



VIAL SANT JORDI, S/N
08232 VILADECAVALLS (BARCELONA)
ESPAÑA / SPAIN



Web: www.circutor.com
E-mail: central@circutor.es
Tel: (+34) 93 745 29 00
Fax: (+34) 93 745 29 14

COMMANDS TO ADD A QNA INTO A SCADA SYSTEM

The Power Quality Analyzer QNA uses the protocol CIRBUS to ask data and the protocol ZMODEM to download files. If someone needs to add a driver into a using a software doesn't developed by Circutor it should be necessary to implement these instructions to ask different information and to download files.

1. Versión:

- a. Send Command: \$000000VEXCCIf
- b. Answer: \$006 char ascii CCIf

2. Read serial number:

- a. Send Command: \$000000IDFCCIf
- b. Answer: \$009 char ascii CCIf

3. Numbe of files:

- a. Send Command: \$000000DINCCIf
- b. Answer: \$00 5 digitos decimal CCIf
\$00MEMORY ERROR CCIf

4. Files information:

- a. Send Command: \$000000DIRXXXXXCCIf
- b. Answer: \$00filename.ext 5 digits nbytes decimal dd/mm/aa hh:mmCCIf
\$00MEMORY ERROR CCIf
\$00 FILE NOT FOUND CC

Example Send Command: \$000000DIR00002CCIf
Example Answer: \$00STD-PROG.EVE3423111/08/03 10:00CCIf

5. Initial data and final data of registers:

- a. Send Command: \$000000DIFSTD-PROG.XXXCCIf
- b. Answer: \$00XX/XX/XX XX:XX:XXXX/XX/XX XX:XX:XX YYYYYYCCIf
\$00ERRnnCCIf

Data Structure: \$00DD/MM/AA hh:mm:ssDD/MM/AA hh:mm:ssCCIf

- 1. DD: Day hh: Hour
- 2. MM: Month mm: Minutes
- 3. AA: Year ss: Seconds
- 4. XXX: Extension (STD, EVE, EVQ, H24, STP)
- 5. YYYYY: Bytes number for each file

6. File demmand:

- a. Send Command: \$000000SZCXXXXXXXXXX.XXXCCIf
- b. Answer: \$00XX/XX/XX XX:XX:XXXX/XX/XX XX:XX:XX
\$00ERRnnCCIf

All the files have the same name (STD-PROG) and only change the extension (.std, .evq, .eve, .h24, .stp)

7. Ask for the setup file:

- a. Send Command: \$000000RZCSTD-PROG.SETCCIf
- b. Answer: \$00ACKCCIf
\$00ERRCCIf

8. Demand of a partial file:

a. Send Command: \$000000SZPXXXXXXXXX.XXXXX/XX/XX XX:XX:XXXX/XX/XX
XX:XX:XXCCIf

b. Answer: \$00ACKCCIf
\$00ERRnnCCIf

Example Send Command: \$000000SZPSTD-PROG.STD20/11/03 11:00:0021/11/03
11:00:00CCIf

9. Clock read:

a. Send Command: \$000000RCLCCIf

b. Answer: \$00DD/MM/AA hh:mm:ssCCIf

10. Clock write:

a. Send Command: \$000000WCLDD/MM/AAAA hh:mm:ssCCIf

b. Answer: \$00ACKCCIf

a. \$00ERRCCIf

11. Instantaneous measures reading

a. Send Command: \$000000MONCCIf

b. Answer: \$00 long variables[36] hexascii CCIf

12. Default setup:

a. Send Command: \$000000DEFCCIf

b. Answer: \$00ACKCCIf

\$00ERRCCIf

To 60Hz devices the command is as it follows: \$000000DEXCCIf

13. Reset:

a. Send Command: \$000000INICCCIf

b. Answer: \$00ACKCCIf

14. Active Energy read:

a. Send Command: \$000000RWHCCIf

b. Answer: \$009char ascii positive energy 9char ascii negative energyCCIf

15. Inductive Energy read:

a. Send Command: \$000000RLHCCIf

b. Answer: \$009char ascii positive energy 9char ascii negative energyCCIf

16. Capacitive Energy read:

a. Send Command: \$000000RCH

b. Answer: \$009char ascii positive energy 9char ascii negative energyCCIf

17. Read communication configuration:

a. Send Command: \$000000RRSCCIf

b. Answer: \$00 PP p L S BBBB BBBBCCIf

1. PP: device number
2. p: parity
3. L: lenght
4. S: stop bits
5. BBBB: baud rate



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18. Write communication configuration:

Send Command: \$000000WRS PP p L S BBBB BBBB CCIf
Answer: \$00ACKCCIf

All the instructions sended to the device have the same beginning "\$00000". This is only if the password is 0000, if not, you must change the 0 for the correct passsword.

