



Product description

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EVOLUTION

1. Description

The EVOLUTION BMS is a multi-protocol (BACnet / MODBUS / KNX / OPC) SCADA / BMS system that monitors, visualises and controls the building's mechanical and electrical equipment, such as HVAC, lighting, blinds, technical alarms, hydraulic systems, security systems, energy, etc.

It has a graphic interface RENEWED IN HTML5 and fully responsive, customisable, accessible via web and compatible with mobile devices (tablets, smartphones, etc.).



It is pre-installed on a Linux 22.04 LTS version operating system with many advanced modules such as SQL queries, database management, advanced logic, logs, etc. Including new responsive and HTML5-optimised modules such as Smart Metering, schedules, scenes, graphs, alarms, etc. All of them with very intuitive graphical user interfaces..





Its visualisation is one of the most customisable, multi-user / multi-project, multilingual and user-friendly on the market. Navigation is based on menus, windows, pages and gadgets. This allows a high level of customisation as well as the creation of the right environment for each circumstance.

Available in different industrial embedded PC versions (also available as a virtual machine for a PC or dedicated server and a special version for cluster servers / private cloud) to meet the requirements of the most complex installations.

Evolution BMS is a professional BMS system and the "Evolution BMS-Unlimited" has no data point limits. Therefore, it can control huge and complex installations such as industrial buildings, airports, hotels, etc.

"Evolution BMS-1500 can now also fit into the budget of smaller projects. Apart from the data point limit, this version does not differ from the "Evolution BMS Unlimited" version. In addition, the "Evolution BMS-1500" can also be upgraded to the unlimited data point version if required later on, with the corresponding licence extension.

Included by default on all servers:

- HTML visualisation interface and local editor.
- 5 x KNXnet / IP gateways
- 1 x DALI e64 IPAS gateways
- 5 x ModBus devices
- 1 x BACnet device
- 5 x Smart Metetering Devices
- 5 x Simultaneous users (Visu / Smartvisu)
- 1 x Multi-project (Permissions for advanced modules)
- 1 x Database Manager (automated backup and export of recorded data)
- 1 x Reporting tool for individual project costing

- 1 x Template **: Design a page and reuse it many times with different data points.

* Allows the configuration of an additional, independent project in Evolution BMS Server. Users and displays can be assigned individual categories, scenes, schedules, alarms, etc. For example, a development with 100 homes acquires an Evolution BMS licence and 100 additional users from multiple projects, thus controlling 100 homes with a single evolution.

** Page template with virtual process points and multiple links, each with different data points. (For example, Hotel with 100 equal rooms. Create a single room with virtual process points / template and create a floor plan with 100 links, one for each room. Data points are assigned to the links for each room.)

Código web	Nº pedido.	Nombre
<u>27467</u>	63102-32-38	Additional multi-project users *
<u>10616</u>	63102-32-50	Additional users (5 x users)
<u>10382</u>	63102-32-52	Smart Metering - licence extension (5 x devices)
<u>13770</u>	63102-32-55	BACnet - licence extension (5 x devices)
<u>10693</u>	63102-32-51	KNXnet / IP Gateway - licence extension (5 x gateways)
<u>15790</u>	63102-32-54	Modbus - licence extension (5 x devices)
<u>15793</u>	63102-32-53	DALI management - licence extension (5 x gateways)

Additional licence extensions available:

Evolution BMS is designed to log any KNX value for future queries and analysis.

Thanks to its possibilities in terms of user rights and permissions, different environments can be created for each user. In addition, each user can be assigned different elements and advanced controls for monitoring and/or control.



By means of the database module, Evolution BMS and its KNX data can be integrated with external systems in a simple and flexible way.



Evolution BMS is prepared to support integration with other systems, such as Modbus IP, Bacnet, etc., frequently used in building management systems..

2. 2. System requirements

Evolution BMS works as a web server; it is part of the application network and can be accessed via its network address (IP address).

The network address is the URL that opens the display login screen in a standard system-independent browser (Microsoft Edge, FireFox, Chrome, Safari...).

Evolution Editor is an Adobe Air application that can be installed on Windows 10 and 11 operating system.



Fig. 1: EVOLUTION BMS Server

Figure 1 shows an example of an Evolution BMS Server. The Evolution BMS Server can be operated remotely through its network interface via IP connection..

Depending on performance requirements, it is offered on different HW platforms or as software in virtual machine format. Up-to-date information on all options can be found at https://www.futurasmus-knxgroup.com/evolution.php.

Figure 2 shows a typical system structure: The Evolution BMS server is connected via the network to a KNXnet / IP interface, which establishes the connection to the KNX system. Access to the Evolution BMS web server requires the use of a standard browser, so that the user can log into the application with the corresponding authorisations.





