

## LARGE-SCALE IOT PLATFORM

# Connect, monitor and control every device in the field.

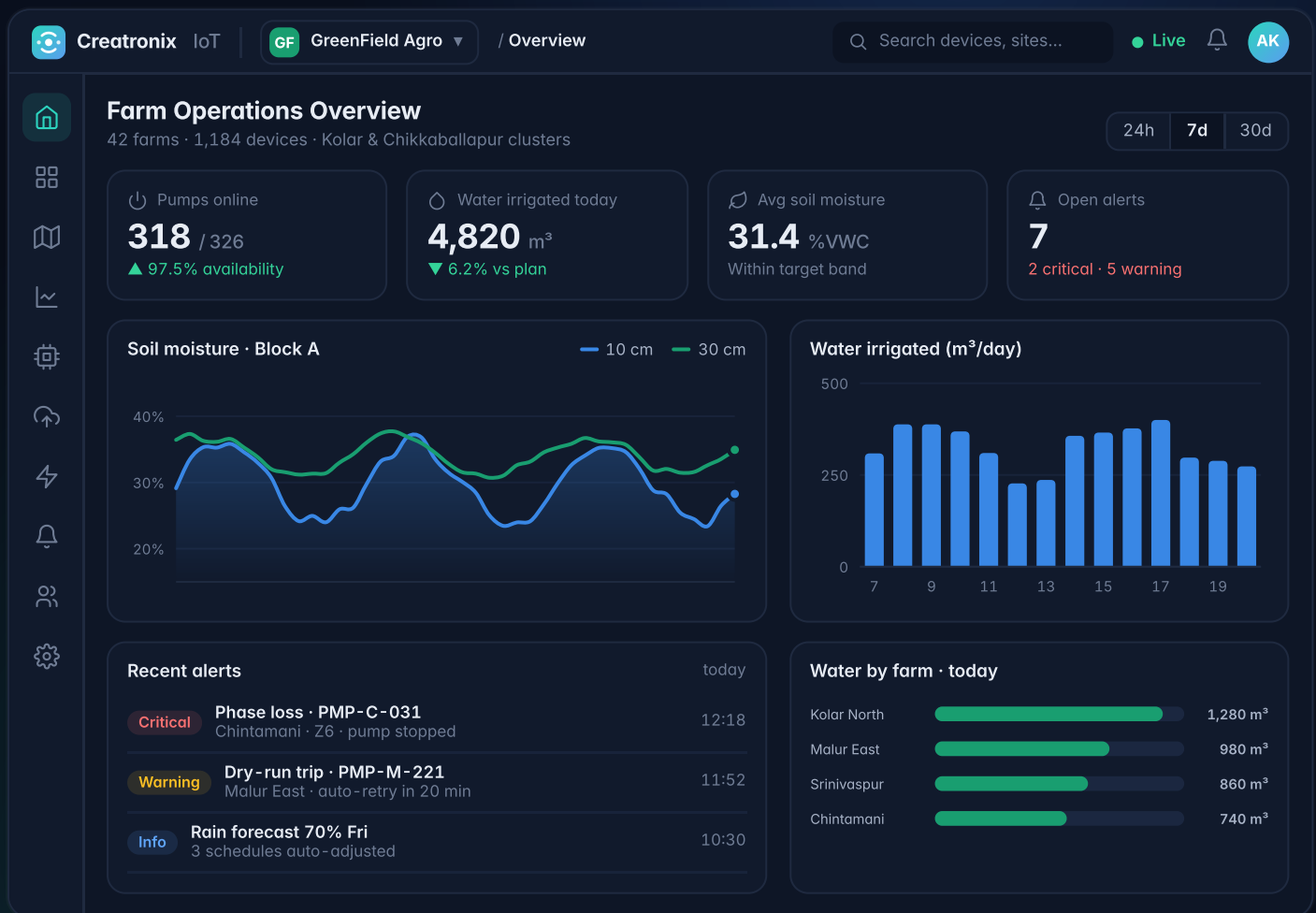
A multi-tenant IoT cloud engineered for fleets of **200,000+ devices** — giving every B2B client its own portal for dashboards, users, rules, remote configuration and over-the-air firmware upgrades.