\$NNPPPP : NN Peripheric number
PP: Password



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Command MON structure

variable	tipo	Bytes number	Structure
data	long	8x1	hexascii
V(L1) V(L2) V(L3)	long	8x3	hexascii
I(L1) I(L2) I(L3)	long	8x3	hexascii
Kw(L1) Kw(L2) Kw(L3)	long	8x3	hexascii
KvarL(L1) KvarL(L2) KvarL(L3)	long	8x3	hexascii
KvarC(L1) KvarC(L2) KvarC(L3)	long	8x3	hexascii
P.F.(L1) P.F.(L2) P.F.(L3)	long	8x1	hexascii
Hz	long	8x3	hexascii
KVA	long	8x1	hexascii
Unbalance coefficient	long	8x1	hexascii
Asymethry coefficient	long	8x1	hexascii
D_V(L1) d_V(L2) d_V(L3)	int	4x3	hexascii
D_I(L1) d_I(L2) d_I(L3)	int	4x3	hexascii
units V	char	2x1	hexascii
units I	char	2x1	hexascii
units P	char	2x1	hexascii
units unbalance / asymethry	char	2x1	hexascii
units d_V	char	2x1	hexascii
units d_I	char	2x1	hexascii
flagevq_tfl (1)	char	2x1	hexascii
Nº frequency decimals	char	2x1	hexascii

(1) Shows if there is an EVQ or a TFL (voltage out of limits). If there is an EVQ the bit is 1, if not is 0:

b7	b6	TFL L3	TFL L2	TFL L1	EVQ L3	EVQ L2	EVQ L1
----	----	--------	--------	--------	--------	--------	--------

COMMAND TO OBTAIN VALUES IN REAL TIME (MON)

```
#00 371CB895 000056F5 00005782 00005783 000252EC 00025532 00022752 00007FFB 00008329
00007641 00002096 000017B6 0000219A 00000000 00000000 00000000 00000060 00000062
0000005F 00001388 000185BA 000000DA 0000011C 006D 00B0 00A2 01FF 0364 030E FE FD 00
FD FE FE 00 FE
```

	HEXA	CONVERT	FINAL VALUE
data	371CB895	Special process	14/12/2005 11:34:21
V(L1)	000056F5	Convert to decimal and divide by 100	222,61
V(L2)	00005782		224,02
V(L3)	00005783		224,03
I(L1)	000252EC	Convert to decimal and divide by 1000	152,300
I(L2)	00025532		152,882
I(L3)	00022752		141,138
Kw(L1)	00007FFB	Convert to decimal and divide by 1000	32,763
Kw(L2)	00008329		33,577
Kw(L3)	00007641		30,273
KvarL(L1)	00002096	Convert to decimal and divide by 1000	8,342
KvarL(L2)	000017B6		6,070
KvarL(L3)	0000219A		8,602
KvarC(L1)	00000000	Convert to decimal and divide by 1000	0
KvarC(L2)	00000000		0
KvarC(L3)	00000000		0
P.F.(L1)	00000060	Convert to decimal and divide by 100	0.96
P.F.(L2)	00000062		0.98
P.F.(L3)	0000005F		0.95
Hz	00001388	Convert to decimal and divide by 100	50.00
KVA	000185BA	Convert to decimal and divide by 1000	99,7700
Unbalance coefficient	000000DA	Convert to decimal and divide by 1000	0.218
Asymetry coefficient	0000011C	Convert to decimal and divide by 1000	0.284

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THD_V(L1)	006D	Convert to decimal and divide by 100	1,09
THD_V(L2)	00B0		1,76
THD_V(L3)	00A2		1,62
THD_I(L1)	01FF	Convert to decimal and divide by 100	5,11
THD_I(L2)	0364		8,68
THD_I(L3)	030E		7,82
units V	FE	Signed char process	-2
units I	FD	Signed char process	-3
units P	00	Signed char process	0
units unbalance / asymethry	FD	Signed char process	-3
units THD_V	FE	Signed char process	-2
units THD_I	FE	Signed char process	-2
flagevq_tfl (1)	00	Signed char process	0
Nº frequency decimals	FE	Signed char process	-2