Fig. 2:

Fig. 2: Estructura del sistema Evolution BMS

To start and configure the application, a PC where the Evolution BMS Connection Manager has been installed locally is required. The Evolution BMS Connection Manager starts the Evolution BMS Editor and establishes the connection to the server. With the Editor, the integrator creates websites that can be accessed using various navigation strategies:

- Users with different rights to manage the display
- Weekly and yearly schedules
- Scenarios
- Alarms
- Smart Metering
- Templates and much more.

Thanks to the available licenses, we can extend the variety of applications, such as allowing to add KNX lines to the project or to extend the number of users. By default, the basic licence allows simultaneous access for 5 users.

3. 3. Available formats



Evolution BMS Server

HARDWARE OPTION 1 / 5 - "ENTRY-LEVEL"

HW details:

- 🗸 PC Industrial
- Consumo de energía inactivo 5W
- ✓ Condiciones ambientales 0º hasta + 50ºC
- 🗸 Refrigeración pasiva
- CPU: Intel® E3940 4 x 1.6 GHz (max. 1.8 GHz)
- 🧹 Dual LAN
- Dimensiones (An x Pr x Al): 165 x 109 x 40 mm
- 🖌 4096 MB DDR3
- ✓ 256 GB Solid State Disk M.2

* Adecuado para instalaciones de tamaño pequeño a mediano o incluso grandes instalaciones donde la tasa de datos (telegramas / segundo) y la velocidad / cantidad de datos que se registran en la base de datos no es demasiado alta.

Evolution BMS Server ADVANCED

OPCIÓN DE HARDWARE 2/5 - "NIVEL AVANZADO"

Detalles HW:

- 🖌 PC Industrial
- 🖌 Consumo de energía inactivo 30W
- Consumo de energía inactivo 30W
- 🗸 Refrigeración pasiva
- ✓ CPU: Intel[®] Core i5-7400U 2 x 2.5 GHz (max. 3.1 GHz)
- 🗸 Dual LAN
- ✓ Dimensiones (An x Pr x Al): 285 x 196 x 30 mm
- ✓ 8192 MB DDR4
- 256 GB Solid State Disk SATA



Evolution BMS Server 19-Inch Rack

OPCIÓN DE HARDWARE 3/5 - "NIVEL PROFESIONAL"

Detalles HW:

- 🗸 PC Industrial
- Consumo de energía inactivo 35W
- ✓ Condiciones ambientales 0º hasta + 40°C
- 🗸 Refrigeración pasiva
- ✓ CPU: Intel[®] i5−9400 6 x 2.9 GHz (max. 4.1 GHz)
- 🗸 Dual LAN



Hardware option 4 / 5 – "Virtual Machine – HW-bound"

INSTALLATION ON ANY SERVER / PC

- 🖌 ¡Utilice el HW de su elección e instale Evolution!
- Tu Evolution siempre estará ligada a ese HW.





Hardware option 5 / 5 – "Virtual Machine - Private Cluster / Cloud"

INSTALACIÓN EN SERVIDOR DE CLÚSTER O NUBE PRIVADA

- 🖌 ¡Hágase independiente de HW!
- Tu Evolución no está vinculada a un HW específico.
- Se vende exclusivamente con un "acuerdo de uso"

4.4. HTML display































5. 5. Advanced modules

5.1. Alarms

Alarms			17 N	ali Generati Man	
🔔 Alarms	1	Info			
~ =	Sime V	mio		<u> </u>	
		State:	alarm		
Text	_	Message:	Fire Alarm general		State -
		Threshold:	Fire Alarm EQUAL 1	8	A CARGO CARG
		Last time activated:	9963-967 (1) 7 (3) (3) J	×	Delovity =
		30/09/2020 07:23:06			Citizenty St
CIR	THE	Last time off:			
	1.0	19/08/2020 18:34:04			
		Sec. 255			
		Acknowledgement:			Q
		Accrowledged by:	stephan		
		25/00/2020 rowo 55			
State	Name	20/09/2020 09:49:30 Comment			Artion
307203	a contraction of the	Maintenance			- Cuon
	1.152.10	In maintenence until			
	Hew ald	19/08/2020 11:05:23			SEO
	Same line	Last maintenance!			
	(Vinder	Set by:			
		Comment			
-		Last maintenance removed	d:		
		Removed by:			
		Comment			
				10-10-00	
				Close	
	11			_	

- Configure user information
- Edit message to be displayed on screen, email or Push Notification in IOS/Android App
- Alarm status machine complete:
 - Alarm activated / acknowledged / set to maintenance date.
 - Date and time of the alarm (including "Acknowledged by...")
 - Alarm reset



5.2. Alarm log

AlarmLog	1		×
🗘 Alarm log	J		
۵ 🗆			
Time	Name	State	22
08:44:44	New alarm	Maintenance	
Trigger:	On = On	Priority:	High
Category:		User:	Stephan
Action:	disabled	Comment:	
08:44:33	New alarm	Alarmack	000
08:37:47	WindowHVACAlarm Roon	No alarm	000
08:27:26	New alarm	Alarm	000
08:27:26	Fire alarm room 101	No alarm	000
12:08:36	New alarm	Alarm	000
12:08:36	Fire alarm room 101	No alarm	000
07:25:50	WindowHVACAlarm Roon	Normalnack	000
07:25:48	WindowHVACAlarm Roon	Alarm	a a a
07:23:06	New alarm	Alarm	000
07:23:06	Fire alarm room 101	No alarm	aaa .

