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**System för hem och fastighetsautomation (HBES) och för  
byggnadsautomation (BACS) –  
Smart elnät –  
Specifikation av applikation –  
Gränssnitt och regler till kund/användare –  
Del 12-2: Gränssnitt mellan CEM och resursfördelaren för HBES –  
Datamodell och meddelandehantering**

*General requirements for Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS) –*

*Part 12-2: Smart grid –*

*Application specification –*

*Interface and framework for customer –*

*Interface between the Home / Building CEM and Resource manager(s) –*

*Data model and messaging*

Som svensk standard gäller europastandarden EN 50491-12-2:2022. Den svenska standarden innehåller den officiella engelska språkversionen av EN 50491-12-2:2022.

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ICS 91.140.50; 97.120.00

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ICS 91.140.50; 97.120

English Version

**General requirements for Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS) - Part 12-2: Smart grid - Application specification - Interface and framework for customer - Interface between the Home / Building CEM and Resource manager(s) - Data model and messaging**

Exigences générales relatives aux systèmes électroniques pour les foyers domestiques et les bâtiments (HBES) et aux systèmes de gestion technique du bâtiment (SGTB) - Partie 12-2: Réseau intelligent - Spécification d'application - Interface et cadre pour le client - Interface entre le gestionnaire d'énergie pour le client (CEM, Customer Energy Manager) et le gestionnaire de ressources pour foyers domestiques/bâtiments - Modèle de données et échange de messages

Allgemeine Anforderungen an die Elektrische Systemtechnik für Heim und Gebäude (ESHG) und an Systeme der Gebäudeautomation (GA) - Teil 12-2: Smart grid - Anwendungsspezifikation - Schnittstelle und Modell für Anwender - Schnittstelle zwischen dem Heim-/Gebäude CEM und den Ressourcenmanagern - Datenmodell und Informationsaustausch

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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

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European Committee for Electrotechnical Standardization  
Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

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1	<b>Contents</b>	Page
2	European foreword.....	6
3	Introduction.....	7
4	1 Scope.....	8
5	2 Normative references.....	8
6	3 Terms, definitions and abbreviations.....	8
7	3.1 Terms and definitions.....	8
8	3.2 Abbreviations.....	10
9	4 Energy management.....	11
10	4.1 Architectural overview.....	11
11	4.2 Definition.....	12
12	4.3 Energy Management roles.....	13
13	4.3.1 General.....	13
14	4.3.2 Energy producer role.....	13
15	4.3.3 Energy consumer role.....	14
16	4.3.4 Energy storage role.....	15
17	5 Resource Manager.....	15
18	6 Customer Energy Manager (CEM).....	17
19	6.1 General.....	17
20	6.2 Local optimization.....	17
21	6.3 Implicit control.....	17
22	6.4 Explicit control.....	18
23	6.5 Summary.....	18
24	7 Energy Management Concepts.....	19
25	7.1 General.....	19
26	7.2 Design philosophy.....	19
27	7.3 Abnormal condition.....	19
28	7.4 Power measurements.....	20
29	7.5 Power forecasts.....	20
30	7.6 Control types.....	20
31	7.6.1 General.....	20
32	7.6.2 Power Envelope Based Control.....	20
33	7.6.3 Power Profile Based Control.....	23
34	7.6.4 Operation Mode Based Control.....	25
35	7.6.5 Fill Rate Based Control.....	27
36	7.6.6 Demand Driven Based Control.....	30
37	8 Energy Management Data Models.....	31
38	8.1 Basic Data Types.....	31
39	8.1.1 General.....	31
40	8.1.2 Common concepts related to Time.....	32
41	8.1.3 Common concepts related to Identifiers.....	32
42	8.1.4 Common concepts related to Strings.....	32