Data processs:

371CB895

Then convert every hexa character to binary:

0011 0111 0001 1100 1011 1000 1001 0101

Then separate all these numbers in this way and then convert to decimal:

0(offset) = this is the base year. Is allways 0. It means that you must add to the year 1992

01101(year)= 13 (1992 + 13 = 2005)

1100(month)=12 (december)

01110(day)= 1

01011 (hour)=11

100010(minutes)= 34

010101(seconds)= 21

This means that I have send the command MON at 11:34:21h the day 14/12/2005

Unit process

These variables tell us which is the number X (10^x) to apply to a determined variable.
These variables are signed char what means that it's necessary to make the following process to obtain the number X.

For example: Variable: Units V Value: FE

FE (convert to decimal) \longrightarrow 254 If you use complement numbers, converting again in hexa this is a -2. So it means that we have to take the variable "Voltage" and multiply by 10^{-2} to obtain the correct value in volts.

Another example: Variable: Units I Value: FD

FE (convert to decimal) \longrightarrow 254 If you use complement numbers, converting again in hexa this is a -3. So it means that we have to take the variable "Current" and multiply by 10^{-3} to obtain the correct value in amps.

EVQ (EVENTS)

This values tell us if it is happening an event in this moment and in which phase.

(1) Shows if there is an EVQ or a TFL (voltage out of limits). If there is an EVQ the bit is 1, if not is 0:

b7	b6	TFL L3	TFL L2	TFL L1	EVQ L3	EVQ L2	EVQ L1
----	----	--------	--------	--------	--------	--------	--------

Standard File (STD)

The standard file (STD) is used to store all those parameters that are periodically recorded. The structure of the STD file is as follows:

Length of the Heading ¹	Heading 1		
		Char (10)	Equipment series no. (ASCII)
		Char (6)	Program version (ASCII)
	Int	Type of Control (CRC, Checksum,...)*	
	Int	Length of heading (No. of bytes)**	
	Int	Length of the recording (No. of bytes)	
	Int	No. of heading variables (n1)	
	Int (n1)	Heading variables code	
	Int	No. of recording variables (n2)	
	Int (n2)	Recording variables code.	
Heading Recording			
	Int/Long/Char/String (n1)	Variables Data	
	Char (n)	Not used	
	char/int/long	Checksum, CRC ...	

Recording length	Recording	
	Int/Long/Char/String (n2)	Variables Data
	Char/int/long	Checksum, CRC ...

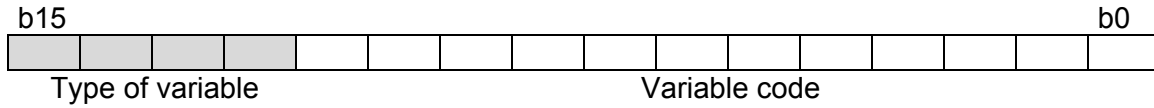
Type of control: To define the control of the recording integrity, the type of control to be made will be indicated in the recording.

Definition of Types of field control		
Code	Control type	Control Size
0	Checksum	Char
1	CRC 16 bytes	Int
2	CRC 32 bytes	Long

This checksum is applied to both the heading and the recordings

¹ Both the length of the heading and that of the recordings must always be an even number. Any variable must be coded as not used to ensure that the length is always an even number.

**The definition of the variables will be:



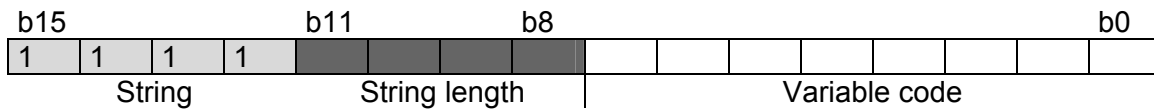
4 bits for defining the different types of variables will be used. (Int, long, char, string..)

The rest will be used to identify the variable.

