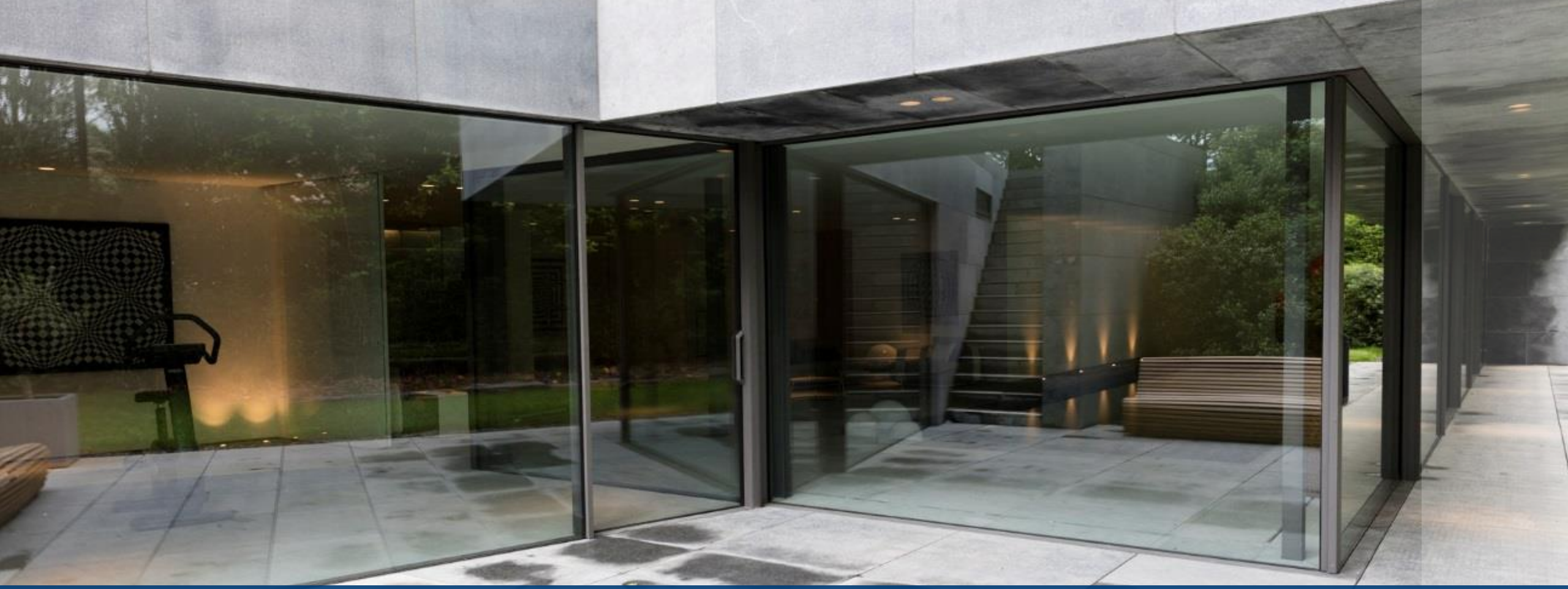


HI-FINITY MOTOR AND ELEMENT CONTROLLER INTRODUCTION AND WIRING

REYNAERS aluminium

Fabathome - Architecture Corbiau - Ukkel, Belgium

V3.2 – 29/11/2017 Willem.Naudts@reynaers.com

HI-FINITY | INTRODUCTION

REYNAERS aluminium
TOGETHER FOR BETTER

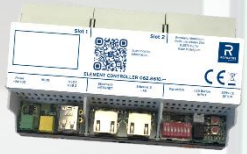
Intro

Delivering automation for Hi-Finity heavy weight sliding windows.

- Slim design with fully concealed motor
- No architectural adaptations needed
- Thermal characteristics of profiles are kept
- Increased comfort with single push button control
- or link with an automation system
- Automatic lock mechanism

HI-FINITY | Element Controller

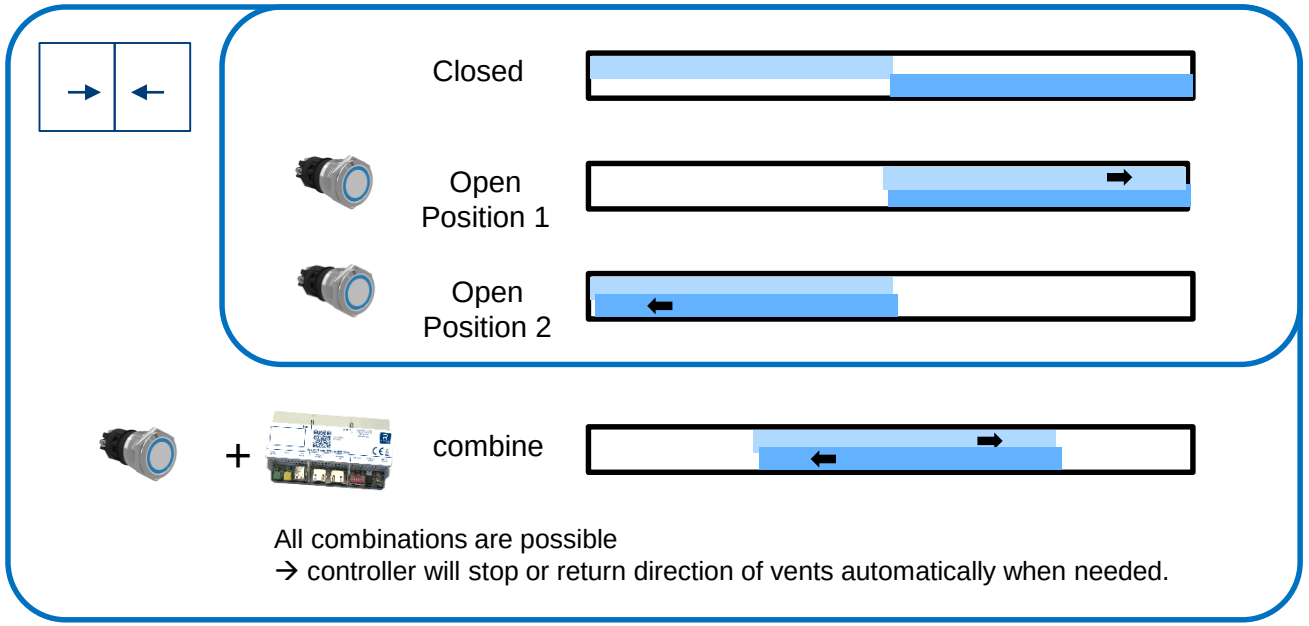
Element Controller benefits:

