



Signum

The foundation for our sustainable future

Smart. Secure. Sustainable.

Why Signum?

Signum brings a powerful blockchain solution to the world in the most sustainable way.



How does Signum work?

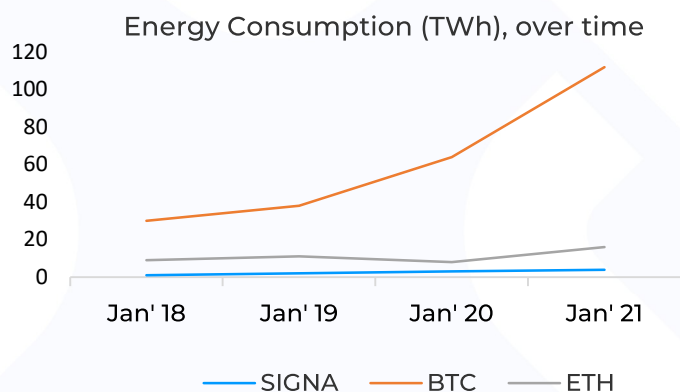
Similarly, to Bitcoin or Ethereum, Signum provides a digital currency called Signa (ticker: SIGNA) that is distributed, traded, and stored with the use of a decentralized ledger system. There are no intermediaries, payment gateways nor banks.

But Signum is so much more than a digital currency. As a customizable platform, it has the power to feature unstoppable and censorship-resistant decentralized applications. Anyone can create digital assets (tokens) that can be used in ways only limited by our imagination. Exchanges, marketplaces, financial services, and games barely scratch the surface.

And the best part of it all: In comparison to other cryptocurrencies like Bitcoin and Ethereum, it is truly sustainable.

Bitcoin uses more than 121 TWh per year in energy consumption to secure its Blockchain.







Signum requires less than 0.002% of Bitcoin's energy to drive the Blockchain.



The Signum Blockchain explained.

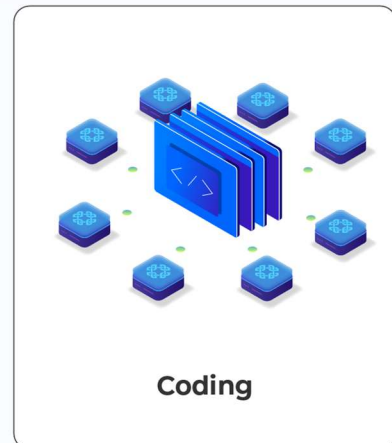
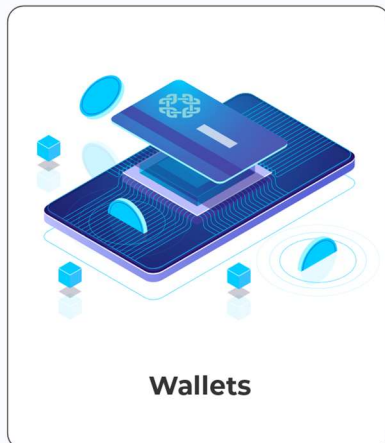
Endless features, all sustainable.

Signum is the foundation for a sustainable digital future. Signum is designed to change the world: Our network combines world class features with fast and secure payments. Apart from true sustainable mining, our feature-rich architecture includes easy smart contracts, seamless and secure payment solutions, token generation, peer-to-peer messaging, and customizable data shortcuts (aliases).

 <p>POC+ True sustainable mining.</p>	 <p>Payment Solutions Seamless and secure.</p>	 <p>Smart Contracts Autonomous and unstoppable.</p>
 <p>Tokens Give your ideas and businesses a true value.</p>	 <p>Messaging Send peer-to-peer messages in public or private format.</p>	 <p>Aliases Customizable shortcuts to your data.</p>

As an open-source, public blockchain, Signum is accessible through the Phoenix Wallet or App.

The best way to learn more is to download a wallet and begin mining or coding.