Agriculture

Industrial IoT

Utilities &amp; Communities

RF Network Operators


**200k+**

devices per deployment, scale-out by design

**Multi-tenant**

isolated B2B portals with white-label

**Fleet OTA**

staged firmware campaigns & rollback

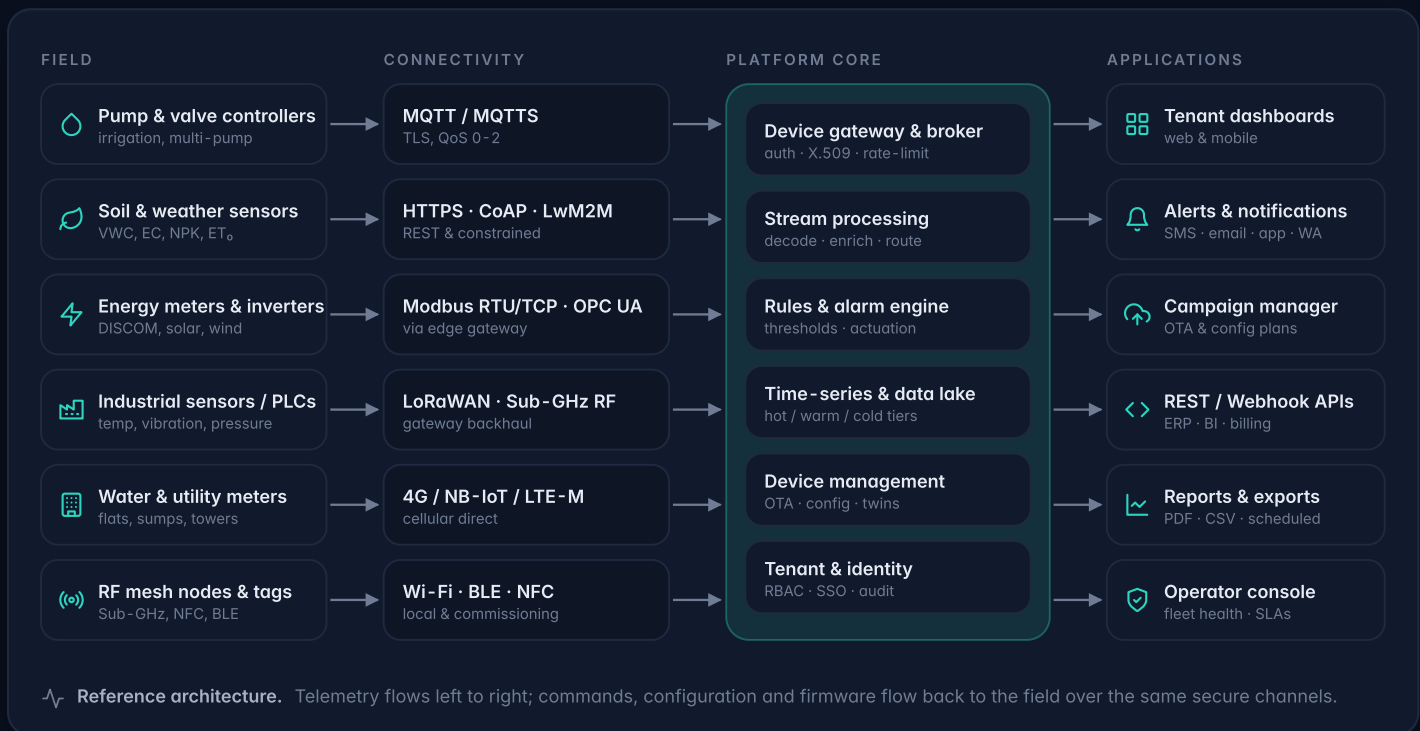
**15+**

field & integration protocols

## 01 PLATFORM OVERVIEW

# One platform. Every field device. Every client.

The Creatronix Large-Scale IoT Platform ingests, stores and acts on telemetry from very large, geographically distributed fleets. It is protocol-agnostic at the edge, multi-tenant at the core, and domain-aware at the application layer — so an agriculture company, a factory, a utility service provider and an RF network operator can each run their business from the same platform without ever seeing one another.



## Built for scale

Stateless ingestion and partitioned streams scale out horizontally — add capacity as the fleet grows from thousands to hundreds of thousands of devices.



## True multi-tenancy

Each B2B client gets an isolated workspace: its own sites, devices, users, branding, dashboards and data.



## Fleet OTA & config

Push firmware and configuration profiles to one device, a filtered group or the full fleet, in staged waves.



## Rules & actuation

Define thresholds and logic visually; trigger alerts and actuate pumps, valves, relays and fans automatically.



## Domain dashboards

Ready templates for irrigation, energy, factory, utility and RF network views — fully customisable per tenant.



