

# Logic Controller

Ammonit 35<sup>th</sup> anniversary

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September 20, 2024

## Section 1

### Introduction

New configurable tool to automatically react to certain events.

- ▶ Released in version 2.3.0 (September 2024).
- ▶ Available both for Meteo-40 Plus and Meteo-42.
- ▶ Replacement for Switch Manager, introducing much more flexibility.
- ▶ Automatic configuration migration with no change in the operation.
- ▶ Rule templates available.

Measurement and control system.

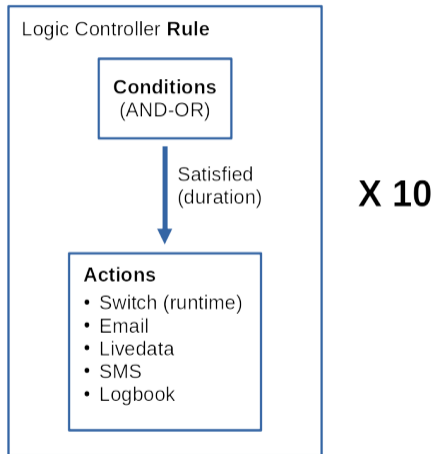
Toggle switch or send alarm (Email, Livedata, SMS) as a reaction to measurements.

- ▶ **Sensor heating:** toggle switch
- ▶ **Severe precipitation:** send alarm
- ▶ **Supply warning:** send alarm
- ▶ **Beaconing:** toggle switch and send alarm
- ▶ **Freezing risk:** send alarm
- ▶ **RS485 communication problem:** send alarm
- ▶ **Cabinet door opened:** send alarm

Switch Manager	Logic Controller
One rule	Up to 10 rules
<b>Conditions</b>	
One level of logical nesting (AND)	Two levels of logical nesting (AND-OR)
Average statistic only	All available statistics
Temperature, humidity, wind speed, voltage	All evaluations and internals available
Same duration as statistics interval	Required duration configurable
<b>Actions</b>	
One switch	One switch per rule
Toggle one switch	Combinations of toggle switch, Email, Livedata, SMS, Logbook
Runtime equal to statistics interval	Configurable runtime
CECS always on required	Switch can remain on without CECS

# Logic Controller

Rule, condition, action.



## Section 2

# Logic Controller Rule Examples

# Rule configuration: Supply warning



Active

Label

Supply Warning

## Template

Use a template

## Conditions

Voltage (Int. Voltage)

Min

not

<

12

V

+ AND

Remove

+ OR

Duration HH:MM:SS

00:01:00

## Actions

Managed switch

None

Set switch state

On

Turn switch off on CECS shutdown

Runtime HH:MM:SS

00:00:00

Email

Livedata

SMS

Logbook

Save

Delete



# Rule configuration: Sensor heating

Active

Label

Sensor Heating

## Template

Use a template

## Conditions

Time	<input type="text"/>	<input type="checkbox"/> not	<input type="text"/>	From	<input type="text"/>	To	<input type="text"/>	AND	<input type="button" value="Remove"/>		
Temperature (Hygro/Thermo @10.0m)	<input type="text"/>	<input type="checkbox"/> not	<input type="text"/>	From	<input type="text"/>	°C	To	<input type="text"/>	°C	AND	<input type="button" value="Remove"/>
Humidity (Hygro/Thermo @10.0m)	<input type="text"/>	<input type="checkbox"/> not	<input type="text"/>	>	<input type="text"/>	%	AND	<input type="button" value="Remove"/>			
Voltage (Int. Voltage)	<input type="text"/>	<input type="checkbox"/> not	<input type="text"/>	>	<input type="text"/>	V	<input type="button" value="+ AND"/>	<input type="button" value="Remove"/>			

Duration HH:MM:SS

00:10:00

## Actions

Managed switch

S2

Set switch state

On

Turn switch off on CECS shutdown

Runtime HH:MM:SS

01:00:00

Email

Livedata

SMS

Logbook

# Rule configuration: Freezing risk

Active

Label

Freezing Risk

## Template

Use a template

## Conditions

Time	<input type="checkbox"/>	not	[t <sub>1</sub> , t <sub>2</sub> ]	From	10:00	To	16:00	AND	Remove
Temperature (Hygro/Thermo @10.0m)	Avg	<input type="checkbox"/>	not	<	5	°C	AND	Remove	
Wind Direction (Top Wind Vane)	StdDev	<input type="checkbox"/>	not	<	1	°	+ AND	Remove	
OR									
Wind Speed (Top Anemometer)	Avg	<input type="checkbox"/>	not	<	0.1	m/s	AND	Remove	
Wind Speed (Backup Anemometer)	Avg	<input type="checkbox"/>	not	<	0.1	m/s	AND	Remove	
Wind Speed (Middle Anemometer)	Avg	<input type="checkbox"/>	not	<	0.1	m/s	+ AND	Remove	
+ OR									