- View complete history of past alarms
- Alarm overview: date, time, name, status, user interaction
- Powerful filtering by multiple options

5.3. Scenes

Categories	Party O	ver				đ
ALL >						
Maintanance 🗸	> •			+	Q	X
2 ResetRoomNoFloor1	Staff				Ca	tegory
+ 1	• <u>*</u> * •	Event	Value		Send e	Delete
Staff v	-÷- 🖸	BlindPosition	10 %		•	0
Party Over	k∱s 🖸	HVAC-ON-OFF	Off	٠	►	0
Party scene	*** 😐	HVAC-Mode	2 pulses			8
· · · · ·	÷. 🗧	HVAC-FanSpead	0 pulses			0
	e [*] 23 🖸	Playlist	Chillout		►	0
	.÷. 🖸	TV-ON-OFF	Off	٠	•	8

- Very user-friendly interface for the end customer to:
 - Create new scenes with new events and delays between events.
 - Configuration of scene triggers
- Configuration of the visibility of the process point for users when creating new scenes with descriptive texts.
- Pre-defined scenes can be easily modified
- Recording and executing scenes
- Sorting by categories



5.4. Weekly scheduler

5 Schedules													
Categories				Curred ⊯								+ P	\times
ALL	>	н	VAC-Fan	Speed									\sim
HVAC	>		🕑 hh:mm		Мо	Tu	We	Th	Fr	Sa	Su	Value	
Lights	~	۵	9:00 Ø			٠		۵				3 pulses	
Dimmer ceiling ON/OFF Dimmer ceiling Value Light wall			13:00 🖾					۵				1 pulses	
LightConferenceRoom Lights ceiling Night mode		0	0:00					۵				2 pulses	
RGBW-6Bytes Spotlights Standing Lamps			16:30 🖾									0 pulses	•••
			0:00 Ü									3 pulses	
HVAC-Virt	~		0:00 2									0 pulses	000
HVAC-Mode													

- Very user-friendly interface for the end customer to:
 - Create new time schedules
 - \circ Change / add new events
 - Set days and time for events
 - Set the value to send
- Very easy overview of scheduled events
- Sorted by categories

5.5. Annual calendar

Annual Scheduler																													¢
Annual scheduler events	~	< :	> 2	023 1																					0	AY V	NEEK	MON	ATH YE
Show 10 👻 entries Search:																													
Name	· Category	Janu	ary						Febr	uary						Marc	h						Apri	ŧ.					
Bind DOWN	BUND	М	T	W	τ	F	5	5	M	Т	W	Т	F	s	S	M	т	W	T	10	5	5	м	т	W	T	F	5	5
Bind UP	ALL	.20	27	28	-29	30	31	1	30	31.		2		4	5		28	•	2	3	4	5	27	28	-	30		1	2
HVAC ON	HVAC	-	3	*	12	•	14	15	•	14	*	16	17	18	12	13	14	*	16	*	18	12	10	4	*	12		15	9
Imgation ON	ALL .	:	17	18	19	· 20	21	22	20	21	22	23	*	25	26	20	21	•	23	-	25	26	17	18	•	20	21	22	23
Light OFF	Lights	23	24	25	26	27	28	29	27	28		2		4	5	27	28	29	30	31		2	24	25	26	27	28	29	30
Light ON	Lights	30	31	1	2	•	4	5	6	7		9	10		12		4	• 5	6	7	8	9	1	2	•	4	5	6	7
Showing 1 to 6 of 6 entries Previous	1 Neit			•																							•		•
		May							June							July							Aug	ust					
	2	M	τ	W	T	F	s	s	M	T	W	T	F	S	5	м	τ	W	Ť,	F.	s	5	м	Ť	W	Т	E.	S	S
Actions	~	1	2	3.	4	5	6	7	29	30	31	1	2	3	4	26	27	28	29	30	1	2	31	1	2	3	4	5	6
Frances France		8	9	10	11	12	13	14	5	6	7	8	9	10	1		-	5	6	7	8	9	7	8	9.	10	0	12	13
ciementa acene		15	16	17	18	19	20	21	12	13	14	15	16	17	1	New eve	ent	12	13	14	15	16	14	15	16	17	18	19	20
Show 10 entries Search:		22	23	24	25	26	27	28	19	20	21	22	23	24	2	Today	_	19	20	21	22	23	21	22	23	24	25	26	27
Name	 Category 	29	30	31		2.	-	4	26	27	28	29	30	1	2	24	25	26	27	28	29	30	28	29	30	31	-	2.	3
ACK		5	ő	7	8	9	10		3	4	5	6	7	8	9.	31	1	2	3	4	•	2	4	5	.6	7	8	9.	10
Bind DOWN	Blind																												
Bind UP	Blind	Sept	embe	f					Octo	ber						Nov	embe	r					Dec	embe	r				
HVAC ON	HVAC	М	Ţ	W	Ŧ	F	s	s	M	τ	W	Ŧ	F	s	5	М	1	W	τ	F	s	5	м	Ŧ	W	τ	F	s	S
Irrigation ON		28	29	30	31	1	2.	3.	25	26	27	28	29	30	1	30	31	1	2	3	4	5	27	28	29	30	1	2	3
Light OFF	Lights	4	5	6	7	8.	9	10	2	3	4.	5	6	7	8	6	7	8	9	10	11	12	4	5	6	7	8	9	10
Light ON	Lights	11	12	13	14	15	16	17	9	10	11	12	13	14	15	13	14	15	16	17	18	19	11	12	13	14	15	16	17
Showing 1 to 7 of 7 entries Previous	1 Net	18	19	20	21	22	23	24	16	17	18	19	20	21	22	20	21	22.	23	24	25	26	18	19	20	21	22	23	24