Proof of Commitment (PoC+) – a sustainable and fair consensus

Signum recently introduced to the world the Proof of Commitment (PoC+) decentralized consensus as an evolution of Proof of Capacity (PoC). Compared to the well-known Proof of Work (PoW) consensus used by Bitcoin and other cryptocurrencies (which require energy-hungry equipment) PoC+ simply uses available disk space.

This innovative consensus offers a new way for miners to increase their effective storage capacity - by committing a Signa balance in their account for mining. Not only does this help secure the network and increase the miners' chances of earning mining rewards, but PoC+ is also a more sustainable option, as effective capacity can be increased without having to purchase additional hardware.

The process of mining in the PoC+ consensus is so effective and has such low hardware requirements that any consumer-grade PC can be used to mine, and the user will not even notice the mining process is happening - besides the occasional blinking LEDs from the hard disk drive (HDD).

Signa can be mined on any desktop, tiny computers (Raspberry Pi) and mobile phones. All that is needed is disk space to create what is known as plot files. With its PoC+ algorithm, Signum allows everyone to mine Signa.

What makes Signum mining sustainable?

Bitcoin and its famous Proof of Work consensus requires expensive, specialized, and energy-hungry hardware. This results in an enormous amount of 121 TWh of energy consumption per year and more than 9 kilotons of e-waste. By using consumer-grade hardware that is easily re-purposed Signum also avoids e-waste.

On Signum, energy-intensive calculations are done only once when the miners plot their available disk space. Thereafter the mining process requires reading through a very small fraction of this disk space ($1/4096$, less than 0.025 % of the plotted capacity). The hard disks run idle most of the time, as this tiny fraction is read only every few minutes to secure the network.

Signum is truly sustainable.

It uses consumer-grade hardware that can easily be repurposed (no e-waste) and it uses hardly any energy to secure the network.

Fast and secure payments

On the Signum Blockchain users can quickly and safely send and receive payments. Transactions are shown instantly in the network memory pool, allowing smaller payments to be accepted at low risk. Via a chosen fee (which varies from minimum to priority) users can fine tune the fraction of time by when the payment is permanently stored on the blockchain.

From one-to-one payments to sending Signa to many receivers in a single transaction, all of it is possible. Signum makes transactions such as payrolls and other multi-out payments economical and fast. Standing orders (also known as subscriptions) are recorded as one transaction on the chain with payments being implicit to the chain itself. This allows recurring payments to be scaled infinitely. Essentially acting like a lightning network, Signum opens up a multitude of cost-efficient business use cases.

The minimum fee for sending payments is as low as 0.00735 Signa, which is a fraction of one US Cent. The user can select a higher fee to speed up the blockchain transaction.

How many Signum transactions can be sent per block?

Every 4 minutes a new block is created with the following attributes:

- Block maximum. size: 179'520 Bytes
- Block maximum transactions: 19'200
- Block maximum transaction per second: 80 transactions
- Block maximum number of subscriptions: infinite
- Minimum fee to create a transaction: 0.00735 Signa

The transaction throughput will be doubled when the block time is reduced to 2 minutes in the next upgrade.

Autonomous smart contracts

Signum is shipped with smart contracts implemented as Automated Transactions (AT). This AT system was originally developed by CIYAM and is Turing-complete with a potentially infinite number of use cases. Signum was the first platform to run Turing-complete smart contracts on a public blockchain.

Signum SmartJ is an extended Signum smart contract framework which aids in the creation and deployment of smart contracts through the easy and general-purpose programming language Java. This framework allows users to use well-known existing IDEs (like VSCode, Eclipse, IntelliJ) to develop, debug, and deploy smart contracts to the blockchain.

Smart contract specifications on-chain

Step-Fee 0.000735 Signa	Max steps per block 1.000.000 steps	Cost per page 0.0735 Signa	Maximum pages 20 pages
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Step-Fee?