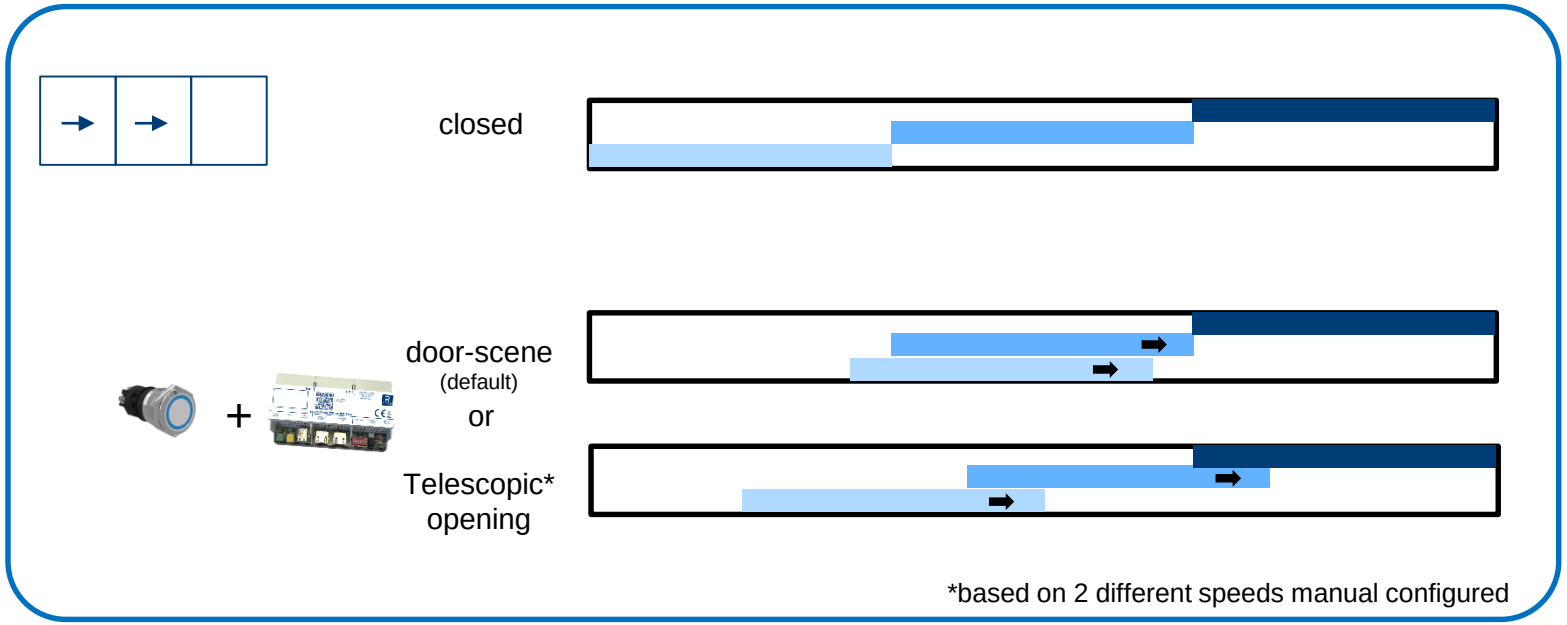


- *Easy handling* of multiple vents by single control point for multiple motorized vents
- *Unified control* in home by full integration in Home Automation system
- *Pre-defined vents states*; door-opening, all-open, wing by wing opening.
- *All Hi-Finity sliding windows* possible by extensive support of multiple opening types

HI-FINITY | Element Controller

Intuitive control of complex setups;
Allow habitants to manipulate vents as they want.





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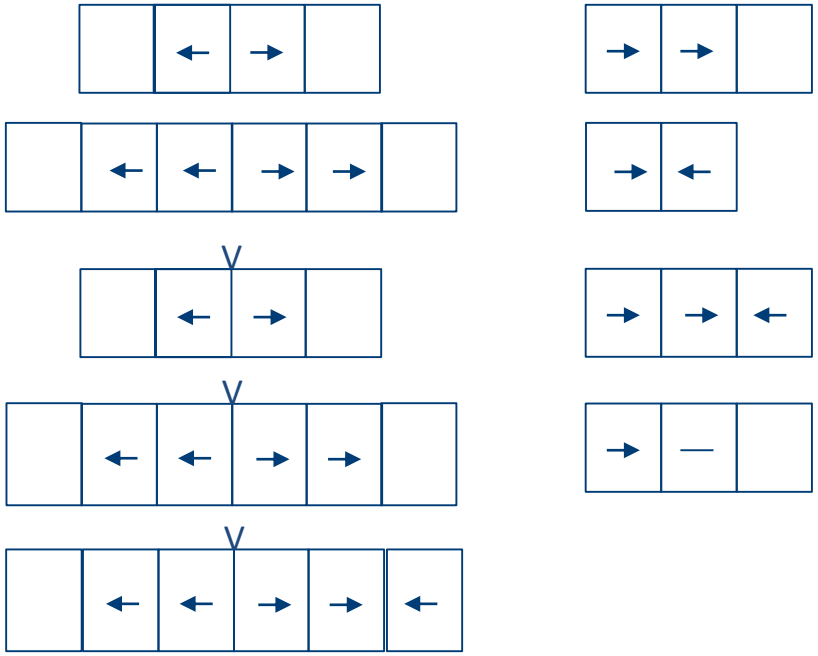
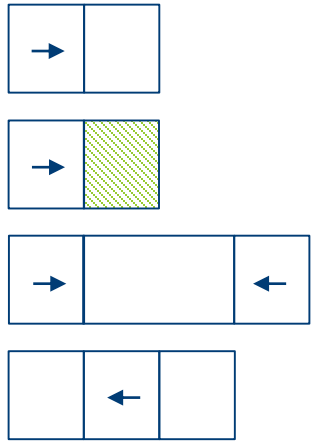
Multiple motors support