Definition of Types of Variables				
0	0	0	0	Long
0	0	0	1	Unsigned Long
0	0	1	0	char
0	0	1	1	unsigned char
0	1	0	0	Int
0	1	0	1	unsigned int
0	1	1	0	Float
0	1	1	1	Double
1	0	0	0	Energy (2-long) Units / thousandths
.....
1	1	1	0	Samples
1	1	1	1	String

Therefore: the same variable may appear as an integer, long... without having to change the variable code even though the 4 first bits change.

An exception is the String. The variable code will identify the length of the String.

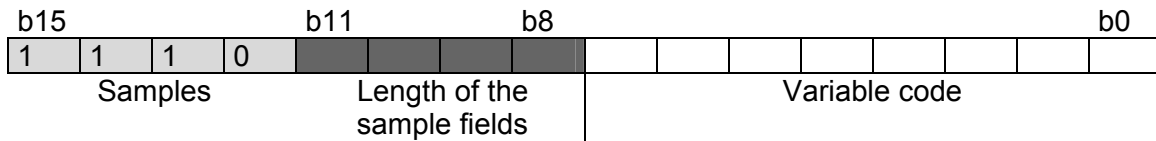


The length of the String will be defined as a power of 2. This way the length of the String will be defined according to the following table:

b11			b8	
0	0	0	0	1 byte
0	0	0	1	2 bytes
0	0	1	0	4 bytes
0	0	1	1	8 bytes
0	1	0	0	16 bytes

0	1	0	1	32 bytes
0	1	1	0	64 bytes
....
1	1	1	1	32768 bytes

Another exception is the samples. Here the wave form can be defined.



The length of the field for the samples will be defined as a power of 2. This way the possible lengths will be defined according to the following table:

b11			b8	
0	0	0	0	1 byte
0	0	0	1	2 bytes
0	0	1	0	4 bytes
0	0	1	1	8 bytes
0	1	0	0	16 bytes
0	1	0	1	32 bytes
0	1	1	0	64 bytes
....
1	1	1	1	32768 bytes

If the samples are Int, to store 64 samples, they will have to be defined as having a length of 128 bytes.

One of the typical heading variables will be the date offset. The starting date for the dates given by the equipment.

Events file (EVQ)

Heading length: 162 bytes

Recording length 32 bytes

Heading variables for the quality events file:

VARIABLE	TYPE	CODE	nBYTES
voltage primary ratio	0x00	316	4
secondary voltage ratio	0x00	317	4
nominal effective voltage	0x04	301	2
overvoltage threshold % *	0x04	338	2
dip threshold % *	0x04	340	2
break threshold % *	0x04	341	2
overvoltage hysteresis % *	0x04	359	2
dip hysteresis % *	0x04	360	2
break hysteresis % *	0x04	361	2
star/triangle	0x04	324	2
file name	0xF4	0	16
measuring point name	0xF3	9	8
comment	0xF4	10	16
year of origin	0x00	300	4
vnomquax32 L1 **	0x00	363	4
vnomquax32 L2 **	0x00	364	4
vnomquax32 L3 **	0x00	365	4
voltage unit	0x02	320	1

* value x 10

** Value of the nominal voltage in points for each of the phases.
To calculate voltage percentages (maximum, minimum, average and previous).

Recording variables for the quality events file:

VARIABLE	TYPE	CODE	nBYTES
recording start date	0x00	313	4
ms from start date	0x04	362	2
type of EVENT **	0x04	342	2
signal frequency (x10)	0x04	343	2
length of EVENT ***	0x00	344	4
maximum voltage in the EVENT *	0x00	345	4
minimum voltage in the EVENT *	0x00	346	4
average voltage in the EVENT *	0x00	347	4
voltage prior to the EVENT *	0x00	348	4

*
Expressed in points.

**

bit15	bit12	bit 8	bit4
bit0			
phase	Following event	Previous event	Current event

Types of EVENT:
0.....Break
1.....Dip
2.....OK
3.....Overvoltage
4.....Quick variation

Number of semicycles the EVENT lasted

Events file (EVE)

This file records incidents produced in the equipment, i.e. set up changes, equipment time changes, memory formats, etc.

These incidents are recorded together with the time when they happened.

The length of the recordings stored in this file is 6 bytes.