This is the fee charged on every simple operation a smart contract runs, like simple additions or subtractions.

Max steps per block?

The maximum number of steps (operations, steps, API calls) to be included in a block for a single contract. When this number is reached, the current state is stored and the execution of the smart contract continues in the next block.

Cost per page?

This is the fee to register (or create) a new smart contract in Signum per page of the smart contract, each page occupying 256 bytes.

Maximum pages?

Maximum compiled code (machine code) of a contract that can be registered on the chain.

Signum smart contracts second unique feature is they can be programmed to self-execute. Most of today's available smart contracts only react to the transactions they receive. Signum's self-running smart contracts provide endless potential for new applications such as for example decentralized trustless lotteries that need to run at a specific time. The costs to execute these smart contracts depend on their complexity and range from 5 – 1'500 Signa after 100 executions.

Integrated token market

Apart from its native coin Signa, users can create their own coin inside the chain (tokens, colored coins, or assets). These tokens have the same level of security and features as Signa. They can be used to invest, store value, make purchases, represent affiliate program points or company shares, and can implement governance mechanisms. When created through an initial coin offering, tokens are often used to raise funds through crowd sales.

With a few clicks anyone can create a token, defining its ticker symbol, the total supply and the maximum number of digits - ready to use in any Signum wallet. Besides sending and receiving tokens (via Signum's decentralized token exchange), tokens can also be exchanged for Signa.

It has never been easier and cheaper to start your business by just placing it on the token exchange or transferring it directly to your shareholders. The Signum token creation fee is 1'000 Signa.

Signum connects people through peer-to-peer messaging

Signum can send arbitrary data or text messages attached to every transaction with up to 1'000 bytes. The message can be public or encrypted so that only sender and receiver can read it. As these messages are only limited by byte length, any string can be transmitted, using any data structure or encoding, and even double encryption. There are essentially no limitations to their format.

Signum is customizable, simple and human

Easy use and customization are at the core of Signum. Compared to Bitcoin for example, Signum addresses are generally shorter and easier to read. To make this process even simpler, the Signum team developed an alias system to give every Signum address or customized data set a human-friendly and unique phrase. Any alias registered to a given Signum address can be transferred or sold to any other Signum address. Different alias types identify accounts, link or a freestyle of data.

Types of Aliases



Aliases Type Account

Aliases can be used to point to any Signum address. A shortcut for any payments.



Aliases Type Link

Aliases can be used for external links like http, https or ipfs. A shortcut to your external data from the Signum blockchain.



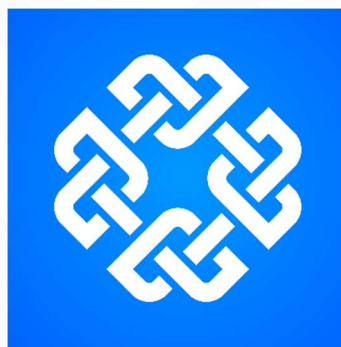
Aliases Type Freestyle

Aliases can also be used to link to a customized dataset of up to 1000 bytes in length.

Join the Signum movement!

Signum's Blockchain brings exceptional functionalities and opportunities to the world that are currently limitless. Signum stands for continuous innovation. Just as technological advancement never stops, neither will the evolution of the Signum Blockchain.

Signum is more than a Blockchain. It is a sustainable innovation, with the potential to become a game changer of current decentralized applications and cryptocurrencies.



Signum Facts

Signum Network	all active community members
Signum	the blockchain
Signa	Signum's digital currency (ticker: SIGNA)

The Blockchain

Genesis block	August 10th, 2014
Distribution	No pre-mining or ICO, fair launch
Block Times	4 minutes (avg)
Circulating Coins	2'129'584'766 as of July 4st, 2021
Block max Size	179'520 Bytes
Block max Transactions	19'200
Block max Transactions per second	80
Block max number of Subscriptions	infinite
Block Reward	100 Signa