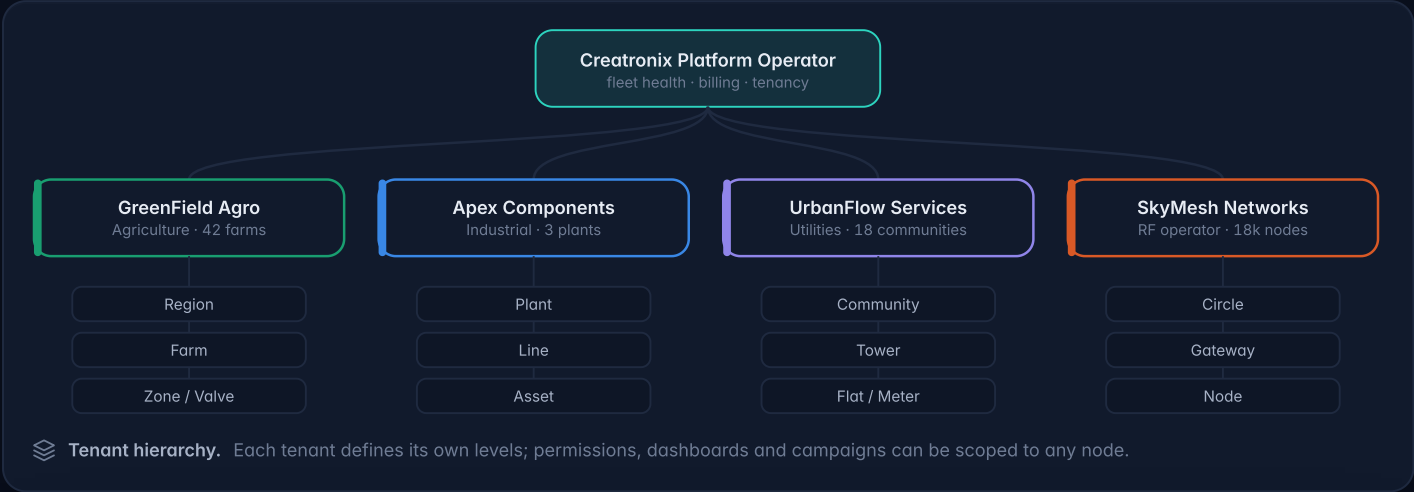
## Open integration

REST APIs, webhooks and MQTT bridging connect the platform to ERP, billing, BI and third-party systems.

02 MULTI-TENANCY

A dedicated portal for every B2B client

Every client is a tenant with hard data isolation. Inside its workspace a tenant models its own hierarchy — farms and zones, plants and assets, towers and flats, or gateways and nodes — and manages its own users, roles, dashboards, rules and device campaigns.



Creatronix IoT

Platform Operator

/ Tenants

Search devices, sites...

Live

AK

Tenants

4 active tenants · 31,710 devices · 2 regions

+ New tenant

GF

GreenField Agro

Agriculture

Devices: 1,184

Online: 98.6%

Alerts: 7

AC

Apex Components

Industrial IoT

Devices: 2,416

Online: 99.4%

Alerts: 3

UF

UrbanFlow Services

Utilities

Devices: 9,870

Online: 97.9%

Alerts: 12

SM

SkyMesh Networks

RF network

Devices: 18,240

Online: 99.2%

Alerts: 21

Fleet growth by tenant (devices)

SkyMesh

UrbanFlow

Apex

GreenField

Usage · last 30 days

| Tenant     | Messages/day | Storage | Users |
|------------|--------------|---------|-------|
| SkyMesh    | 26.3 M       | 412 GB  | 61    |
| UrbanFlow  | 9.5 M        | 138 GB  | 214   |
| Apex       | 14.1 M       | 296 GB  | 88    |
| GreenField | 2.2 M        | 41 GB   | 57    |

Role-based access control

Default roles — every permission can be tailored per tenant.

|                                  | View   | Control | Rules | OTA    | Config | Users |
|----------------------------------|--------|---------|-------|--------|--------|-------|
| Platform admin                   | Full   | Full    | Full  | Full   | Full   | Full  |
| Tenant admin                     | Full   | Full    | Full  | Full   | Full   | Full  |
| Operations manager               | Full   | Full    | Full  | Scoped | Full   | None  |
| Field technician                 | Full   | Scoped  | None  | None   | Full   | None  |
| Analyst / viewer                 | Full   | None    | None  | None   | None   | None  |
| End customer (resident / farmer) | Scoped | None    | None  | None   | None   | None  |

Full Scoped None

What each tenant controls

- ✓ **White-label** — logo, colours, domain, email sender
- ✓ **Users & SSO** — invite, roles, groups, SAML/OIDC
- ✓ **Dashboards** — drag-and-drop widgets per role
- ✓ **Rules & alerts** — own thresholds and escalation
- ✓ **Devices** — provision, tag, group, decommission
- ✓ **Data** — retention, exports, API keys

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03

## Irrigation, soil and weather — on one screen

Creatronix IoT

GreenField Agro

/ Farms / Irrigation

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# Irrigation Overview

Kolar Farm Cluster · 8 farms · 64 pumps · 412 valves · 236 soil probes

Water irrigated today

4,820 m³

▼ 6.2% vs plan · rain-adjusted

Pumps online

62 / 64

2 need attention

Avg soil moisture (30 cm)

31.4 %VWC

▲ 1.8 pts vs yesterday

Energy per m³

0.19 kWh

▼ 4% this week

Live soil moisture · Kolar North

<20%

20-25

25-30

30-34

>34

Pump

Valve

Mainline

Weather · Kolar station

updated 4 min ago

29.4°C

Partly sunny · feels 31°

Humidity

58 %

Wind

11 km/h NE

ET<sub>a</sub> today

5.1 mm

Rain (24h)

0.0 mm

Solar rad.