1	2	3	4	5	6
---	---	---	---	---	---

(1-4) Date

(5) Event code

(6) Checksum

Harmonics statistics file (H24)

All **maximum values** of all **effective values** (C_{nvs}) **obtained** are stored for successive intervals of **3s** included in an interval of 24hrs.

cvsm₁[2] . . . cvsm₁[40] (2 bytes x 39)

cvsm₂[2] . . . cvsm₂[40] (2 bytes x 39)

cvsm₃[2] . . . cvsm₃[40] (2 bytes x 39)

All **maximum values** of all **effective values** (C_{nsh}) **obtained** in the successive interval of **10 mins** included in an interval of 24 hrs.

cshmax₁[2] . . . cshmax₁[40] (2 bytes x 39)

cshmax₂[2] . . . cshmax₂[40] (2 bytes x 39)

cshmax₃[2] . . . cshmax₃[40] (2 bytes x 39)

Recording structure (H24 file)	
Heading (same as .STD file)	(1014 bytes)
Start date	4 bytes
cvsmax1[2] . . cvsmax1[40]	(2 bytes x 39)
cvsmax2[2] . . cvsmax2[40]	(2 bytes x 39)
cvsmax3[2] . . cvsmax3[40]	(2 bytes x 39)
cshmax1[2] . . cshmax1[40]	(2 bytes x 39)
cshmax2[2] . . cshmax2[40]	(2 bytes x 39)
cshmax3[2] . . cshmax3[40]	(2 bytes x 39)
bufcvs1[2]	(2 bytes x 32)
pasharm1[2]	(1 byte)
...	
bufcvs1[40]	(2 bytes x 32)
pasharm1[40]	(1 byte)
	((2 bytes x 32)+(1 bytes)) x 39
bufcvs2[2]	(2 bytes x 32)
pasharm2[2]	(1 byte)
..	
bufcvs2[40]	(2 bytes x 32)
pasharm2[40]	(1 byte)
	((2 bytes x 32)+(1 bytes)) x 39
bufcvs3[2]	(2 bytes x 32)
pasharm3[2]	(1 byte)
..	
bufcvs3[40]	(2 bytes x 32)
pasharm3[40]	(1 byte)
	((2 bytes x 32)+(1 byte)) x 39
checksum	(1 byte)
Total size of recording (8078 bytes)	

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Where $cv_{smax}[n]$ is the maximum value of all the rms values of the n harmonic obtained every 150/180 cycles (3 seconds) for each phase *.

Where $csh_{max}[n]$ is the maximum value of all the rms values integrated every 150/180 cycles of the n harmonic obtained every recording period for each phase *.

$buf_{cvs}[n]$ is the classification buffer for the accumulative probability of the n harmonic every 150/180 cycles for each phase*. These buffers are in 32 categories and the value of each category is variable in order to offer maximum accuracy in each case. The $p_{sharm}[n]$ variable is the factor (x10) by which the buffer categories have to be multiplied to find their rms value to which it corresponds.

The contents of each category are the number of times that a n harmonic has a determined value C_{nvs} .

- Events codes

Code	Event
0	Battery On (Referring to the battery)
1	Battery OFF (Referring to the battery)
2	Voltage On (Measuring)
3	Voltage Off
4	Clear Energy
5	Clear Maximums/Minimums
6	Clear Maximum Demand
7	Set-up modified
8	Trigger On
9	Trigger Off
10	Communications error
11	Phone call Received
12	Phone call Sent
13	Transformer ratio change
14	Calibration change
15	Changing communications parameters
16	Memory format (Deleting from the memory)
17	Delete File
18	Change of password
19	File reading
20	Loss of Set-up
21	Changing the time
22	Voltage ON L1
23	Voltage ON L2
24	Voltage ON L3
25	Voltage OFF L1
26	Voltage OFF L2
27	Voltage OFF L3
28	Formatting the memory
29	Stop recording
30	Restart recording
31	Stop .EVQ recording
32	Restart .EVQ recording
33	Stop .EVQ recording through RS file request
34	Restart .EVQ recording through RS file request
35	Stop STD recording through RS file request
36	Restart .STD recording through RS file request
37	Stop .EVE recording. Through RS file request
38	Restart .EVE recording through RS file request



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39	Power On (Power supply voltage return)
40	Power Off (No power supply voltage)