- Very user-friendly and simple **Google Calendar style view**, with day, week, month or year view.
- Add, **modify** or **delete** individual events, events in a series or a whole series.
- Add exceptions and execution periods
- Assign colours by category for easy representation
- Create scenes as a list of events to schedule actions in the calendar
- Use scenes already created in the Scenes Module to schedule your actions



5.6. Smart Metering



- Create different types of meters:
 - \circ $\;$ Energy: add process points for active power and active energy.
 - \circ $\;$ Liquid / Gas: add process points for flow rate and total flow rate
- Add unit price and price increase/decrease
- Custom design
- Great feature to save money with smart metering
- Main counters / sub counters
- Select time range
- Compare different periods
- Displays expenditure in €,\$ or unit of measure.

5.7. **DALI**

Dali e64 Overview										
옯 🌆 💻	DALIAust									
DALI-GW1	Contraction Sector	ECGs								
DALI-GW2	Totals									
DALIAust	EC	Gs	Con	verters	Faller	dECGs	Faile	d Lamps	Failed	Converters
		6		0		0		0		0
	Groups									
	Status	Name	Index	ECGs	Converters	Failed ECGs	Failed Lamps	Failed Converters	Value [%]	Send value
	•	Group 1	li -	1	•	°C+	0	•	0	0 ©
	•	Group 2	2	1		Group 2		0	0	\$
	•	Group 3	3	2			0	0	0	Ģ
	•	Group 4	4	2		1000		0	0	¢
						Statement of the local division of the local				
					-					

- Automatically created visualisation saving many hours of work!
- Just configure the IP address and port of the e64 IPAS Dali Gateway and get the complete DALI Configuration in seconds.
- Create the building structure and link the Gateways, groups or ECGs
- Monitor and control all DALI groups and ECGs

5.8. Charts



- Comprehensive tool to display historical data easily
- Aggregate multiple series on the same chart
- 100% configurable user interface design
 - Lines, marks, background, axes, tooltips, range, series, offset, etc.
- Excellent tool for users to control useful data
- Easily navigate and zoom in/out by clicking on the series