742 W/m²

Leaf wetness

Dry

Wed

Thu

Fri

Sat

Sun

31° 20°

29° 20°

26° 19°

25° 19°

28° 19°

5%

20%

70%

60%

15%

Rain forecast Fri — schedules auto-adjusted

Water irrigated, all farms (m³/day)

Actual

Plan

| Day | Actual (m³) | Plan (m³) |
|-----|-------------|-----------|
| 7   | 4800        | 5200      |
| 8   | 5200        | 5200      |
| 9   | 5500        | 5200      |
| 10  | 5000        | 5200      |
| 11  | 4500        | 5200      |
| 12  | 4200        | 5200      |
| 13  | 4000        | 5200      |
| 14  | 4800        | 5200      |
| 15  | 5200        | 5200      |
| 16  | 5500        | 5200      |
| 17  | 4800        | 5200      |
| 18  | 4300        | 5200      |
| 19  | 3800        | 5200      |
| 20  | 4400        | 5200      |

Water by farm · today

m³

Kolar North

1,280 m³

Malur East

980 m³

Srinivaspur

860 m³

Chintamani

740 m³

Bangarpet

560 m³

Mulbagal

400 m³

Pump status

showing 5 of 64

| Pump      | Location         | State           | Power  | Flow      |
|-----------|------------------|-----------------|--------|-----------|
| PMP-K-014 | Kolar North · Z5 | Running         | 7.4 kW | 38.2 m³/h |
| PMP-K-009 | Kolar North · Z2 | Running         | 5.6 kW | 29.0 m³/h |
| PMP-M-221 | Malur East · Z3  | Dry-run trip    | 0.0 kW | —         |
| PMP-S-107 | Srinivaspur · Z1 | Scheduled 18:00 | —      | —         |
| PMP-C-031 | Chintamani · Z6  | Phase loss      | 0.0 kW | —         |



 Creatronix IoT

 GreenField Agro

/ Farms / Kolar North / Schedules

 Search devices, sites...

 Live



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### Irrigation Schedules · Kolar North

Today, 20 Oct · 8 zones · 14 programs · auto-adjust on

Timeline

Calendar

Programs

+ New program

#### Today's valve timeline

Completed

Running

Planned

Skipped

Grid peak (18-22)

Z1 · Ragi

Z2 · Tomato

Z3 · Banana

Z4 · Grapes

Z5 · Mango

Z6 · Chilli

Z7 · Beans

Z8 · Capsicum

00:00

02:00

04:00

06:00

08:00

10:00

12:00

14:00

16:00

18:00

20:00

22:00

24:00

12:24

running · 68%

skipped – rain

#### Soil moisture profile · Z3 probe SP-311 (7 days)

10 cm

30 cm

60 cm

45%

35%

25%

15%

Wed

Thu

Fri

Sat

Sun

Mon

Tue

Field capacity 38%

Refill point 18%

Shaded band = target root-zone moisture. Each saw-tooth rise is an irrigation event recorded by the valve controller.

Soil temp

26.8 °C

Optimal

EC

1.42 dS/m

Normal

pH

6.6

Neutral

Nitrogen

182 kg/ha

Low

Phosphorus

34 kg/ha

Medium

Potassium

246 kg/ha

Medium

#### Programs

Time, volume, sensor and ET<sub>0</sub>-driven

| Program           | Zone | Trigger       | Rule                         | Volume | Status         |
|-------------------|------|---------------|------------------------------|--------|----------------|
| Morning – Banana  | Z3   | Daily 07:00   | Soil < 28% @30cm             | 42 m³  | Completed      |
| Mango fertigation | Z5   | Mon/Thu 11:00 | Volume 60 m³ + NPK           | 60 m³  | Running        |
| Chilli evening    | Z6   | Daily 20:00   | ET <sub>0</sub> -based (85%) | 18 m³  | Skipped – rain |
| Tomato drip pulse | Z2   | 4× daily      | 15 min pulses                | 24 m³  | On track       |
| Off-peak flush    | All  | Sun 02:00     | Line flush 10 min            | 8 m³   | Scheduled      |