Synchronization need :

- Single control for multiple vents
  - Easy control interface for electricians or BMS
- Collision prevention between heavy moving vents
  - Position based, closed loop, control
- High safety performance
  - Current and position based control per motor
- Easy setup and maintenance
  - Manual PC-less setup or web based guided setup
  - Advanced configuration options

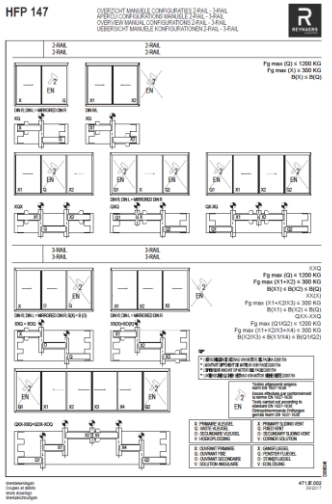
Customers demand is more setups
New catalogue configurations:



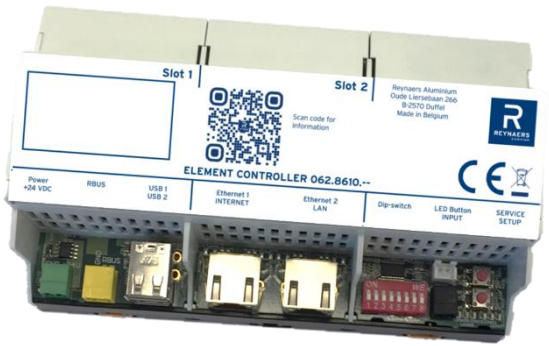


no controller needed for synchronization

More setups and information on
http://setup-ec.reynears.com/



HI-FINITY | Element Controller

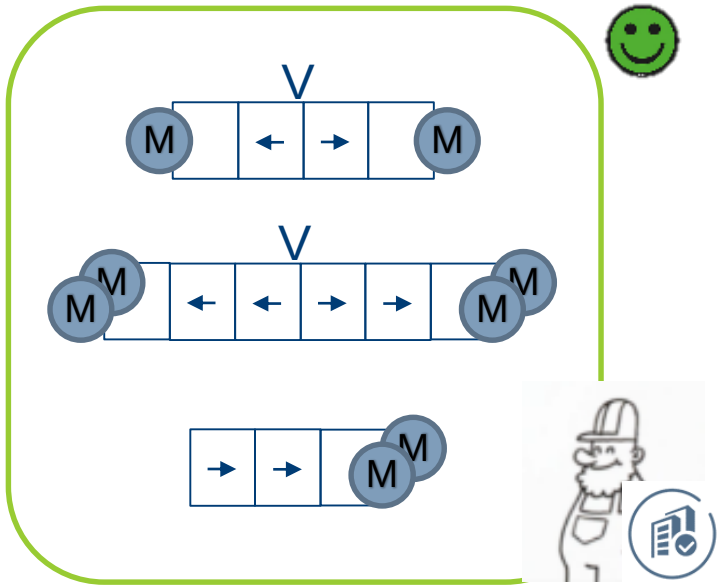


Easy setup!

- Detection multiple motors = correct setup
- Automated calibration = correct lengths
- Automated max-current usage setting = best safety

- +50 setups supported already
- Multiple buttons configurable

- Benefits end-users:
  - Safety first: Real time position based anti-collision control
  - Intuitive control of multiple sliding vents
  - Control per wing or total element
- Benefits fabricator/installer
  - Headless setup: dip-switches & manual movements of vents
  - Common interface for electricians
    - 3rd party system integration: KNX* or NO/NC contacts
  - Installer managed expert view for additional tweaking



* KNX compatible interface to be launched at later stage

MOTORIZED HIFINITY | Vent weights versus installation and use

TECHNICAL CHARACTERISTICS		
Variants	**SLIDE MOTOR 50W**	**SLIDE MOTOR 70W**
Operating weights vent	100-425kg	425-750kg
Operating power	24Vdc 3Amps nom – 10Amps peak	
Input buttons	3 configurable button connections Impulse or Hold To Run	
Lock	Automatic controlled lock	
Moving vent speed	70mm/sec	
Safety	**Pressure sensitive, current monitoring** **Current calibration run to optimize sensitivity**	**Hold-to-Run**
	ESPE* input	
Standards Machine directive	**EN 16005**	**EN 12453**
	Element Controller EN 301489-17	

*ESPE: Electro-sensitive Protective Equipment
** button placed in line of sight of moving vent

ELEMENT CONTROLLER
TECHNICAL DETAILS

REYNAERS
aluminium

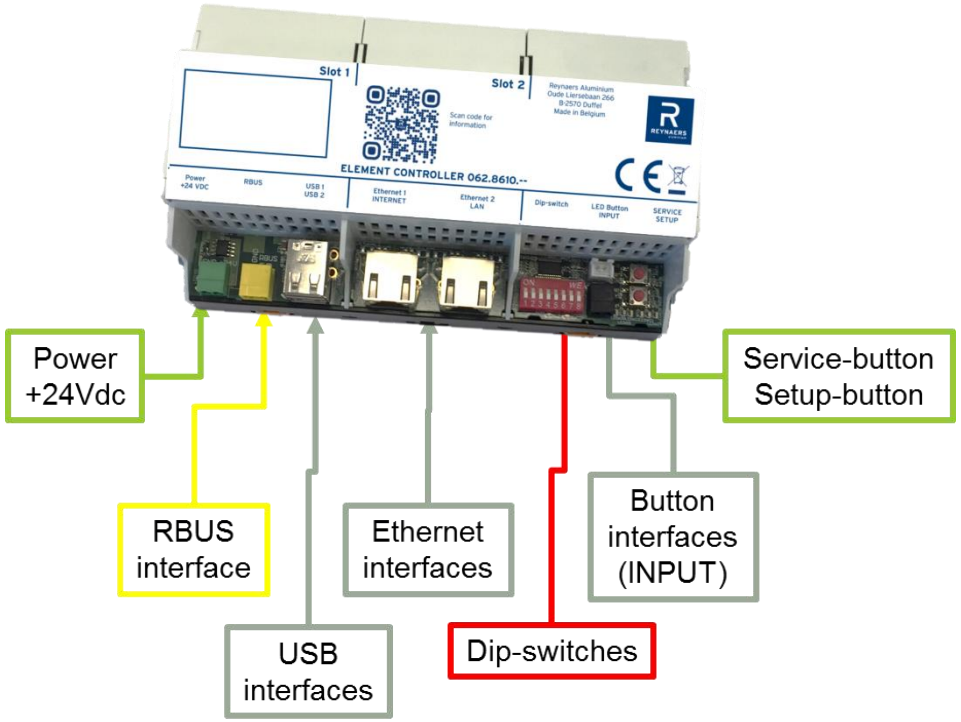
Element Controller 062.8610

Configuration

- Dipswitches with pre-configuration of common set-ups
- 2 buttons for setup and service access
- Web-interface for easy configuration and maintenance