• Variable codes

Variable code	Variable	Type	Variable code	Variable	Type	Variable code	Variable	Type
0	Vp-p L1-L2	Inst. (Vprim)	100	Vp-p L1-L2	Max. (Vprim)	200	Vp-p L1-L2	Min. (Vprim)
1	Vp-p L2-L3	Inst. (Vprim)	101	Vp-p L2-L3	Max. (Vprim)	201	Vp-p L2-L3	Min. (Vprim)
2	Vp-p L3-L1	Inst. (Vprim)	102	Vp-p L3-L1	Max. (Vprim)	202	Vp-p L3-L1	Min. (Vprim)
3	Vp-p III	Inst. (Vprim)	103	Vp-p III	Max. (Vprim)	203	Vp-p III	Min. (Vprim)
4	Vp-n L1	Inst. (Vprim)	104	Vp-n L1	Max. (Vprim)	204	Vp-n L1	Min. (Vprim)
5	Vp-n L2	Inst. (Vprim)	105	Vp-n L2	Max. (Vprim)	205	Vp-n L2	Min. (Vprim)
6	Vp-n L3	Inst. (Vprim)	106	Vp-n L3	Max. (Vprim)	206	Vp-n L3	Min. (Vprim)
7	Vp-n III	Inst. (Vprim)	107	Vp-n III	Max. (Vprim)	207	Vp-n III	Min. (Vprim)
8	A L1	Inst.	108	A L1	Max.	208	A L1	Min.
9	A L2	Inst.	109	A L2	Max.	209	A L2	Min.
10	A L3	Inst.	110	A L3	Max.	210	A L3	Min.
11	A III	Inst.	111	A III	Max.	211	A III	Min.
12	kW + L1	Inst.	112	kW + L1	Max.	212	kW + L1	Min.
13	kW - L1	Inst.	113	kW - L1	Max.	213	kW - L1	Min.
14	kW + L2	Inst.	114	kW + L2	Max.	214	kW + L2	Min.
15	kW - L2	Inst.	115	kW - L2	Max.	215	kW - L2	Min.
16	kW + L3	Inst.	116	kW + L3	Max.	216	kW + L3	Min.
17	kW - L3	Inst.	117	kW - L3	Max.	217	kW - L3	Min.
18	kW + III	Inst.	118	kW + III	Max.	218	kW + III	Min.
19	kW - III	Inst.	119	kW - III	Max.	219	kW - III	Min.
20	kvarL + L1	Inst.	120	kvarL + L1	Max.	220	kvarL + L1	Min.
21	kvarL - L1	Inst.	121	kvarL - L1	Max.	221	kvarL - L1	Min.
22	kvarL + L2	Inst.	122	kvarL + L2	Max.	222	kvarL + L2	Min.
23	kvarL - L2	Inst.	123	kvarL - L2	Max.	223	kvarL - L2	Min.
24	kvarL + L3	Inst.	124	kvarL + L3	Max.	224	kvarL + L3	Min.
25	kvarL - L3	Inst.	125	kvarL - L3	Max.	225	kvarL - L3	Min.
26	kvarL + III	Inst.	126	kvarL + III	Max.	226	kvarL + III	Min.
27	kvarL - III	Inst.	127	kvarL - III	Max.	227	kvarL - III	Min.
28	kvarC + L1	Inst.	128	kvarC + L1	Max.	228	kvarC + L1	Min.
29	kvarC - L1	Inst.	129	kvarC - L1	Max.	229	kvarC - L1	Min.
30	kvarC + L2	Inst.	130	kvarC + L2	Max.	230	kvarC + L2	Min.