#### Water balance · last 7 days (mm)

Rain

Irrigation

ET<sub>0</sub> demand

Wed

Thu

Fri

Sat

Sun

Mon

Tue

#### Valve health

412 valves

Responding

404

98.1%

Low battery

5

< 20%

Stuck / no flow

2

Check

Offline > 24 h

1

Visit

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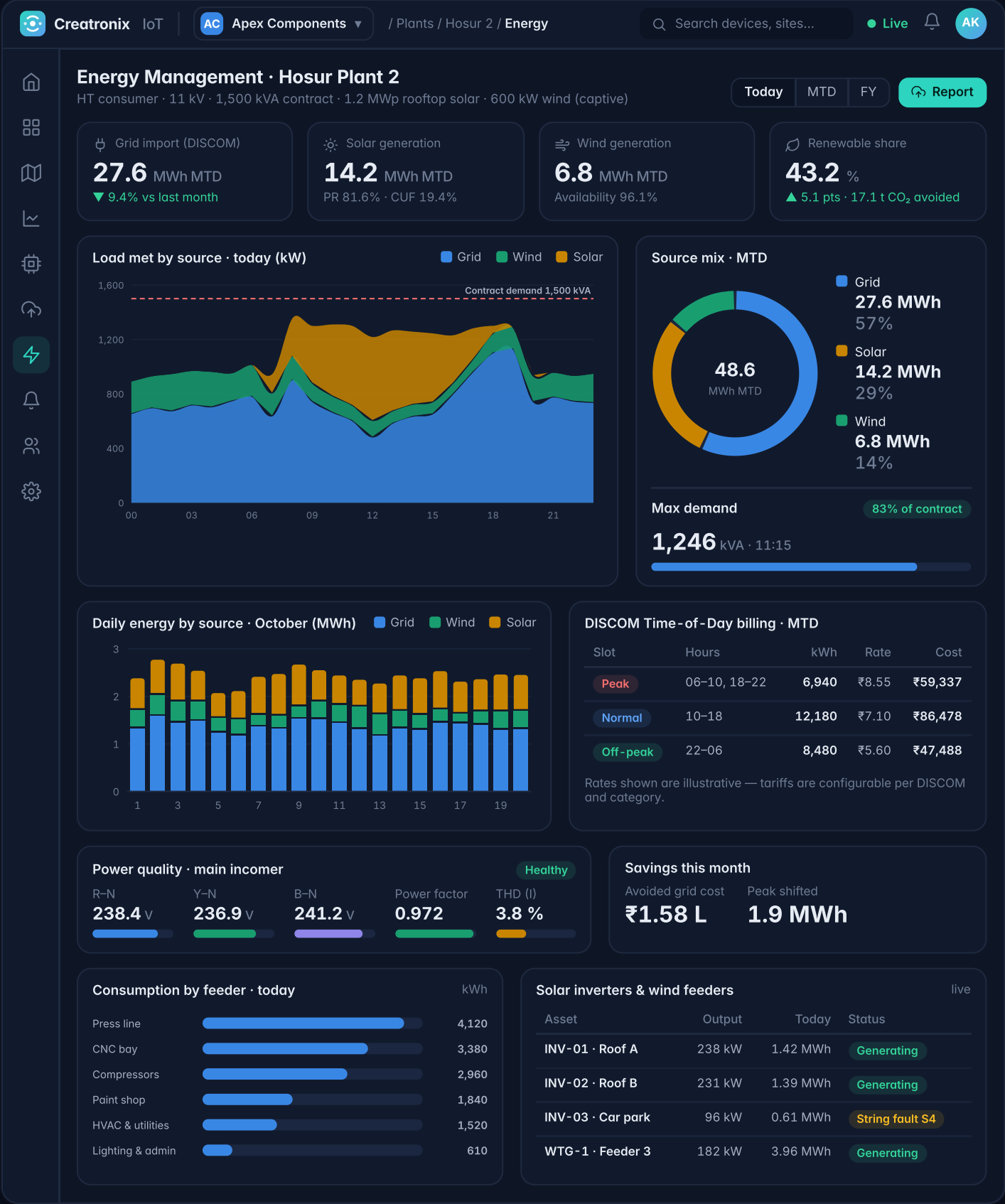
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04 INDUSTRIAL IOT · ENERGY

# Grid, solar and wind — one energy view

Energy meters on the DISCOM incomer, solar inverters and wind feeders report into one view. Plant teams see how every kW of load is being met, track Time-of-Day costs, watch maximum demand against the contract, and monitor power quality.



05 INDUSTRIAL IOT · SENSORS & CONTROL

# From threshold to action — automatically

Temperature, vibration, pressure, humidity, flow and level sensors across the factory stream into live floor maps and asset views. Rules combine conditions, durations and boundaries, then actuate outputs and escalate alerts without waiting for a person.

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Plant Monitoring · Hosur Plant 2

1,148 sensors · 86 controllable outputs · 42 active rules

Floor

Assets

Rules

+ New rule

Sensors online

1,141 / 1,148

99.4% availability

Active alarms

3

1 critical · 2 warning

Rules fired today

27

19 auto-actuations

Mean time to ack

2.6 min

▼ 38% vs last month

Live floor map

Normal

Warning

Critical

Press line

CNC bay

Compressor room

Paint shop

Assembly

Warehouse

CMP-02 · bearing temperature (12 h)

92.4 °C

Rule R-118 · Compressor overheat protection

Active

WHEN

Bearing temp on Compressor CMP-02 > 85 °C for 5 min

AND

Vibration RMS > 7.1 mm/s (ISO 10816 zone C)

THEN

Switch Cooling fan CF-02 → ON · open Bypass valve BV-07 40%

ALERT

Critical → Maintenance on-call (SMS, app) · escalate to plant head after 15 min

ELSE IF

> 75 °C → Warning · create work order in CMMS via webhook

Vibration RMS · CMP-02 (mm/s)

