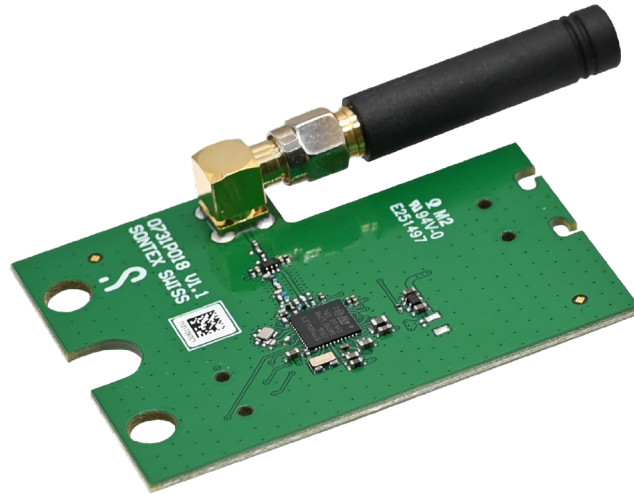


LoRaWAN® Module

Retrofittable LoRaWAN® Module REF SC5X00022 for the *Supercal 5 S/I*



The LoRaWAN® certified radio communication module is used in combination with the thermal energy meter *Supercal 5 S* or the calculator *Supercal 5 I* in order to transmit the measured data over any private or public LoRaWAN® network. The payload contained in the long and short LoRaWAN® telegram is freely configurable. The status of the LoRaWAN® network connection is indicated on the display of the *Supercal 5 S/I*.

The LoRaWAN® module can easily be retrofitted in any existing *Supercal 5 S/I* without violating the MID conformity. Alternatively, it can be supplied already integrated and pre-configured together with a *Supercal 5 S/I*.

The retrofitting can be carried out independently for new devices as well as for devices already in operation. The LoRaWAN® module is automatically recognized after installation and can be configured with the software *Superprog V1.2.1* or higher.

Features

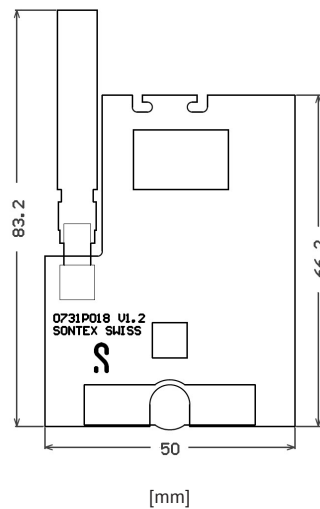
- Long range, bidirectional communication at low cost and low power consumption.
- Consumption data are thus always available and can be transmitted securely thanks to end-to-end encryption.
- Modules can be retrofitted to a *Supercal 5 S/I* or replaced at any time without affecting the approval.

Technical Data

General	
Operating temperature	5°C to 55°C (< 95% relative humidity)
Transport temperature	-20°C to +70°C (< 95% relative humidity)
Storage temperature	-20°C to +70°C (< 95% relative humidity)
Weight	22 g (without packaging)
Antenna	Gain max. 2.5 dBi, SMA-Male
Radio	
Radio protocol	LoRaWAN® (Spec. V1.0.2)
Class	Class A
Encryption mode	AES-128 - AppKey
Encryption option	Individual key
Radio frequency	ISM Frequency band EU863-870
Transmission Power ¹⁾	<ul style="list-style-type: none">■ Max. 25 mW (14 dBm)■ Typ. 5 dBm
Communication	Bidirectional
Radio telegrams	<ul style="list-style-type: none">■ Telegram S (SF10-12) : 39 bytes■ Telegram L (SF7-9) : 103 bytes
Transmission intervals ¹⁾	<ul style="list-style-type: none">■ SF10-12: 60-44640 min (360 min)■ SF7-9: 30-44640 min (60 min)
Radio activity	No calendar function
Radio activity standard	Periodic dispatch according to transmission intervals
Type of reading	
Mobile (Walk-by)	n.a
Automatic Meter Reading (AMR)	Commercially available LoRaWAN® Gateway
Conformities	
CE Conformity	<ul style="list-style-type: none">■ RED Directive 2014/53/EU■ RoHS Directive 2011/65/EU
Certifications	<ul style="list-style-type: none">■ LoRaWAN® Certified Product (acc. to Specification V1.0.2)■ LoRaWAN™ Swisscom IoT Qualified Product

1) Default values in brackets

Dimension drawing



Customizable Parameters

The following parameters are available to configure the LoRaWAN® Module. All modules are delivered with the default values configured.

Changes of the preconfigured parameters on module can be done using an optical head and *Superprog V1.2.1* or higher after the Module has been inserted into a *Supercal 5 S/I*.

Customer specific pre-configurations of the parameters will be stored in the *Supercal 5 S/I* and transferred to the LoRaWAN® Module upon insertion.

Parameter	Available Options	Changeable with <i>Superprog V1.2.1</i> or higher		Customizable on order
		Read	Write	
DevEUI Device identification which is read from the LoRaWAN® module	-	X		✗
AppKey Encryption	Individual key		X	✗
JoinEUI ¹⁾ Network identification, which ensures the connection to the network	(01 02 03 04 05 06 07 08)	X	X	✓
Transmission Intervals ¹⁾ Transmission intervals for the telegrams short / long	<ul style="list-style-type: none"> ■ SF10-SF12: 60-44640 min (360 min) ■ SF7-SF9: 30-44640 min (60 min) 	X	X	✓
Rejoin Interval ¹⁾ To increase the security of the communication, a rejoin is performed at regular intervals. New session keys are generated each time a new connection is made	5-255 days (30 days)	X	X	✓
Confirm mode ¹⁾ The confirmation of telegrams (acknowledge) by the network server can be activated or deactivated	<ul style="list-style-type: none"> ■ Activated at every uplink - not recommended ■ (Once per day - midnight) ■ Twice per day - midnight & midday 	X	X	✓
Automatic RTC sync ¹⁾ The device clock is adjusted by the network	(Enabled) / disabled	X	X	✓
Join only at SF12 ¹⁾ The first join is set to the strongest transmission power	Enabled / (disabled)	X	X	✓
Delayed Join Interval ¹⁾ After closing a “Sealed” <i>Supercal 5 S/I</i> the connection starts to build up after the set time	0 s - 999 s (0 s)	X	X	✓

1) Default values in brackets

Payload of Short and Long LoRaWAN® Telegrams

The payload transmitted in the short or long telegram is fully customizable using *Superprog V1.2.1* or higher (see [Configure SC5 LoRa](#)). The following default payloads are defined upon production.

⚠ Note: The Device Identification M-Bus and the Fabrication number are always part of the telegram and cannot be removed.

Default Payload: <i>Supercal 5 S/I</i>			
Telegramm Type	⚠	Short	Long
Device Identification M-Bus	⚠	X	X
Fabrication number		X	X
Real time clock		X	X
Flow		X ⁽¹⁾	X
Power		X ⁽¹⁾	X
Energy tariff 0		X	X
Volume tariff 0		X	X
Energy tariff 1		X ⁽²⁾	X
Volume tariff 1		X ⁽²⁾	X
Energy tariff 2			X
Volume tariff 2			X
Temperature hot pipe			X
Temperature cold pipe			X
Detailed errors			X

⁽¹⁾ Only for heating OR cooling

⁽²⁾ Only for heating AND cooling

Installation & configuration

Further information on installation and configuration can be found on the following website:



Technical support

For technical support, please contact your local Sontex representative or Sontex SA directly. The detailed declarations of conformity can be found on our homepage: www.sontex.ch.