Interfaces

- +24Vdc input
- 1x RBus-interface
- 1x input button-interface & LED-output
- Wireless 802.11bgn access point; LAN interface
- Bluetooth 4.1; mobile phone interface
- 2x Ethernet ports; WAN & LAN interface
- 2x USB2.0; future usage



Optional daughterboard

- 4x additional button-interfaces (INPUTS)
- 2x output-switch NO/NC (OUTPUT)
- KNX-interface* (IN/OUT)

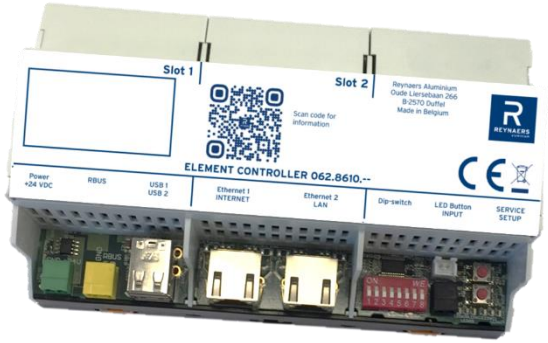
Product size

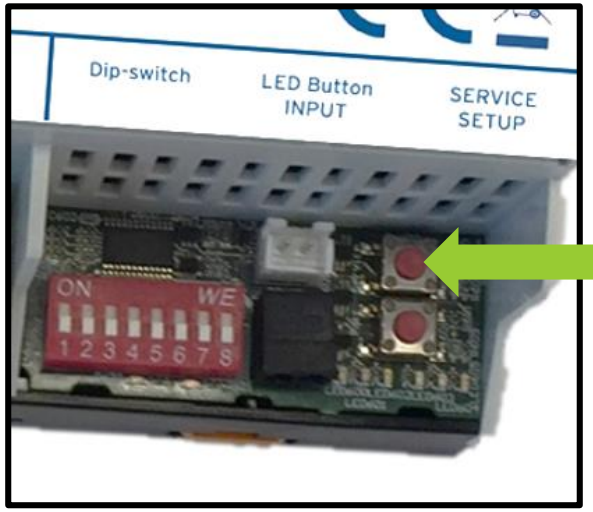
- DIN rail : 6 Units
- L&H&W: 161.6mm x 89.7mm x 62.2mm

Element Controller with additional Output & KNX-interface*

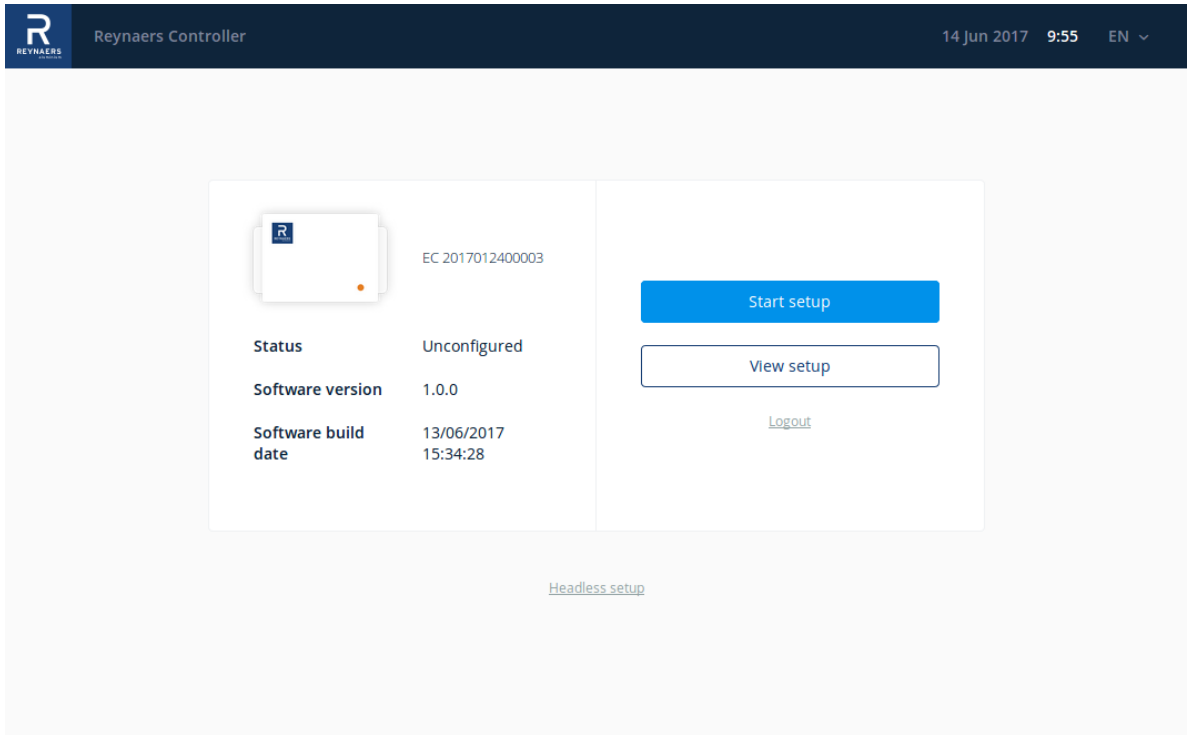
* KNX compatible interface to be launched at later stage