Remote control

2-step confirm

Cooling fan CF-02

Auto · by rule R-118

☒

Bypass valve BV-07

40% open

☒

Air compressor AC-1

Manual · locked out

☐

Exhaust EX-04

Schedule 08-20

☒

Alarm log

today

| Severity | Event                             | Area            | Time  | Action                        |
|----------|-----------------------------------|-----------------|-------|-------------------------------|
| Critical | CMP-02 bearing temp 92.4 °C       | Compressor room | 12:21 | Fan CF-02 ON · ack: R. Prasad |
| Warning  | CNC-07 spindle vibration 6.8 mm/s | CNC bay         | 11:48 | Work order #4471              |
| Warning  | Paint booth humidity 71 %RH       | Paint shop      | 10:05 | Dehumidifier auto-start       |
| Cleared  | Air line pressure 5.4 bar         | Press line      | 09:32 | Auto-cleared after 3 min      |

UrbanFlow Services

/ Communities / Lakeview Residency

Search devices, sites...

Live

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Lakeview Residency · Water & Energy

6 towers · 480 flats · 1,062 meters (water + energy) · 4 sumps · 6 OHTs

Today

Month

Billing

Send bills

Water today

312 kL

118 L per resident

Energy today

6.42 MWh

3.1% vs last Tue

Leak alerts

2

B-402 · T-D riser

Collection (Oct)

94.2 %

₹ 18.6 L billed

Tower B · hourly water per flat

Low

High

Leak

B-101

B-102

B-201

B-202

B-301

B-302

B-401

B-402

B-501

B-502

B-601

B-602

00

03

06

09

12

15

18

21

B-402: continuous flow 1.2 L/min between 23:00-05:00 — probable cistern leak, resident notified

Storage levels

ultrasonic level sensors

82%

Sump 1

64%

Sump 2

91%

OHT-A

23%

OHT-B

OHT-B below 25% — transfer pump TP-2 started automatically.

Common-area energy · MTD

Water pumps

1,240 kWh

Lifts (12)

980 kWh

Common lighting

620 kWh

STP

540 kWh

Clubhouse & pool

410 kWh

Water by tower · today (kL)

58

61

49

55

44

45

T-A

T-B

T-C

T-D

T-E

T-F

Energy by tower · today (MWh)

1.12

1.18

0.94

1.08

0.97

1.11

T-A

T-B

T-C

T-D

T-E

T-F

Flat B-402

Leak

Water (MTD)

14.8 kL

Energy (MTD)

286 kWh

Prepaid balance

₹ 1,240

Valve

Open

Last reading

2 min ago

Community water · October vs September (kL/day)

October

September

340

300

260

1

6

11

16

21

26

Non-revenue water

4.2 %

Avg per flat / day

652 L

Peak hour

07:00-08:00

9:41

5G

Resident app

Flat B-402

Possible leak detected — tap to view

Water this month

14.8 kL

Recharge

07 RF NETWORK OPERATORS

# See the whole network — and change it remotely

Operators who deploy RF networks to run metering, lighting, tracking or other applications visualise every gateway and node, watch link quality and delivery SLAs, and run firmware and configuration campaigns across a single node, a filtered group or the entire network.

CREATRONIX IoT

SM SkyMesh Networks

/ Networks / North Circle

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RF Network · Bengaluru North Circle