## Actions

Managed switch

None

Set switch state

On

Turn switch off on CECS shutdown

Runtime HH:MM:SS

00:00:00

Email

Livedata

SMS

Logbook

Save

Delete

## Section 3

# Logic Controller Configuration

Logic Controller Rules								
Active	Label	Switch	Email	Livedata	SMS	Logbook	Satisfied	Configure
<input checked="" type="checkbox"/>	Sensor Heating	52	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No	Configure
<input checked="" type="checkbox"/>	Severe Precipitation		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	No	Configure
<input checked="" type="checkbox"/>	Supply Warning		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Yes	Configure
<input checked="" type="checkbox"/>	Beaconing	53	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Yes	Configure
<input checked="" type="checkbox"/>	Freezing Risk		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	No	Configure
<input checked="" type="checkbox"/>	RS485 Communication Problem		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Yes	Configure
<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	?	Configure
<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	?	Configure
<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	?	Configure
<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	?	Configure

Save

Menu System → Logic Controller.

- ▶ Up to 10 rules configurable.
- ▶ Activate/deactivate rule without deleting it.
- ▶ Activate/deactivate actions.
- ▶ Current state shown (Satisfied).
- ▶ Custom label, shown also in System → Switches menu.

```
[Rule_1]
label=Sensor Heating
active=true
condition=(time >= 36000 and time <= 50400) and (Eval_9_Avg >= -10 and Eval_9_Avg <= 2) and (Eval_8_Max > 70) and (V_Min > 12)
condition_duration=00:10:00
action_runtime=01:00:00
switch_id=S2
switch_state=true
email=true
livedata=false
sms=false
logbook=true
```

- ▶ Rules configuration is included in standard configuration file.
- ▶ Download/upload configuration file possible.

Switches				
Id	Label	State	Action	Turn off on CECS shutdown
S1	Modem	On	Turn off	<input checked="" type="checkbox"/>
S2	Sensor Heating	Off	Turn on	<input type="checkbox"/>
S3	Beaconing	On	Turn off	<input checked="" type="checkbox"/>
S4		off	Turn on	<input checked="" type="checkbox"/>
S5		off	Turn on	<input checked="" type="checkbox"/>
S6		off	Turn on	<input checked="" type="checkbox"/>
S7		off	Turn on	<input checked="" type="checkbox"/>
S8		off	Turn on	<input checked="" type="checkbox"/>

Save

Logic Controller

Menu System → Switches.

- ▶ Custom label and current switch state.
- ▶ One switch can only have one duty.
- ▶ One rule can only control one switch.
- ▶ All eight switches can be controlled.
- ▶ Optionally keep switch on if CECS shuts down.

Date/Time	Level	Message
2024-07-16 08:31:47 UTC+00:00	info	CECS Start
2024-07-16 08:31:56 UTC+00:00	info	Checked 0 CSV files and found 0 possibly inconsistent
2024-07-16 08:32:25 UTC+00:00	info	AmmonitConnect established
2024-07-16 08:33:06 UTC+00:00	info	Rule 'Supply Warning' satisfied
2024-07-16 08:33:10 UTC+00:00	info	Rule 'Beaconing' satisfied
2024-07-16 08:33:14 UTC+00:00	info	Rule 'RS485 Communication Problem' satisfied
2024-07-16 08:34:53 UTC+00:00	info	Login of Admin from 192.168.12.0
2024-07-16 08:35:10 UTC+00:00	info	Rule 'Beaconing' not satisfied
2024-07-16 08:36:21 UTC+00:00	info	Rule 'Beaconing' satisfied
2024-07-16 08:38:46 UTC+00:00	info	Login of Admin from 192.168.12.0
2024-07-16 09:41:49 UTC+00:00	info	Date and time set by NTP (3594.794s)
2024-07-16 09:41:50 UTC+00:00	info	Login of Admin from 192.168.12.0
2024-07-16 10:02:12 UTC+00:00	info	Data logger upgraded to version 2.2.8+8-1
2024-07-16 10:02:27 UTC+00:00	info	CECS Stop
2024-07-16 10:03:18 UTC+00:00	info	CECS Start
2024-07-16 10:03:28 UTC+00:00	info	Checked 0 CSV files and found 0 possibly inconsistent
2024-07-16 10:04:03 UTC+00:00	info	AmmonitConnect established
2024-07-16 10:04:25 UTC+00:00	info	Login of Admin from 192.168.12.0
2024-07-16 10:04:40 UTC+00:00	info	Rule 'Supply Warning' satisfied
2024-07-16 10:04:47 UTC+00:00	info	Rule 'Beaconing' satisfied
2024-07-16 10:04:53 UTC+00:00	info	Rule 'RS485 Communication Problem' satisfied

Menu System → Logbook.

- ▶ Changes in rule satisfied state logged in the logbook.
- ▶ The logbook can be sent to AOR, per Email, etc.