HI-FINITY | Element Controller Setup procedures – web





Service button

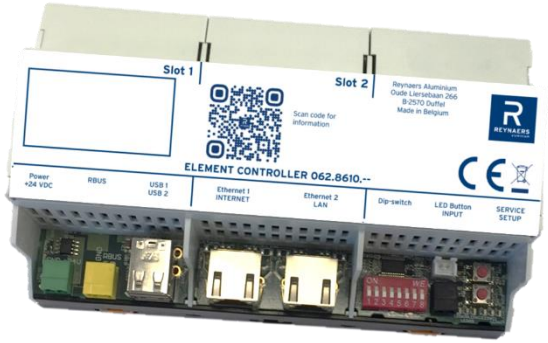


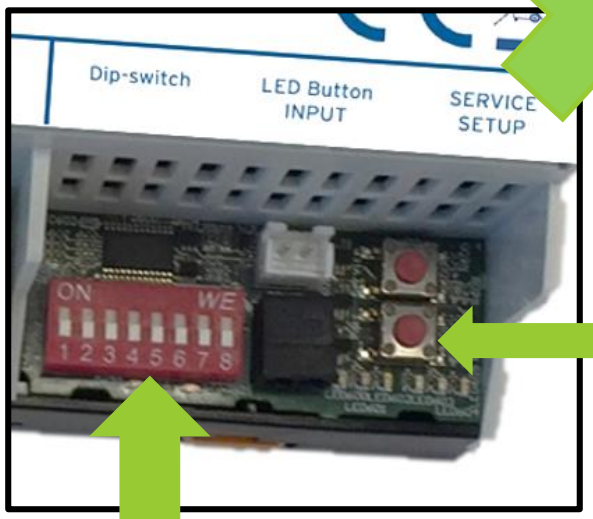
Element Controller welcome page

Element Controller wireless access

1. Press **service button** to activate the wireless access (time restricted access)
2. Search on your device for wifi access point: ***Reynaers EC-<serial nr>***
3. **Password** is printed on Element Controller
4. Open web **browser** and go to http://setup-ec.reynaers.com/

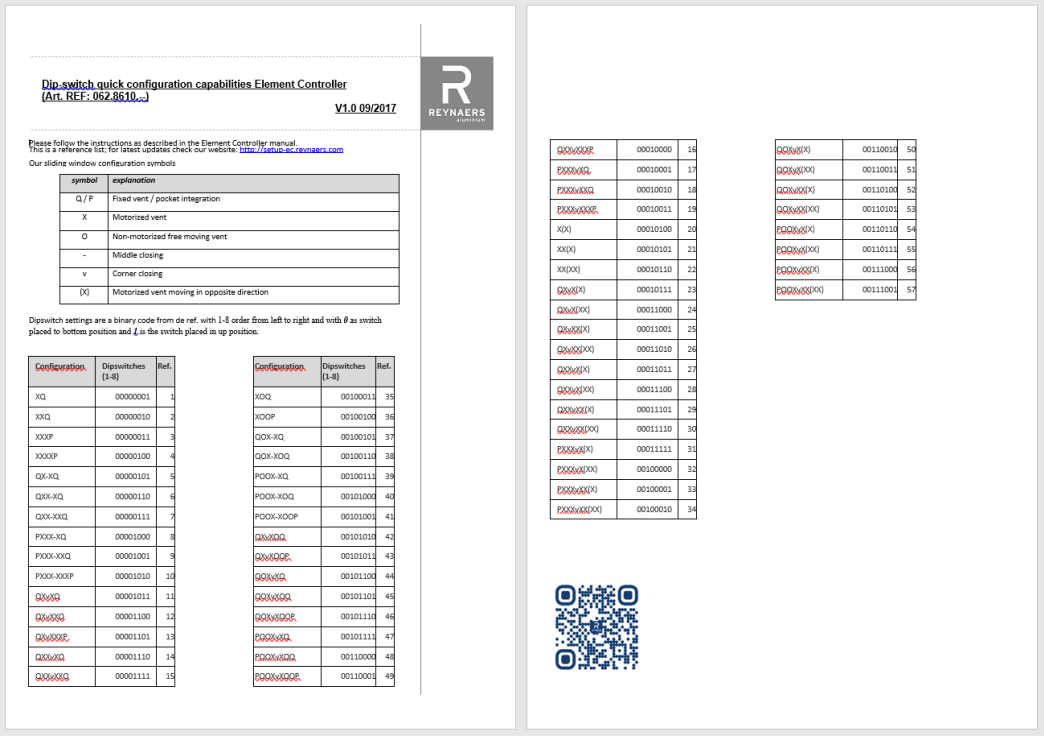
HI-FINITY | Element Controller Setup procedures – manual





Setup button

Dip-switches



Dip-switch quick configuration capabilities Element Controller (Art. REF: 062.8610.--)

V1.0 09/2017

Please follow the instructions as described in the Element Controller manual.
This is a reference list; for latest updates check our website: http://setup-ec.reynaers.com

Our sliding window configuration symbols

symbol	*explanation*
Q / P	Fixed vent / pocket integration
X	Motorized vent
O	Non-motorized free moving vent
-	Middle closing
v	Corner closing
(X)	Motorized vent moving in opposite direction

Dipswitch settings are a binary code from de ref. with 1-8 order from left to right and with *0* as switch placed to bottom position and *1* is the switch placed in up position.

Configuration	Dipswitches (1-8)	Ref.
XQ	00000001	1
XXQ	00000010	2
XXXP	00000011	3
XXXXP	00000100	4
QX-XQ	00000101	5
QXX-XQ	00000110	6
QXX-XXQ	00000111	7
PXXX-XQ	00001000	8
PXXX-XXQ	00001001	9
PXXX-XXXP	00001010	10
QXvXQ	00001011	11
QXvXXQ	00001100	12
QXvXXXP	00001101	13
QXXvXQ	00001110	14
QXXvXXQ	00001111	15
QXXvXXXP	00010000	16
PXXXvXQ	00010001	17
PXXXvXXQ	00010010	18
PXXXvXXXP	00010011	19
X(X)	00010100	20
XX(X)	00010101	21
XX(XX)	00010110	22
QXvX(X)	00010111	23
QXvX(XX)	00011000	24
QXvXX(X)	00011001	25
QXvXX(XX)	00011010	26
QXXvX(X)	00011011	27
QXXvX(XX)	00011100	28
QXXvXX(X)	00011101	29
QXXvXX(XX)	00011110	30
PXXXvX(X)	00011111	31
PXXXvX(XX)	00100000	32
PXXXvXX(X)	00100001	33
PXXXvXX(XX)	00100010	34
XOQ	00100011	35
XOOP	00100100	36
QOX-XQ	00100101	37
QOX-XOQ	00100110	38
POOX-XQ	00100111	39
POOX-XOQ	00101000	40
POOX-XOOP	00101001	41
QXvXOQ	00101010	42
QXvXOOP	00101011	43
QOXvXQ	00101100	44
QOXvXOQ	00101101	45
QOXvXOOP	00101110	46
POOXvXQ	00101111	47
POOXvXOQ	00110000	48
POOXvXOOP	00110001	49
QOXvX(X)	00110010	50
QOXvX(XX)	00110011	51
QOXvXX(X)	00110100	52
QOXvXX(XX)	00110101	53
POOXvX(X)	00110110	54
POOXvX(XX)	00110111	55
POOXvXX(X)	00111000	56
POOXvXX(XX)	00111001	57