Sub-GHz mesh (865-867 MHz) · 64 gateways · 18,240 nodes

MapGatewaysNodes

New campaign

Nodes online

18,032 / 18,240

98.9% reachable

Packet delivery

99.21 %

30-day avg · SLA 98.5%

Median RSSI

-98 dBm

SNR 6.4 dB

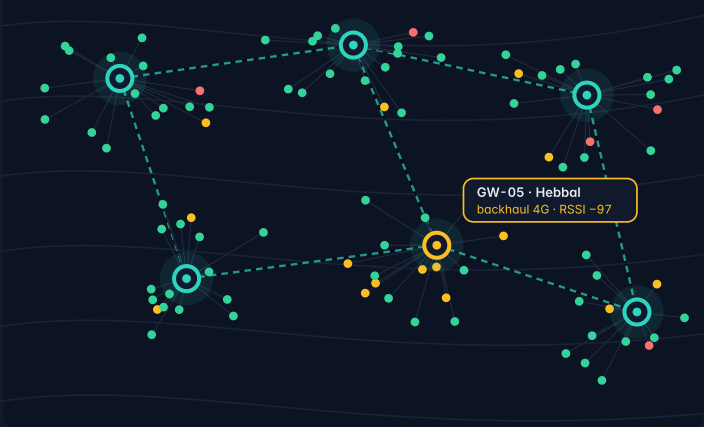
Gateways degraded

1 / 64

GW-05 on 4G fallback

Network topology

GatewayGood linkWeakLostBackhaul



GW-05 · Hebbal  
backhaul 4G · RSSI -97

Campaigns

3 active

FW 3.4.1 · Zone North

OTA · 6,120 nodes · wave 3 of 4

68%

Reporting interval 15→10 min

Config · 2,400 meters · GW-01/02

Done

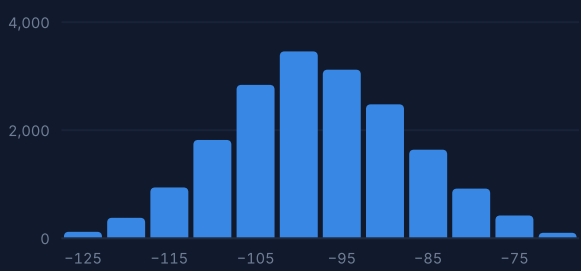
Tariff table Q4

Config · 18,240 nodes · scheduled 01:00

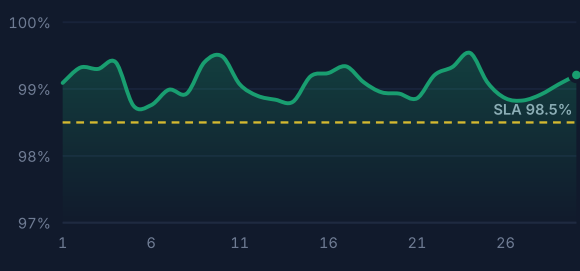
Queued

RSSI distribution (dBm)

nodes



Packet delivery ratio · 30 days



Gateways

showing 4 of 64

| ID    | Site       | Nodes | Uptime 30d | Backhaul | Status   |
|-------|------------|-------|------------|----------|----------|
| GW-01 | Yelahanka  | 3,214 | 99.98%     | Fibre    | Online   |
| GW-02 | Jakkur     | 2,980 | 99.95%     | Fibre    | Online   |
| GW-05 | Hebbal     | 3,402 | 98.71%     | 4G       | Degraded |
| GW-11 | Whitefield | 2,766 | 99.99%     | Fibre    | Online   |

08 DEVICE LIFECYCLE

# Firmware and configuration at fleet scale

Over-the-air upgrades run as staged campaigns with health gates, automatic pause and rollback. Configuration profiles are versioned and pushed to a single device, a tagged group or a whole tenant, and every device keeps a digital twin of desired versus reported state.

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IoT

CX

Platform Operator

/ Devices / Campaigns

🔍 Search devices, sites...

● Live

🔔

AK

OTA Campaign · FW 3.4.1 — Pump controllers

Target: tag = pump-controller AND fw < 3.4 · 18,240 devices · started 18 Oct 02:00

Auto-pause if failure > 2%

Pause

Canary

1% of fleet

182 / 182

Completed · 0 failed

Wave 1

10% of fleet

1,816 / 1,824

Completed · 8 failed

Wave 2

40% of fleet

4,980 / 7,296

In progress · 21 failed

Wave 3

100% of fleet

0 / 8,938

Waiting for gate · 0 failed

38% complete

Updated 6,978

In progress 2,316

Pending 8,938

Failed (auto-rollback) 29

Firmware versions in fleet

v3.4.1

6,978

v3.3.7

9,120

v3.2.0

1,840

v3.1.x

302

Devices updated · cumulative

pauses = health gates between waves

8,000

4,000

0

18 Oct

19 Oct

20 Oct

now

Recent failures

auto-rolled back

Device

Reason

PMP-M-221

Image CRC mismatch

PMP-S-088

Battery < 15% at reboot

PMP-K-301

Timeout · weak RSSI -118

PMP-C-112

Bootloader v1 unsupported

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IoT

GF

GreenField Agro

/ Devices / Profiles

🔍 Search devices, sites...

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AK

Configuration profile · "Kharif 2026 – Drip"

v7 → v8 · applies to 1,184 devices in GreenField Agro

Apply to group

Changes in v8

| Parameter         | v7       | v8       |
|-------------------|----------|----------|
| report_interval_s | 900      | 600      |
| tx_power_dbm      | 14       | 17       |
| dry_run_cutoff_a  | 1.2      | 0.9      |
| rain_skip_mm      | —        | 5        |
| tariff_profile    | TOD-2025 | TOD-2026 |

// device twin · PMP-K-014

{  
 "desired": { "fw": "3.4.1", "report\_interval\_s": 600,  
 "mode": "auto", "dry\_run\_cutoff\_a": 0.9 },  
 "reported": { "fw": "3.4.1", "report\_interval\_s": 600,  
 "mode": "auto", "rssi\_dbm": -91, "uptime\_h": 1782 },  
 "in\_sync": true, "last\_seen": "2026-10-20T12:23:41+05:30"  
}

⚙️

Zero-touch provisioning

Bulk import by CSV or QR; devices auto-claim into the right tenant.

🛡️

Signed firmware

Images are signed and verified on-device before install.

⚡

Bulk commands

Reboot, sync clock, re-read meters on any filtered set.

📈

Health scoring

Battery, RSSI, uptime and error rates roll up to one score.