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31	kvarC – L2	Inst.	131	kvarC – L2	Max.	231	kvarC – L2	Min.
32	kvarC + L3	Inst.	132	kvarC + L3	Max.	232	kvarC + L3	Min.
33	kvarC – L3	Inst.	133	kvarC – L3	Max.	233	kvarC – L3	Min.
34	kvarC + III	Inst.	134	kvarC + III	Max.	234	kvarC + III	Min.
35	kvarC – III	Inst.	135	kvarC – III	Max.	235	kvarC – III	Min.
36	PF + L1	Inst.	136	PF + L1	Max.	236	PF + L1	Min.
37	PF – L1	Inst.	137	PF – L1	Max.	237	PF – L1	Min.
38	PF + L2	Inst.	138	PF + L2	Max.	238	PF + L2	Min.
39	PF – L2	Inst.	139	PF – L2	Max.	239	PF – L2	Min.
40	PF + L3	Inst.	140	PF + L3	Max.	240	PF + L3	Min.
41	PF – L3	Inst.	141	PF – L3	Max.	241	PF – L3	Min.
42	PF + III	Inst.	142	PF + III	Max.	242	PF + III	Min.
43	PF – III	Inst.	143	PF – III	Max.	243	PF – III	Min.
44	Hz	Inst. (x10)	144	Hz.	Max. (x10)	244	Hz.	Min. (x10)
45	KVA III		145	KVA III	Max.	245	KVA III	Min.
46	Kwh + III	Tariff 1	146	Kwh + III	Tariff 2	246	Kwh + III	Tariff 3
47	Kwh - III	Tariff 1	147	Kwh - III	Tariff 2	247	Kwh - III	Tariff 3
48	KvarhL + III	Tariff 1	148	KvarhL + III	Tariff 2	248	KvarhL + III	Tariff 3
49	KvarhL - III	Tariff 1	149	KvarhL - III	Tariff 2	249	KvarhL - III	Tariff 3
50	KvarhC+ III	Tariff 1	150	KvarhC+ III	Tariff 2	250	KvarhC+ III	Tariff 3
51	KvarhC - III	Tariff 1	151	KvarhC - III	Tariff 2	251	KvarhC - III	Tariff 3
52	THD or D L1	inst. (x10)	152	THD or D L1	Max. (x10)	252	THD or D L1	Min. (x10)
53	THD or D L2	inst. (x10)	153	THD or D L2	Max. (x10)	253	THD or D L2	Min. (x10)
54	THD or D L3	inst. (x10)	154	THD or D L3	Max. (x10)	254	THD or D L3	Min. (x10)
55	Hz Integrated	Inst. (x10)	155	Hz Integrated	Max. (x10)	255	Hz Integrated	Min. (x10)
56	V L1	Inst. (Vsecondary)	156	V L1	Max. (Vsecond)	256	V L1	Min. (Vsecond)
57	V L2	Inst. (Vsecondary)	157	V L2	Max. (Vsecond)	257	V L2	Min. (Vsecond)
58	V L3	Inst. (Vsecondary)	158	V L3	Max. (Vsecond)	258	V L3	Min. (Vsecond)

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59	Neutral Current		159	Neutral Current (max)		259	Neutral Current (min)	
60	Vp-n L1	Flicker	182	WA L1	Max. Flicker (x10)			
61	Vp-n L2	Flicker	183	WA L2	Max. Flicker (x10)			
62	Vp-n L3	Flicker	184	WA L3	Max. Flicker (x10)			
63	Pst L1	Flicker (x100)						
64	Pst L2	Flicker (x100)						
65	Pst L3	Flicker (x100)						
66	P0,1 L1	Flicker (x100)						
67	P0,1 L2	Flicker (x100)						
68	P0,1 L3	Flicker (x100)						
69	P1 L1	Flicker (x100)						
70	P1 L2	Flicker (x100)						
71	P1 L3	Flicker (x100)						
72	P3 L1	Flicker (x100)						
73	P3 L2	Flicker (x100)						
74	P3 L3	Flicker (x100)						
75	P10 L1	Flicker (x100)						
76	P10 L2	Flicker (x100)						
77	P10 L3	Flicker (x100)						
78	P50 L1	Flicker (x100)						

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79	P50 L2	Flicker (x100)
80	P50 L3	Flicker (x100)
81	Kwh III	Flicker
85	Sag semicycles L1	Quality
86	Sag semicycles L2	Quality
87	Sag semicycles L3	Quality
88	Sag periods L1	Quality
89	Sag periods L2	Quality
90	Sag periods L3	Quality
91	Power off cycles L1	Quality
92	Power off cycles L2	Quality
93	Power off cycles L3	Quality
94	Power off periods L1	Quality
95	Power off periods L2	Quality
96	Power off periods L3	Quality
97	Quality percentage L1	Quality (x10)
98	Quality percentage L2	Quality (x10)
99	Quality percentage L3	Quality (x10)