Element Controller dip-switch settings overview

Element Controller wireless access

1. Set **dip-switches** based on table
2. Press and hold the **setup button** to activate the setup procedure
3. **Move vents** in correct opening order
4. Confirm with **setup button** the configuration
5. Press a **button** on the system when ready to continue the automated setup

ELECTRICAL CABLE INFORMATION

REYNAERS aluminium

Power Supply

We use a specific power supply motor:

- Un (Nominal voltage) 24 Volts DC
- In (Nominal current) = 3 A
- Ip (Peak current) = 10A
- Switching mode power supply
- With integrated protection systems for overload, overvoltage, overheating and short-circuit.
- Stable output with limited ripple

We strongly recommend to install a battery backup to guarantee the good functionality.

- Working in combination with above power supplies only
- 1 UPS can have 2 power supplies (and motors) connected
  - Use a diode to protect the power supplies (connection module)

We use a specific power supply Element Controller:

- Un 24Volts DC
- In = 0.75A

Power Supply
062.8595.--

Power Supply
Connection module
062.8596.--

Battery backup (UPS)
062.8597.--

Power Supply Element Controller
062.8623.--

ELECTRICAL CABLES | CABLES OVERVIEW

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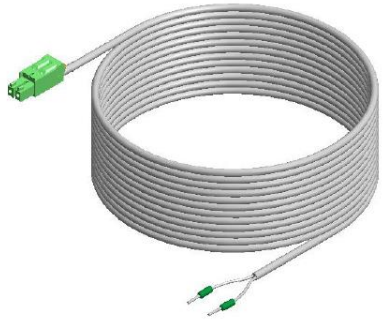
Push button cables:
062.8219 (10m)
062.8222 (10m)
062.8547 (10m)

Cable for Push button 062.8219.--

Push button + Cable + Connector 062.8222.--

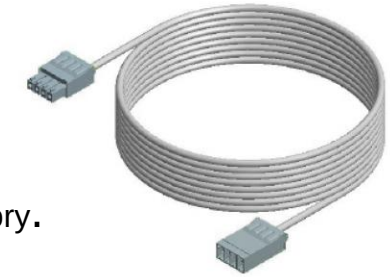
Push button + Cable + Connector + LED 062.8547.--

Power cable:
062.8217 (10m)



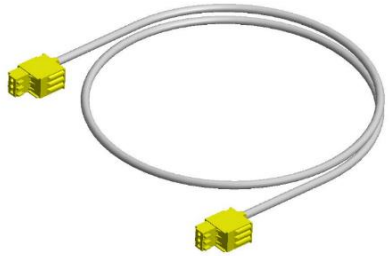
Lock cable:
062.8546 (5m)

Cable can be easiest installed during motor assembly in factory.



Vent stroke	Number of cables
< 7 m	1
7 - 12 m	2

RBus cable:
062.8580 (0.5m)
062.8548 (5m)
062.8574 (10m)
062.8575 (15m)



Element Controller
Power cable : 062.8621 (1m)
Push button cable : 062.8622 (1m)

ELECTRICAL CABLES | POWER AND BUTTON CABLE DETAILS

Power cable:

- Colour codes to connect cables

DC Power cable (green connector)

- GND: BLACK (pin 1)
- +24V DC : RED (pin 2)

Default cable length is 10m.

To extend the cable for >10m, we recommend to replace the cable with a new cable with higher wire sections: 1,5mm² - 2,5mm² depending on the length of the cable.

- In order to calculate the section you can use this formula

A = 0,0175 * L * 2,5

A= section in mm²

0,0175 : Cu resistance parameter

L : distance between power and motor

2,5 : fixed parameter

- **Minimum is 1mm²**
- Exact voltage drop depends also on power supply conditions
- In general you can use:
  - **1mm² → 20m max**
  - **1,5mm² → 30m max**
  - **2,5mm² → 50m max**
- Keep cables as short as possible and no loops.

Button cable:

- Colour codes to connect cables

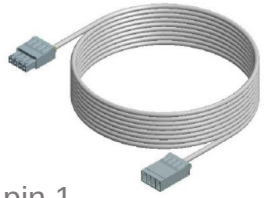
Push button (black connector)

- Input: WHITE
- GND: BROWN

Default cable length is 10m.

To extend the cable for >10m, default 0.34mm² can be used within acceptable distances.

Lock cable:



- Colour codes to connect cables

Lock cable (grey connector)

- +24V DC : GREEN (RED om lock) pin 1
- GND: BROWN (BLACK on lock) pin 2
- Feedback: WHITE pin 3
- Input: YELLOW pin 4

Default cable length is 5m.

To extend the cable for >5m, there're no specific needs to increase the wire. Connect multiple cables to each other.