43	8.1.5	Meaning of optionality .....	32
44	8.2	Resource Manager .....	33
45	8.2.1	ResourceManagerDetails .....	33
46	8.2.2	PowerValue .....	34
47	8.2.3	PowerForecastValue .....	34
48	8.2.4	PowerRange .....	35
49	8.2.5	NumberRange.....	35
50	8.2.6	PowerMeasurement .....	35
51	8.2.7	Role.....	36
52	8.2.8	ReceptionStatus .....	36
53	8.2.9	Transition .....	36
54	8.2.10	Timer .....	37
55	8.2.11	InstructionStatusUpdate .....	37
56	8.3	Power Forecast.....	38
57	8.3.1	Description .....	38
58	8.3.2	PowerForecast.....	38
59	8.3.3	PowerForecastElement .....	39
60	8.4	Control Types .....	40
61	8.4.1	Power Envelope Based Control .....	40
62	8.4.2	Power Profile Based Control .....	43
63	8.4.3	Operation Mode Based Control .....	48
64	8.4.4	Fill Rate Based Control .....	50
65	8.4.5	Demand Driven Based Control .....	57
66	8.5	Enumerations.....	61
67	8.5.1	RoleType .....	61
68	8.5.2	Commodity .....	61
69	8.5.3	CommodityQuantity.....	61
70	8.5.4	Currency.....	62
71	8.5.5	InstructionStatus .....	62
72	8.5.6	ControlType .....	64
73	8.5.7	PEBC.PowerEnvelopeLimitType.....	65
74	8.5.8	PEBC.PowerEnvelopeConsequenceType .....	65
75	8.5.9	ReceptionStatusValues .....	65
76	8.5.10	PPBC.PowerSequenceStatus.....	66
77	9	Communication .....	66
78	9.1	Introduction.....	66
79	9.2	Generic tasks.....	67
80	9.2.1	Update Resource Manager Details .....	67
81	9.2.2	Activate Control Type.....	67
82	9.2.3	Update Active Control Type .....	68
83	9.2.4	Communicate Power Measurement .....	68
84	9.2.5	Update Power Forecast.....	69
85	9.2.6	Revoke Power Forecast .....	69
86	9.3	Power Envelope Based Control Tasks .....	70
87	9.3.1	Update Power Constraints .....	70
88	9.3.2	Revoke Power Constraints .....	70
89	9.3.3	Update Energy Constraints .....	71

90	9.3.4	Revoke Energy Constraints .....	72
91	9.3.5	Process Instruction .....	72
92	9.3.6	Revoke Instruction .....	73
93	9.4	Power Profile Based Control Tasks .....	73
94	9.4.1	Update Power Profile Definition .....	73
95	9.4.2	Revoke Power Profile Definition .....	74
96	9.4.3	Process Schedule Instruction .....	74
97	9.4.4	Revoke Schedule Instruction .....	75
98	9.4.5	Process Start Interruption Instruction .....	76
99	9.4.6	Revoke Start Interruption Instruction .....	76
100	9.4.7	Process End Interruption Instruction .....	77
101	9.4.8	Revoke End Interruption Instruction .....	78
102	9.5	Operation Mode Based Control Tasks .....	78
103	9.5.1	Update System Description .....	78
104	9.5.2	Revoke System Description .....	79
105	9.5.3	Process Instruction .....	79
106	9.5.4	Revoke Instruction .....	80
107	9.6	Fill Rate Based Control Tasks .....	81
108	9.6.1	Update System Description .....	81
109	9.6.2	Revoke System Description .....	81
110	9.6.3	Update Leakage Behaviour .....	82
111	9.6.4	Revoke Leakage Behaviour .....	82
112	9.6.5	Update Usage Forecast .....	83
113	9.6.6	Revoke Usage Forecast .....	83
114	9.6.7	Update Fill Level Target Profile .....	84
115	9.6.8	Revoke Fill Level Target Profile .....	84
116	9.6.9	Process Instruction .....	85
117	9.6.10	Revoke Instruction .....	85
118	9.7	Demand Driven Based Control Tasks .....	86
119	9.7.1	Update System Description .....	86
120	9.7.2	Revoke System Description .....	87
121	9.7.3	Update Average Demand Rate Forecast .....	87
122	9.7.4	Revoke Average Demand Rate Forecast .....	88
123	9.7.5	Process Instruction .....	88
124	9.7.6	Revoke Instruction .....	89
125	Annex A (informative)	Use Cases .....	90
126	A.1	Overview .....	90
127	A.2	Organizing .....	91
128	A.2.1	UC_EM_O100: Configuring CEM in network .....	91
129	A.2.2	UC_EM_O101: Configuring master CEM with Smart Grid Operator Credentials .....	91
130	A.3	Scheduling .....	92
131	A.3.1	UC_EM_S200: CEM collects Energy Profiles, Tariff Profiles and Storage Details .....	92
132			
133	A.4	Management .....	93
134	A.4.1	UC_EM_M300: CEM selects alternative Energy Sequences by energy costs .....	93
135	A.4.2	UC_EM_M301 CEM modifies start time of Energy Sequence .....	93