Configure statistics

Select statistics

Statistics interval for files  
10 min

File interval  
Weekly

Generate partial files (not recommended)

Statistics interval for Livedata, Logic Controller and SCADA  
10 min

SCADA Summary interval  
Daily

Save

Menu Data → Statistics.

- ▶ **Statistics interval** must be shorter than conditions required duration. Same interval used for SCADA server and Livedata.
- ▶ **Select statistics** (next)



Evaluator/Channel	Avg	Max	Min	SDv	Cnt	Sum	Med	Val
Wind Speed (Top Anemometer)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Wind Speed (Backup Anemometer)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Wind Speed (Middle Anemometer)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Wind Speed (Low Anemometer)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Wind Speed (Ultrasonic)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Wind Direction (Top Wind Vane)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Wind Direction (Backup Wind Vane)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Wind Direction (Low Wind Vane)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Wind Direction (Ultrasonic)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Humidity (Hygro/Thermo @10.0m)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Temperature (Hygro/Thermo @10.0m)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Temperature (Ultrasonic)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Air Pressure (Barometer @10.0m)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Precipitation (Precipitation)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Vertical Wind Speed (Ultrasonic)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Current Isc (Beaconing)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Status Byte (Ultrasonic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input checked="" type="checkbox"/>

- ▶ Default active statistics according to measurement type.
- ▶ Only statistics selected here are available.
- ▶ Same statistics included in statistics CSV files.

## Section 4

### Livedata/Email/SMS Configuration

Publishing

Livedata server  
Ammonit Livedata server

Publish live data to server  
 Publish average data to server

Server name  
livedata.ammonit.com

Server port  
443

Password  
  Show password

Status: active

**Allowed subscribers**

Use Ammonit Live Data Aggregator

my\_user@ammonit.com [Remove](#)

There are no pending data access requests.

Add new subscriber  
  Use custom domain

Allow unrestricted data access

Warning! Allowed subscribers will be ignored if you allow unrestricted data access.

[Save](#)

[Ammonit Live Dashboard](#)

Menu Data → Live.

- ▶ **Livedata server:** Ammonit provides a server, optionally own server can be used.
- ▶ **Publish livedata to server:** visualize livedata in Ammonit Live Dashboard.
- ▶ **Subscribers:** List of user ids that will receive the notifications of rules state changes (e.g. **Ammonit Live Dashboard**).

ari@ammonit.com

Save layout Settings Logout

G225130	2024-09-05 10:58:54
Rule 'Beaconing' satisfied (S3)	
G225130	2024-09-05 10:59:55
Rule 'Supply Warning' satisfied	

Dismiss messages

Add plot Add instrument Add table

Pause Edit

Modem	S1	S5
Sensor Heating	S2	S6
Beaconing	S3	S7
	S4	S8

14:00:09

■ State G22513010100000

12:01 70%

## Ammonit Live Dashboard

dc@livedata.ammonit.com

Save layout Settings Logout

G233199	2024-08-16 12:01:07
Rule 'Low voltage' not satisfied	
G233199	2024-08-16 12:01:07
Rule 'Icing detected' satisfied	
G233199	2024-08-16 12:01:21
Rule 'Low voltage' satisfied	
G233199	2024-08-16 12:01:21
Rule 'Icing detected' not satisfied	
G233199	2024-08-16 12:01:29
Rule 'Low voltage' not satisfied	
G233199	2024-08-16 12:01:29
Rule 'Icing detected' satisfied	
G233199	2024-08-16 12:01:45
Rule 'Low voltage' satisfied	
G233199	2024-08-16 12:01:45
Rule 'Icing detected' not satisfied	

Dismiss messages

## Ammonit Live Dashboard

- ▶ Receive alarm messages.
- ▶ Custom visualization of live data.
- ▶ Available as smartphone application.

Enable short message service

Receiver number

+4912345678

SMSC

SMS password

●●●●●●●●

Show password

Save and send test message

Save

Menu Communication → Modem, SMS configuration button.

- ▶ **Enable short message service:** must be enabled.
- ▶ **Receiver number:** only used for SMS functions.
- ▶ **SMSC:** required by some providers.
- ▶ **SMS password:** required.

SMTP method

SMTP over SSL/TLS

SMTP server

smtp.serveraddress.com

SMTP port (e.g. 0 (default), 25, 465, or 587)

0

Verify server SSL/TLS certificates

SMTP username

blub

SMTP password

●●●●●●●●

Show password

From

me@example.com

To (use semicolon (;) for more than one address)

you@example.com

Cc (use semicolon (;) for more than one address)

other@example.com

POP server (for POP-before-SMTP authorisation)

Menu Communication → Email.

- ▶ Same configuration as for sending CSV, logbook and other selected files.
- ▶ Email addresses in To and Cc will get an email when rules state changes.

Questions? Fragen? ¿Preguntas?