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## 09 PROTOCOLS, INTEGRATION & SECURITY

# Speaks the language of every field device

Devices connect directly or through edge gateways. Payload decoders normalise every protocol into one data model, so dashboards, rules and APIs work the same regardless of how the data arrived.

### Device messaging

**MQTT 3.1.1 / 5**  
pub/sub, QoS 0-2

**MQTT5**  
TLS 1.2 / 1.3

**HTTP(S) / REST**  
JSON, batch upload

**CoAP / DTLS**  
constrained devices

**LwM2M**  
device management

**WebSocket**  
live streams

### Wireless & WAN

**LoRaWAN**  
via network server

**Sub-GHz RF mesh**  
865-867 MHz

**NB-IoT / LTE-M**  
low-power cellular

**4G LTE Cat-1 / 2G**  
cellular direct

**Wi-Fi**  
2.4 GHz

**BLE · NFC**  
local & commissioning

### Industrial & metering

**Modbus RTU**  
RS-485 via gateway

**Modbus TCP**  
Ethernet

**OPC UA**  
PLCs & SCADA

**DLMS/COSEM**  
energy meters

**M-Bus**  
water & heat meters

**Zigbee**  
via gateway

### Integration out

**REST API**  
OpenAPI documented

**Webhooks**  
event push, HMAC signed

**MQTT bridge**  
to external brokers

**Kafka / AMQP**  
stream export

**SMS · Email · WhatsApp**  
notifications

**CSV / Excel / PDF**  
scheduled reports

### Security by design

**Encrypted everywhere**  
TLS 1.2/1.3 in transit, AES-256 at rest.

**Device identity**  
Per-device X.509 certificates or keys; instant revocation.

**Tenant isolation**  
Logical isolation of data, keys and users per tenant.

**Identity & SSO**  
RBAC, MFA, SAML 2.0 / OpenID Connect.

**Full audit trail**  
Every command, config change and login is logged.

**Data residency**  
Deploy in Indian cloud regions or on-premise.

### Scale & performance

**200,000+**  
devices per deployment

**50k+**  
messages / second sustained\*

**< 2 s**  
rule-to-actuation latency\*

**5 yrs**  
configurable data retention

\* Design targets; actual figures depend on deployment sizing.

### One data model, whatever the protocol

Payload decoders run at ingestion. A Modbus register frame and an MQTT JSON message from different devices end up as the same normalised telemetry record.

① Raw · Modbus RTU via gateway

```
// slave 0x11, fn 0x03, 6 regs
11 03 0C 09 52 00 FA 03 CB
    00 01 0E 2C 00 00 7A 4F
```

② Decoder · device profile

```
voltage_v = r0 / 10
current_a = r1 / 10
pf        = r2 / 1000
pump_on   = r3 == 1
```

③ Normalised telemetry

```
{ "device": "PMP-K-014",
  "ts": "2026-10-20T12:24:05Z",
  "voltage_v": 238.6, "current_a": 25.0,
  "pf": 0.971, "pump_on": true }
```

## 10 GETTING STARTED

# Deploy your way

The platform is offered as a managed service or installed in an environment you control. Every deployment includes the full feature set described in this document.



## Managed cloud (SaaS)

Hosted and operated by Creatronix in Indian cloud regions. Fastest to start, pay as you grow.



## Private cloud

Dedicated instance in your own cloud account, with your keys and network policies.



## On-premise

Installed in your data centre for utilities and enterprises with strict data-sovereignty needs.

### Engagement path

#### 01

##### Discover

Map devices, protocols, sites and user roles.

#### 02

##### Pilot

Connect a pilot fleet; configure tenant, dashboards and rules.

#### 03

##### Scale

Roll out provisioning, campaigns and integrations fleet-wide.

#### 04

##### Operate

Monitored SLAs, upgrades and support.

### Works natively with Creatronix field devices

⌵ Irrigation Pump Controller

⌵ Irrigation Valve Controller

⌵ Wireless Multi Pump Controller

⌵ NFC Temperature Tag

⌵ Solar Fence IoT Monitoring

⌵ 3-Phase SMPS

Third-party devices connect through standard protocols and custom payload decoders.

### Typical deployments at a glance

| Client type                | Typical fleet     | Field connectivity      | Key views                              |
|----------------------------|-------------------|-------------------------|----------------------------------------|
| Agriculture enterprise     | 1k – 50k devices  | 4G, Sub-GHz RF, LoRaWAN | Irrigation, soil, weather, pumps       |
| Industrial / manufacturing | 500 – 20k points  | Modbus, OPC UA, MQTT    | Energy mix, assets, rules, alarms      |
| Utility service provider   | 5k – 200k meters  | RF mesh, NB-IoT, M-Bus  | Per-flat use, leaks, tanks, billing    |
| RF network operator        | 10k – 200k+ nodes | Sub-GHz mesh, LoRaWAN   | Topology, SLAs, OTA & config campaigns |

## Ready to connect your fleet?

Talk to us about a pilot for your farms, plants, communities or RF network.

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