See electrical manual for more details

ELECTRICAL CABLES | RBUS CABLE DETAILS

RBus cable

- RBus makes bi-directional communication of the Reynaers devices (closed loop)
- Synchronization between Reynaers motors
- Element Controller makes connection to external devices possible:
  - Smartphone App
  - IO-contacts (potential free)
  - Home automation systems or other intelligent devices

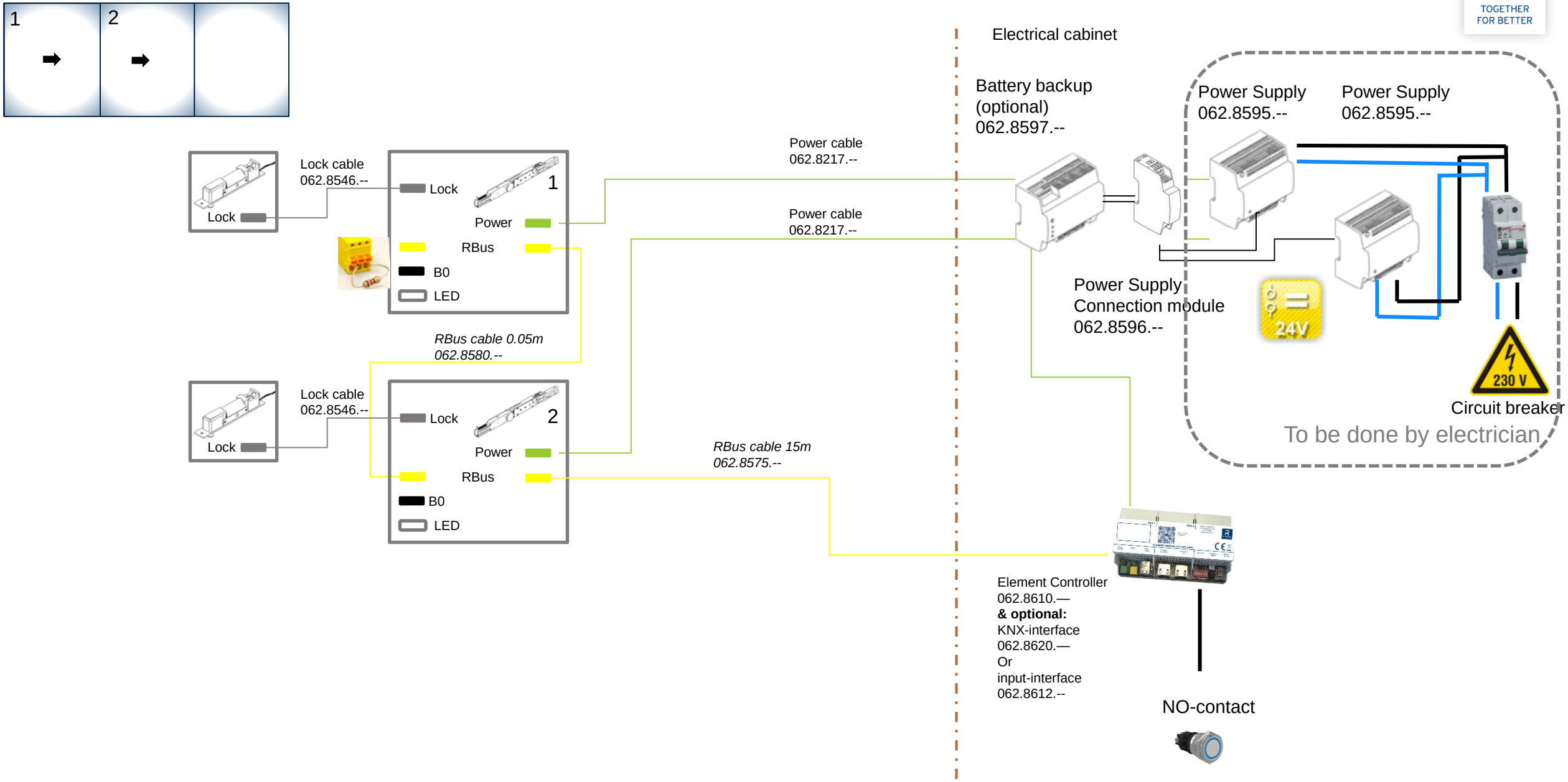
Example 3 motors Rbus daisy chain with Rbus terminator

- RBus pre-mounted cables with yellow specific 3-pin connector
  - 062.8580 : 0.5m
  - 062.8548 : 5m
  - 062.8574 : 10m
  - 062.8575 : 15m

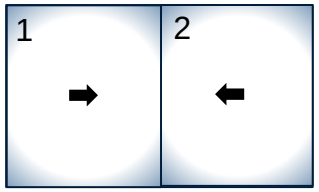
- Cable specifications are: Digi AES-EBU cable of 110 Ohm with 1 twisted pair + one free wire
  - Our as alternative CAT6 will work