5.9. User permissions



Categories					2 200								1 1135	×.
ALL	>	н	VAC	-Far	Speed 🗵									^
HVAC	>	۵	10	hh:mm		Мо	Tu	We	Th	Fr	Sa	Su	Value	
Lights	~	0	9:00	U		٠	٥	•	۵	٠	٥	٠	3 pulses	
Dimmer celling ON/OF Dimmer celling Value Light wall	FF	0	13:00	Ø		۵	۵	۵	۵	۵	۵	٥	1 pulses	
LightConferenceRoom Lights ceiling Night mode			0:00	U		0	٥	٥	۵	۵			2 pulses	***
RGBW-6Bytes Spotlights Standing Lamps		۵	16:30	13		0	۵	۵	۵	۵	0	۵	0 pulses	•••
+		۵	0:00	U		٥	٥				٥	٥	3 pulses	
HVAC-Virt	~		0:00	U		2							0 pulses	
FIVAC-IVIDGE	_	-												
Scenes Categories		Pa	arty (Over										বে
Scenes Categories	>	Pa	arty (Over										Z
Categories Categories ALL Maintanance	>	Pa	arty (Over								1	+ 0 2	e X
Categories	> ~	Pa •	arty (Over								1	+ 🭳 📔 Cat	egory
Categories ALL Maintanance ResetRoomNoFloor1	> ~ •	Pa Sta	arty (d m , ©	Over	Event					Val	ue	1	+ 💽 Cat Send e	tegory Delete
Categories Categories ALL Maintanance ResetRoomNoFloor1	> ~ •	Pa State	arty (. •	Over •	Event			10.5	······································	Val	ue		Cat Send e	egory Delete
Categories Categories ALL Anintanance ResetRoomNoFloor	> ~ •	Pa Sta Q	arty (• • •	Over	Event lindPosition VAC-ON-OFF			0ff		Val		1	+ 0 E	regory Delete
Categories Categorie	> • •	Pa Star	arty ((, 0 , 0	Over	Event lindPosition VAC-ON-OFF VAC-Mode			10 5 Off 2 pu	6 ulses	Val	ue	1	+ Q E Cal Send e 5 +	egory Delete
Categories Categorie	* * * *	Pa Su Su Su Su Su Su Su Su Su Su Su Su Su	arty (, 0	Over	Event lindPosition VAC-ON-OFF VAC-Mode VAC-FanSpead			10 9 Off 2 pu 0 p	6 ulses ulses	Val	ue		+ Q E Cal Send e > +	Delete
Categories Categories ALL Maintanance ResetRoomNoFloorI ResetRoomNoFloorI Party Over Party Scene	> • • • •	Pa ► Sta Co Co Co Co Co Co	arty (Dver	Event lindPosition VAC-ON-OFF VAC-Mode VAC-FanSpead laylist			0 pu Chill	l6 ulses ulses	Val	ue		Call Send e Send e b	C legory Delete

- Assign users / user groups to rights settings
- Configure module and article permissions (categories)
 - Scene control
 - Alarm module
 - Scheduler
 - Smart metering
 - DALI e64 administration
- Different rights depending on the user
 - Display only
 - o Event management
 - o Full control



5.10. Logic







Description	Operator	Description	Function Name	Description	Function Name	Description	Fund	tion Name
Power	**	Sine	sin(x)	Average	avg(x1,x2,x3,)	Left	left(s	tr. len)
Boolean Not	3	Cosine	COS(R)	Minimum	min(x1,x2,x3,)	Right	right	(str. len)
Unary Plus, Unary Minus	+7, -X	Tangent	tan(x)	Maximum	max(x1,x2,x3,)	Middle	mid(str. start. len)
Dot product, cross product		Arc Sine2	asin(x)	Vector Sum	vsum(x1,x2,x3,)	Substring	subs	tr(str. start. [end])
Modulus	.95	Arc Cosine2	acos(x)	Promotions Expections		Lower Case	lowe	r(str)
Division	SV	Arc Tangent	atan(x)	Notificing Forcesto	2010/02/02/02/02/02/02	Upper Case	uppe	er(str)
Multiplication		Arc Tan with 2 parameters	atan2(y, x)	Description	Function Name	Length	lents	tr)
Addition, Substraction	a	Secant	sec(x)	Round	round(x), round(x, p)	Trim	trim	str)
Less or Equal, More or Equal	au, >=	Cosecant	cosec(x)	Round to integer	rint(x), rint(x, p)			
Not Equal, Equal	34,444	Co-tangent	cot(x)	Floor	floor(x)	ToBase	a string in a given	o ToBase(bosenumber.)
Boolean And	88	Hyperbolic Sine	sinh(x)	Ceiling	ceil(x)		base.	
Boolean Or	11	Hyperbolic Cosine	cosh(x)	If .	if(cond. trueval, falseval)	ToDec	Converts to base 10	ToDec(x)
Assignment		Hyperbolic Tangent	tanh(x)	Str (convert number to string)	str(x)		ToBase(10.x)	
Bit and	8	Inverse Hyperbolic Sine	asinh(x)	Absolute Value / Magnitude	abs(x)	ToHex	Converts to base 16	ToHex(x)
Bit or	12	Inverse Hyperbolic Cosine1	acosh(x)	Random number (between 0 and 1)	rand0		Same as ToBase(16.x)	
Bit xor	A.#	Inverse Hyperbolic Tangent1	atanh(x)	Modulus	mod(x,y) = x % y	FromBase	Converts a string in	a FromBasetx, bosenur
Bit complement	8	Natural Logarithm1	ln(x)	Square Root1	sqrt(x)		given base to	
Leftshift	61	Logarithm base 101	log(x)	Sum	sum(x,y,)	1	numbers.	
Signed rightshift	>>	Logarithm base 21	lgior)	Binomial coefficients	binom(n, l)			□ ×
Unsigned rightshift	>>>	Exponential (e*x)	exp(x)	Signum (-1,0,1 depending on sign of argument)	signum(x)	7	[11] 88 [12])	
		Power1	pow(x)				(12) 000 (12))	
		Power1	pow(x)					

5.10.1. Graphic editor

- Create logic pages in the folder structure, copy/paste logic pages between projects, drag and drop logic blocks onto pages, drag and drop links between inputs, outputs and logic blocks.
- Most common logic functions: Boolean logic, mathematical logic, comparators, gates, etc.
- Advanced timers: delay, counter, staircase, clock, cyclic, etc.
- Use any logic block and change it using a scripting language (see next page).

