the connections remain in place
- EEPROM for the communication set-up is pre-installed in the base part
- Communication options and functions can be equipped later and without compromising verification of the integrator
- Mains- or battery powered
- Up to 4 freely programmable analogue output
- Remote support available via the internet
- Self recognition of options and power supply
- M-Bus according to EN 1434
- Two or for wire temperature sensors
- Clear customer friendly user concept
- Accuracy better than required by EN1434

Supercal 531
Clear display sequences

Easy user readout concept

The Supercal 531 features a particularly large and clearly readable LCD-display, which enables easy and customer friendly readout.

The display sequences are clearly divided in 8 menus:

- Main menu - accumulated values
- Set day values
- 15 monthly values
- 32 average values
- 32 maximum values
- Configuration
- Service information
- Test and parameterization menu

The cycle of the display sequence can be customized.
The two push buttons enable a comfortable menu overview, customer friendly use and fast readout of measurement data.

Fast access over the Internet

The unique concept of the integrator enable customer support over the Internet. Configuration as well as the function controls can be operated with an access authorization distributed on the spot. Swift customer service and support becomes a reality.

Efficient functions

Complete data security

For control and safety reasons of the measurement results, the Supercal 531 runs a periodically self-test, and records all data every hour in a non volatile memory. When a voltage drop occurs all the values are automatically updated and registered, and when powered by mains the pulse inputs are accumulated for two more months.

Efficient additional functions

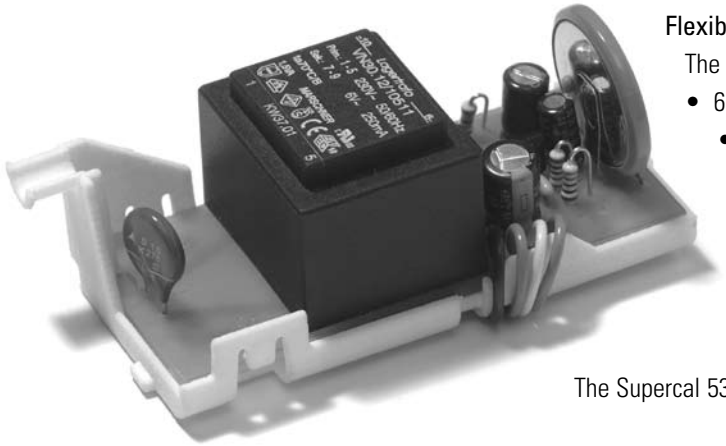
The Supercal 531 has various additional functions, which fulfill all the requirements of a complex measuring system:

- Transmission of status messages over the transistor outputs
- Alarm and threshold values for the verification of operation status
- Up to three different freely programmable tariff functions
- Application of solar and cooling installations up to –20°C, the mixture content can be freely programmable.

The tariff or the threshold values can be used to control an actuator.
The tariff functions can be loaded over the optical interface without damaging the verification seal.

Measurement principle

The Supercal 531, when mains powered, measures the temperatures every 3 seconds, when battery powered, every 20 seconds (with a D-type battery) and every 30 seconds (with a C-type battery).
The measurement of the flow value is event controlled on the pulse input, which means that each pulse is constantly updated.

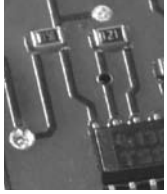


Flexible power supply options

The modular power supply concept offers the following options :

- 6 + 1 year battery
- 11 + 1 year battery
- mains powered : 230 VAC - 45/65 Hz
  or 115 VAC - 45/65 Hz
- mains powered : 24 VAC - 45/65 Hz
  or 12 – 24 VDC (or supplied by the bus)

The Supercal 531 has an automatic power supply detector.



Technical data
Standard version

Temperature measurement

Pt100 or Pt500	
2- and 4-wire	
Absolute temperature range	-20...200°C
Approved range	2...200°C
Absolute temperature difference	1...150K
Approved range	2...150K
Response limit	0.2K
Temperature resolution t	0.1K
Temperature resolution Δt	0.005K
Measuring accuracy	better than by EN1434-1 required

Measuring cycle

Temperature measurement:
- 30 seconds when battery powered (Standard Type C)
- 20 seconds when battery powered (Type D)
- 3 seconds when mains powered

Volume measurement:
- Pulse volumes are constantly updated

Temperatures

Operating	5...55°C
Storing and transport	-20...70°C

LCD display

8-digit

Display units

Energy	kWh, MWh, GJ, MJ, BTU
Volume	m^3, Gallon
Additional pulse inputs	volume or energy
Temperature	°C, °F or K

Power supply

Battery	6 + 1 year
Battery	11 + 1 year
Mains	115 or 230 VAC – 45/65 Hz
Mains	24 VAC 45/65 Hz or 12-24 VDC

Data security

Verification- and measurement relevant part	EEPROM
Integrator base part	EEPROM

Housing protection

Standard	IP65

Test and calibration interface

- NOWA
- High resolution test pulses
- Integrated test program
- Internal simulation test

Pulse inputs

Input frequency	
Normal mode	max. 5 Hz
Fast mode	
Battery powered	max. 3.5 kHz
Mains powered	max. 12 kHz
Input voltage	0...30 V
Volume pulse inputs	1-10-100-1000 l/pulse or 2.5-25-250-2500 l/pulse or 0.0001 – 9999.9 pulse/l

2 additional pulse inputs

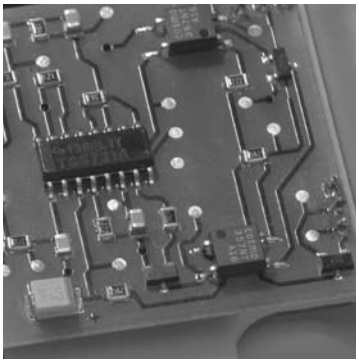
Input frequency	
Normal mode	max. 5 Hz
Fast mode	max. 12 kHz
Input voltage	0...30 V
Pulse values	0.0001 –9999.9 pulse/l

2 pulse outputs

Output frequency	
Normal mode	max. 5 Hz (+/-20%)
Fast mode	max. 10 kHz (+/-20%)
Short circuit	max. 100 µA
Pulse values	0.0001 – 9999.9 pulse/l

Optical interface

Hardware according to DIN IEC1107
M-Bus protocol according to EN1434



Options

Preassembled at factory:
M-Bus or radio

Technical data
Optional communication modules

The communication modules can be retrofitted when in operation without damaging the verification seal.

Relay module with two outputs

Contact potential	max. 100 VAC/DC, 50/100 mA
Cut-off current	500 mA
Voltage to ground	max. 100 VAC/DC, 50/100 mA
Cable length	max. 25 m
Max. pulse frequency	1 Hz

Passive analog module with two outputs

Power supply	9...24 VDC (external power supply)
Power range	4...20 mA
or	0...20 mA, 4...20 mA, 0...10 V
Resistance	RL max. at 24 V = 650 Ω
Resolution	16 bit
Max. converter error	< 0.02% from end value

LON module

Network	LONWORKS
Transmission	2-twisted wire, FTT-10A
Power supply bus interface	24 VAC/DC, max. 50 mA
Connection	4-Pol-terminal screw

RS-232 module

Fix or variable data structure
Potential free, reverse battery proof
Transmission speed 300...38'400 baud

M-Bus module

Fix or variable data structure
Potential free, reverse battery proof

Radio module

Mode	FM, bi directional
Frequency	433,82 MHz
Transmitting power	< 10mW

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