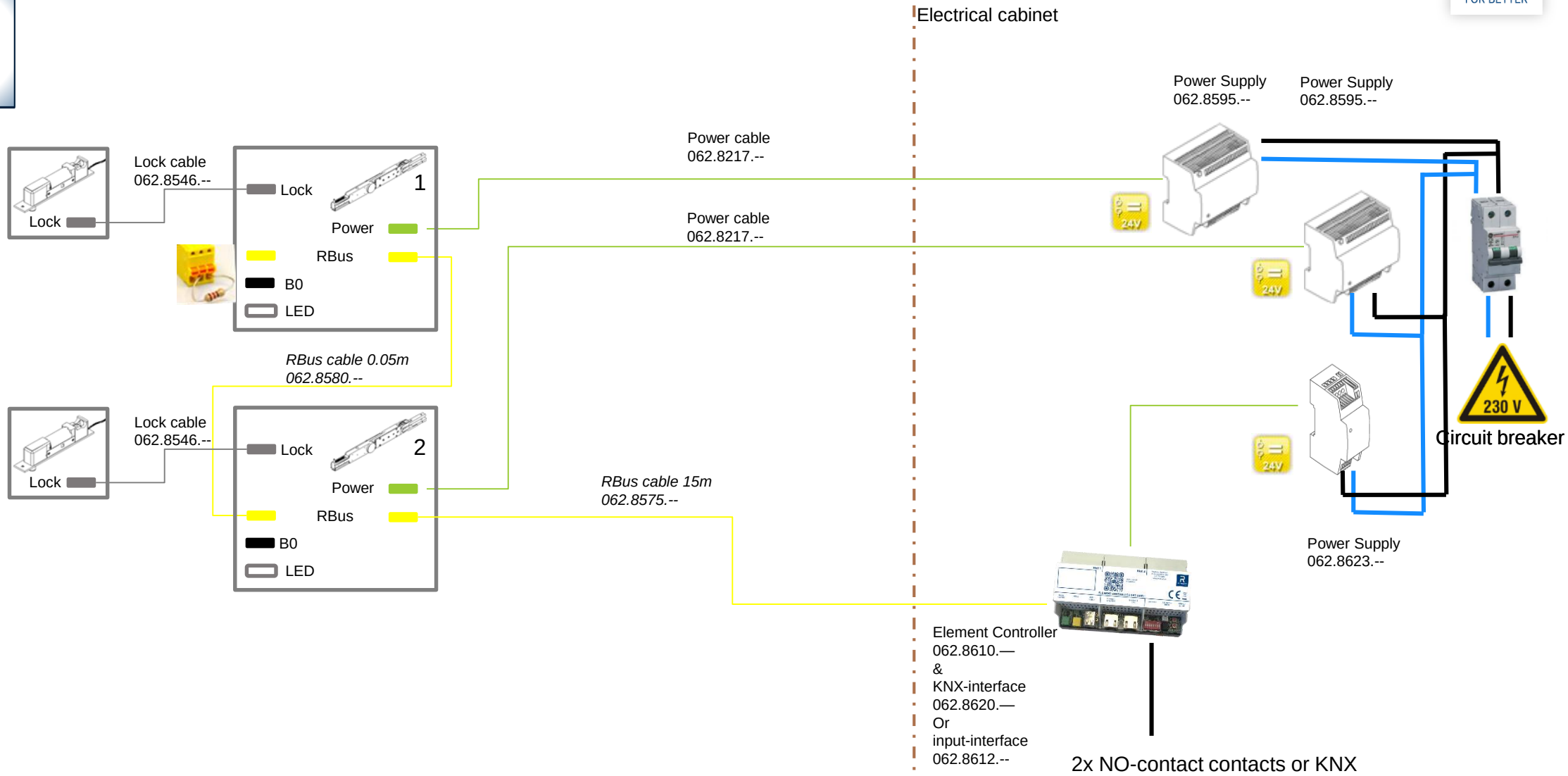
- The system is a **daisy chained** link, this means the devices are coupled in a line structure with 120Ohm terminator
  - **Tree structure isn't allowed**

MOTORIZED HIFINITY | XXQ via BMS : 2 motors



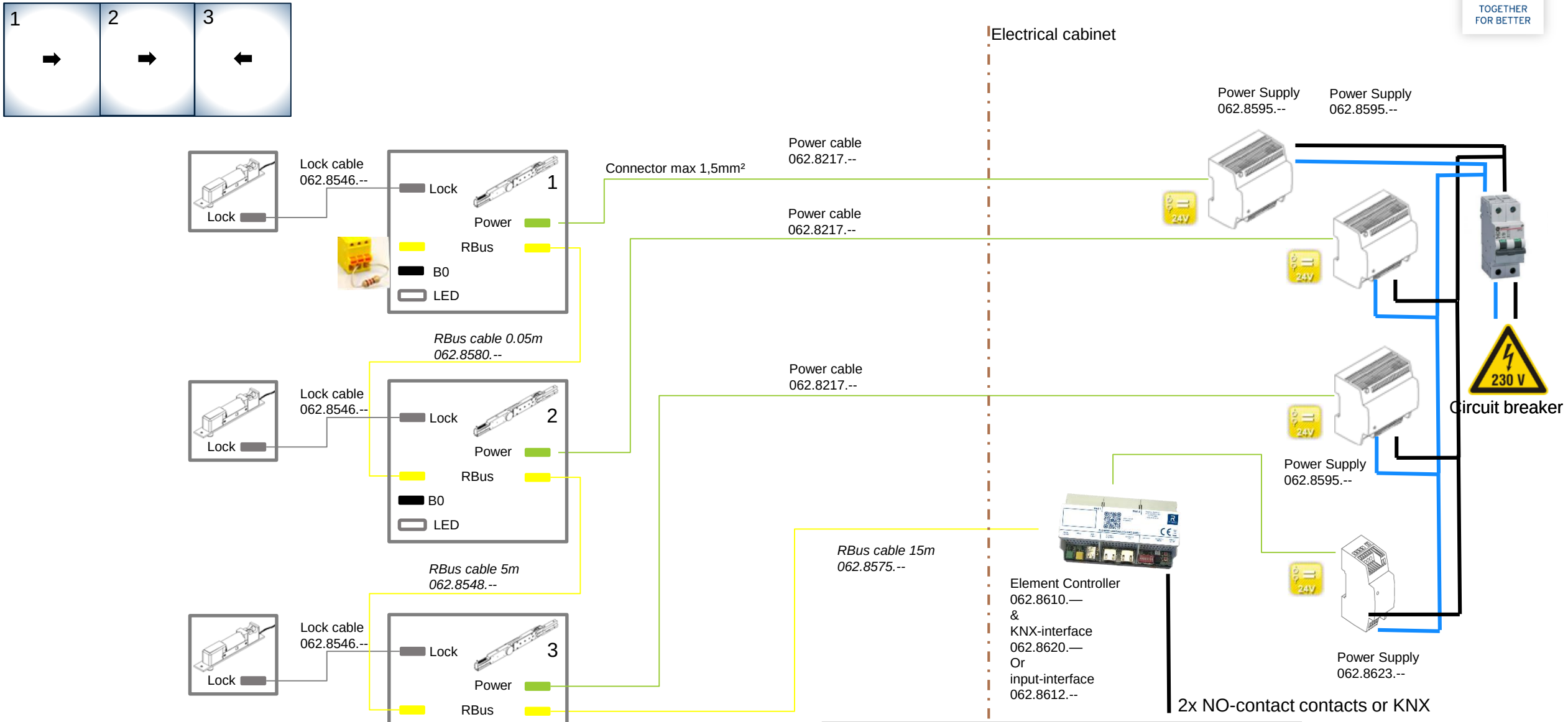
MOTORIZED HIFINITY | X(X) via BMS : 2 motors





To controller: 2 external buttons operation or KNX :
open-stop-close vent1 (pulse or HTR)
open-stop-close vent2 (pulse or HTR)

MOTORIZED HIFINITY | XX(X) via BMS : 3 motors



To controller: 2 external buttons operation or KNX :
open-stop-close vent1&2 (pulse or HTR)
open-stop-close vent3 (pulse or HTR)

THANK YOU

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