5.10.2. Online diagnostics

- Real-time diagnostics by displaying the values received and sent by each logic block.
- Modify any existing value, propagating the calculated values across the entire logic map, even offline!
- Sending to fieldbuses (KNX, Modbus, BACnet) the calculated values as a result of received telegrams or manual modifications.



5.11. Log manager

LOG MANAGER	LOG MANAGER														
🥡 Processpoi	nt 🔫 Alarms	🖨 Configu													
Process Point ID	: 🙀 495:(HOME:()/6/111) Ext E - Vie	nto m/s												
					a level frank for low at the loc										
Filter	Range: Start 02,	10/2020	: 12 ; 27	h End 04/10/2020	0 💥 9 🚽 : 12 🚽 :	27 🚽 h									
Field: AVERAGE v Between: >= v - <= v															
LOG	QUARTER HOUR	HOUR	DAY	WEEK	MONTH YEAF										
WEEK	YEAR	AVERAGE	MAXIMUM	MINIMUM	INCREASE	INCREASE SECS OF									
23	2020	1.02	4	0	-0.127404469030	313193.331									
22		1.02	3.2		-0.009528882829	520628.168 :									
21		0.95	2.9		0.1878017374262	307493.591									
20		1.04	3.9		0.4491316144335	265785.733									
19		1.01			-0.120243120271	245281.546									
18		0.98	4.1		-0.335447946417	310574.273									
17		0.85	3.2		0.0344527181733	291205.614									
16		0.90	2.7		0.1953123406725	279247.381									
15		0.98	3.5		0.1031818680580	285377.388									
14		1.01	3.4		-0.536170436244	282501.087									
13	2020	1.00	3.9	0	0.3958193714975	301881.648									
		H	◀ 1/4	► HI											
90						X Close									

LOG MANAGER							×
💗 Processpoint	📢 Alarms 😽						
Filter Text:						0	
State	ALL		- Priority: ALL				
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Proces	spoint: 🙀		्र Message: 🔛				2
	×						
						Sear	en i
DATE	NAME	PROCESS POINT NAME	STATE VALUE	CONDIT	THRESHOLD	COMMENT	
03/10/2020 08:56:3	New alarm		On MAINTEN. On				
03/10/2020 08:56:3	New alarm		C ALARM On				=
03/10/2020 08:55:5	i New alarm	Fire	🔴 ALARM On				
03/10/2020 08:55:5	Fire alarm room 101	gw:1-5-2	😑 NO ALAR Off				
02/10/2020 16:25:1	New alarm		ALARM On				
02/10/2020 16:24:1	New alarm		ALARM On				
02/10/2020 16:24:1	Fire alarm room 101	gw:1-5-2	NO ALAR Off				
02/10/2020 08:44:4	New alarm		MAINTEN, On				
02/10/2020 08:44:3	New alarm		ALARM On				
02/10/2020 08:37:4	WindowHVACAlarm Roon	gw:1-5-3	O NO ALAR Off				
02/10/2020 08:27:2	New alarm	Fire	ALARM On				
		1/5	5 5 54				
a							
						~	

- - Export / import process points to / from a CSV file
- Apply import / export filters
 - Date range
 - Max, Min, Average, Increment, Increment sec in values
- Data between 2 values (operators: <, <=, =,>,>,> =)
- - Delete log data of process points within a date range
- - Send alarm log to a pre-configured alarm
- - Apply import / export filters Intervalo de fechas
- - Alarm status and priority