136	A.4.3	UC_EM_M302: CEM changes an Energy Profile to make temporary use of stored energy .....	94
137			
138	A.4.4	UC_EM_M303: Demanded power cannot be delivered by domestic grid .....	94
139	A.4.5	UC_EM_M304: Two electric vehicles conflicting in their power load.....	94
140	A.4.6	UC_EM_M305: EMG requests temporarily energy saving .....	95
141	A.4.7	UC_EM_M306: Energy Storage requests high priority .....	96
142	A.5	Case studies .....	97
143	A.5.1	UC_EM_M307 Charging an EV in the context of JWG4 (“Power Limitation PV”) with the dynamic control mode of ISO/DIS 15118-20 .....	97
144			
145	A.5.2	UC_EM_M308: Charging an EV in the context of JWG4 (“Power Limitation PV”) with the scheduled control mode of ISO 15118 series and monetary incentives	98
146			
147	Bibliography.....		100
148			

## 149 **European foreword**

150 This document (EN 50491-12-2:2022) has been prepared by CLC/TC TC 205, "Home and Building Electronic  
151 Systems (HBES)".

152 The following dates are fixed:

- latest date by which this document has to be (dop) 2023-02-17  
implemented at national level by publication of  
an identical national standard or by  
endorsement
- latest date by which the national standards (dow) 2025-02-17  
conflicting with this document have to be  
withdrawn

153 Any feedback and questions on this document should be directed to the users' national committee. A  
154 complete listing of these bodies can be found on the CENELEC website.

155 Attention is drawn to the possibility that some of the elements of this document may be the subject of patent  
156 rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

157 This document is part of the EN 50491 series of European Standards — General requirements for Home and  
158 Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS), which will  
159 comprise the following parts:

- 160 — Part 1: General requirements;
- 161 — Part 2: Environmental Conditions;
- 162 — Part 3: Electric Safety Requirements;
- 163 — Part 4-1: General functional safety requirements for products intended to be integrated in Building  
164 Electronic Systems (HBES) and Building Automation and Control Systems (BACS);
- 165 — Part 5-1: EMC requirements, conditions and test set-up;
- 166 — Part 5-2: EMC requirements for HBES/BACS used in residential, commercial and light industry  
167 environment;
- 168 — Part 5-3: EMC requirements for HBES/BACS used in industry environment;
- 169 — Part 6-1: HBES installations — Installation and planning;
- 170 — Part 6-3: HBES installations — Assessment and definition of levels;
- 171 — Part 11: Smart Metering — Application Specification — Simple External Consumer Display;
- 172 — Part 12: Smart grid — Application specification — Interface and framework for customer;
- 173 — Part 12-1: Interface between the CEM and Home/Building Resource manager– General Requirements  
174 and Architecture;
- 175 — Part 12-2: Interface between the Home/Building CEM and Resource manager(s)– Data model and  
176 messaging;
- 177 — Future Part 12-3: Home/Building Customer Energy Manager (CEM);
- 178 — Future Part 12-4: Resource Manager.



## 179 Introduction

180 Over recent decades, energy production and its consumption patterns have changed dramatically. Although  
181 central energy production is still dominant, the trend for distributed production is distinctive following an  
182 increasing number of renewables. Alternative energy sources are highly fluctuating in their production  
183 capabilities, which may result in the grid operators having difficulty to keep a balance between energy  
184 production and consumption. The complexity of keeping the grid reliable is further increased by the change in  
185 the electric energy consumption and production of the customer itself, e.g. the use of electric vehicles and  
186 personal generation facilities.

187 A Smart Grid that allows the grid operator to be flexible and reactive is needed. Such reactivity requires a  
188 communication flow between energy consuming and producing entities, from single family houses to large  
189 factories.

190 The EN 50491-12 series describes aspects of the smart grid that relate specifically to the premises  
191 (home/building) part of the smart grid and describes the common interface between equipment in the  
192 premises and the smart grid. This part 2 of the series defines the fundamental aspects of semantic  
193 interoperability for the S2 interface and the related data exchange between a CEM and the Resource  
194 Managers within the premises.

195 Different use cases are explained in Annex A, which should help to understand the philosophy of this  
196 document.

197 **1 Scope**

198 This document specifies the fundamental aspects of semantic interoperability for the S2 interface and the  
199 related data exchange between a CEM and the Resource Managers within the premises. It provides a  
200 technology independent set of data models and interaction patterns in order to enable applications for Energy  
201 Management within the premises. This document does not include:

202 — mappings to concrete data representations (XML, JSON and similar);

203 — mappings to application protocols for the message passing;

204 — security related aspects.

205 **2 Normative references**

206 The following documents are referred to in the text in such a way that some or all of their content constitutes  
207 requirements of this document. For dated references, only the edition cited applies. For undated references,  
208 the latest edition of the referenced document (including any amendments) applies.

209 ISO/DIS 15118-20, *Road vehicles — Vehicle to grid communication interface*

210 ISO 4217, *Codes for the representation of currencies*