• Deleting alarm log data within a date range

5.12. Project information





Sat Oct 3 2020

Detailed item prices

HTML-page 1

Price list

Project name:	Hotel Project			
Project type:	SCADA-BMS			
Status:				
Start date:	2020-05-28 16:42:07			
End date:	2020-05-28 16:42:07			
Customer:	Futurasmus			
Contact name:	Stephan Erasmus			
Phone:	+34965959511			
Manager:	Jose Miguel			
Lead:				
Company:	Hotel Group Melian			
Item		Unit price	Amount	Tota
Thom		Unit erice	A	Tata
Item Pages		Unit price 10 €	Amount	Tota
Item Pages KNXnet/IP Gate	ways	Unit price 10 € 10 €	Amount 44 2	Tota 440 ¢ 20 ¢
Item Pages KNXnet/IP Gate Group Address	ways	Unit price 10 € 10 € 1 €	Amount 44 2 611	Tota 440 ¢ 20 ¢ 611 ¢
Item Pages KNXnet/IP Gate Group Address Virtual DP	ways	Unit price 10 € 10 € 1 € 1 €	Amount 44 2 611 4497	Tota 440 (20 (611 (4497 (
Item Pages KNXnet/IP Gate Group Address Virtual DP Modbus	ways	Unit price 10 € 10 € 1 € 1 € 1 €	Amount 44 2 611 4497 0	Tota 440 ¢ 20 ¢ 611 ¢ 4497 ¢ 0 ¢
Item Pages KNXnet/IP Gate Group Address Virtual DP Modbus BACnet	ways	Unit price 10 € 10 € 1 € 1 € 1 € 1 €	Amount 44 2 611 4497 0 0	Total 440 (20 (611 (4497 (0 (0 (
Item Pages KNXnet/IP Gate Group Address Virtual DP Modbus BACnet OPC	ways	Unit price 10 € 10 € 1 € 1 € 1 € 1 €	Amount 44 2 611 4497 0 0 0	Total 440 ¢ 611 ¢ 4497 ¢ 0 ¢ 0 ¢
Item Pages KNXnet/IP Gate Group Address Virtual DP Modbus BACnet OPC Non KNX	ways	Unit price 10 € 1 € 1 € 1 € 1 € 1 € 1 € 0 €	Amount 44 2 611 4497 0 0 0 0	Total 440 € 611 € 4497 € 0 € 0 €
Item Pages KNXnet/IP Gate Group Address Virtual DP Modbus BACnet OPC Non KNX Process points	ways	Unit price 10 € 1 € 1 € 1 € 1 € 1 € 1 € 1 € 1 €	Amount 44 2 611 4497 0 0 0 0 0 0 0 0	Total 440 ¢ 20 ¢ 611 ¢ 4497 ¢ 0 ¢ 0 ¢ 0 ¢
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Item Pages KNX/net/IP Gate Group Address Virtual DP Modbus BACnet OPC Non KNX Process points I Process points I	ways og oad monitor	Unit price 10 € 10 € 1 € 1 € 1 € 1 € 1 € 1 € 1 € 1	Amount 44 2 611 4497 0 0 0 0 0 0 4850 278 4	Total 440 (20 (611 (4497 (0 (0 (0 (0 (278 (20 (20 (

- Tool to automatically create cost estimate of the work done on the Evolution project
- Project information
- Customer information
- Detailed item pricing

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5.13. Non EIS

Non EIS type	e editor			□ ×
Id	-1			
Name	PP 1:	x4 Byte to 4x1 Byte PPs 1-4		
Description				
Types				
			Repet	
		PP 1x4 Byte to 4x1 Byte PPs 2-4		
		PP 1x4 Byte to 4x1 Byte PPs 3-4		
		PP 1x4 Byte to 4x1 Byte PPs 4-4		
•	:=			

Non EIS	type editor		
Descript			
	Type Editor		×
Types	Name	PP 1x4 Byte to 4x1 Byte PPs	
	DPT	12:4 byte unsigned value	et 👻
	Repetitions	4	10
	Byte Offset	0	-
	Bit OffSet	0	÷
	Clear	Save Cano	al
Ð	⊜ ≔		

- Converting non-standard telegrams into standard process points
 - Data point type
 - Repetitions
 - o Byte and bit offsets

5.14. Ping control



- Add the IP address of the device to monitor
- Select the ping frequency
- When the pinged device does not respond, these process points will be set to "1".

5.15. Smart Visu



- Creates a building structure
- Link process points to defined controls: only linked functions will be displayed in the GUI
- Assign user to open Smart Visu by default
- Pre-designed responsive elements
- Easy to use



5.16. SQLExec

SQL Executions			D 🗆 🛛
			🗸 Activate
		Description	
SQLExecutionD	ataActualTempLastWeek	Last week	
	H I	/1 🕨 👐	
• • •			X Close
Name	SOI Evention Data Actual Terrol actWeek		-
Name:	SQLEXecutionDataActual empLastweek		
Description:	Last week		
Query:	Last week 👻 🥰 🔍		
	select sum/count as average from logs_[633].week_ limit 1;	reduction where date < date_trunc('week', now()) or	der by date desc
Trigger:	~		
Polling time:	60		Min
Virtual DP:	Sqlexec.SQLExecutionDataActualTempLastWeek.Trig Sqlexec.SQLExecutionDataActualTempLastWeek.Res	iger iult	
Clear		Save	Cancel

	Virtual Datapoints		
Text:		0	
/sqlex	ec/		
7			
► lin	197:SQLExecutionDataActualTempLastWeek		

Sqlexec.SQLExecutionDataActualTempLastWeek.Trigger
Sqlexec.SQLExecutionDataActualTempLastWeek.Result

- Process point data, stored in the database, can be extracted to the resulting process points.
- Automatically created data points
- This is done through SQL queries. That is to say. Sum / total as average of:
 - Last quarter hour, current quarter hour, last hour, current time and yesterday.
 - Trigger interval
- Trigger data point for executing a SQL query
- Data point with query result

5.17. CSV export & connection to the SQL database

CSV export config	iration				□ ×
	WHERE	REPETITION	WHAT	DELETE	ENABLED
	SHARED FOLDER	Yearly	Complete project log		*
	1**	1/1	► ₩		
⊕ ⊜ ≔					X Close
✓ Enabled	uchani in				
Export:	Minutes log 🗸 👻				
Shared folder:	1:ProyectosEvolution			Ű	• ⊕ ≔ ⊖ ৪
Decimal separato					
Remote connection	n: Microsoft SQL Server 👻	0			
Server IP:	Port:		Database nar	me:	
User:	Password:		Show Schema (Optio	nal):	
Connection string					
When to export:	Type Day	Hour Minut	e		
40	Monthly v 1 v	0 📮 0			
Arter successful b	1 Delete all before		- months.		
Trigger:	() × ()	ē 5			
► Run	d Test			Save	X Cancel

· Export minute and alarm log to an external database server



Database servers: Microsoft SQL Server, MySQL Server, Postgre SQL server



5.18. BACnet (Client & Server)

	BACnet Client: BACnet ob	ject is a value-Object (analogue-value, binary-value, r	multistate-value)
Direction	OUT	IN	INOUT
BACnet client will SubscribeCOV?	NO	YES - SubscribeCOV	YES - SubscribeCOV
Communication	Unidirectional	Unidirectional	Bidirectional
Direction	BACnet client (i.e. Evoution Visu)> BACnet server	BACnet server> BACnet client	BACnet server <> BACnet client
How updated?	Evoution Visu sends -> to BACnet server via WriteProperty	Propagated: All notification from BACnet server	Propagated: All notification from BACnet server & Evolution Visu sends -> to BACnet server via WriteProperty

Import of configuration in XML file:

- Protocol Implementation Conformance Statement (PICS)
- Application Service Conformance Class 3 (start and run)
- Subscribe VOC, Unconfirmed VOC Notification, Read Property, Read Conditional Property, Read Multiple Property, Write Property, Write Multiple Property, Who-Has, I-Have, Who-Is, I-Am
- - Supported object types (current value, status)
 - Analogue input
 - Analogue output
 - Analogue value
 - Binary input
 - Binary output
 - o Binary value
 - o Multistate input
 - o Multistate output and Multistate value

5.19. Modbus



File:	WAGO.sym	
Gatename :	gateway1	
Address:	10.20.30.1	
Port:	502	
Devicename:	device1	

- Configure XML file with the main variables:
 - IP Address of Modbus Slave,
 - o Slave ID
 - Modbus variables (Address, Coil Status, Input Status, Holding Register, Input Register, etc.)
- Modbus Import XML file
- Import WAGO ".sym" files
- Automatically created data points and process points

5.20. Node-RED

Node-RED											Delet			Carteri
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- Powerful visual programming environment to connect devices, APIs and online services in the **IoT ecosystem** in a very simple way.
- Easily connect KNX, Modbus, Bacnet, etc. to any IoT device or service with **Evolution Nodes**
- Integrations with protocols like MQTT, REST, Websocket, SQL, HTTP, etc.
- Integrations with third-party APIs such as **Telegram**, **PushOver**, **Sonos**, **Doorbird**, **NetAmo**, **Philips HUE**, **Google Voice Assistant**, **NGSI-LD**, etc.
- Optimised to handle multiple concurrent connections in real time.
- World's largest open-source ecosystem (over 4500 nodes available)
- Open-source standard for data management and data processing
- Possibility of easy development of new Node-network connectors for integration with third-party APIs.



5.21. Master/Slave Architecture

- Multi-level topology for Master/Slave configuration
- Different Evolution Slaves can report to one or several Masters at the same or different hierarchical levels.
- An Evolution Master can also have Slave functions and report to another Evolution Master.
- The connection to the different fieldbuses (KNX, BACnet, Modbus, etc.) is done in the Evolution Slaves.
- The values of the data points shared in the Evolution Slaves are reported to the Evolution Master via IP connection, avoiding connecting the master to the fieldbuses.
- The Evolution Master has the process points shared by each Slave and can be freely processed in any module (database records, graphs, logic, annual calendar, etc.).
- The Evolution Master is ideal for customised visualisations of the most relevant data of the Evolution Slaves.
- No limit to the number of Evolution Slaves or Evolution Master.



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