Variable code	Magnitude	Value
300	Offset date when expressed in long format	
301	Nominal effective voltage	(Referring to the secondary)
302	Nominal frequency	
303	Time constant, frequency integration	
304	Voltage threshold. +/-%V	
305	Quality threshold % semicycles within threshold	
306	Sag threshold	
307	Distortion type selection (THD/D)	
308	Time trigger (start)	
309	Time trigger (Fin)	
310	Time of recording	
311	Time constant, voltage integration	
312	Code bell	
313	Recording date	
314	Number of totals of the recording.	
315	Time constant, current integration.	
316	Rel. Voltage primary	
317	Rel. Voltage secondary	
318	Rel. Current primary	
319	Rel. Current secondary	
320	Voltage units (Volt)	Power of 10
321	Current units (A)	Power of 10
322	Power and Energies units (W,W,Var,Wh,Varh)	Power of 10
323	Current input (0-Three phase, 1-Aron)	
324	Type of circuit (0-Triangle, 1 Star)	
325	Sigma-delta frequency percentage	
326	Recording trigger code	
327	Recording maximum trigger	
328	Recording minimum trigger	
329	+%Voltage OK by high / low V	
330	-% Voltage OK by high / low V	
331	V seconds OK L1	
332	V seconds OK L2	
333	V seconds OK L3	
334	Rolling demand period V	
335	Rolling demand period 60 Hz	
336	%Voltage for POWER OFF	
337	n Seconds for POWER OFF	
338	overvoltage threshold %	x10
339	low % variations threshold	x10
340	dip threshold	x10
341	break threshold	x10
342	type of EVENT (bit de month pes = unfinished	Int

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	event) b15-b14-b13 -b12 -> phase b11-> Forced finish b3-b2-b1-b0 -> Type of event	0-> Interruption 1-> Dip 3-> Overvoltage
343	sampling time	
344	length of EVENT	
345	maximum voltage in the EVENT	Points^2 x 32
346	minimum voltage in the EVENT	Points^2 x 32
347	average voltage in the EVENT	Points^2 x 32
348	voltage prior to the EVENT	Points^2 x 32
349	.STD file capacity in K num	
350	.EVE file capacity in K num	
351	.EVQ file capacity in K num	
352	Trigger Level (Amperes)	-1 = None
353	Trigger Type (Averages, maximums, minimums)	0, 1, 2
354	Reserved file capacity	
355	Reserved file capacity	
356	Reserved file capacity	
357	Reserved file capacity	
358	Reserved file capacity	
359	overvoltage hysteresis %	x10
360	dip hysteresis %	x10
361	break hysteresis %	x10
362	ms from recording start date	
363	nominal voltage quadrant x 32 L1	Points^2 x 32
364	nominal voltage quadrant x 32 L2	Points^2 x 32
365	nominal voltage quadrant x 32 L3	Points^2 x 32
366	Event Notification in Recording.	
367	VL1 Gain star	
368	VL2 Gain star	
369	VL3 Gain star	
370	VL1 date triangle	
371	VL2 date triangle	
372	VL3 date triangle	
373	IL1 Gain	
374	IL2 Gain	
375	IL3 Gain	
376	IL2 Aron Gain	
377	Voltage secondary	x10
378	For the STD recording calculation (All QNA-413 variables less voltage) take into account those periods in which an EVQ has occurred.	0 – No 1 – Yes
379	For calculating the voltage for the STD recording those periods in which a Voltage outside the limits have been taken into account.	0 – No 1 – Yes

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380	Lower limit for voltage outside limit	% Vn x 10
381	Upper limit for voltage outside limit	% Vn x 10
382	Maximum EVQ voltage in points	Points
383	Minimum EVQ voltage in points	Points
384	Average EVQ voltage in points	Points
385	Previous EVQ voltage in points	Points
386	Nominal voltage in points L1	Points
387	Nominal voltage in points L2	Points
388	Nominal voltage in points L3	Points
389	Recording date start/finish indicator	0-Start 1-Finish
390	For calculating voltage in the STD file those periods in which an EVQ has occurred have been taken into account.	
391	Variable used for calculating maximum demand (stored in variables 817-818-819-820) the same units as the calculation variable.	
392	Date expressed in UTC format (Universal Time Co-ordinate) Date of the Windows regional configuration.	If the variable does not exist → is in normal format Yes is 0 → is in normal format Yes is 1 → is in UTC format
393	Neutral Current Units (A)	Power of 10
394	Meter units 1	Power of 10
395	Meter units 2	Power of 10
396	Meter units 3	Power of 10
397	Meter units 4	Power of 10
398	Meter units 5	Power of 10
399	Meter units 6	Power of 10
400	Meter units 7	Power of 10
401	Meter units 8	Power of 10
402	Meter units 9	Power of 10
403	Meter units 10	Power of 10
404	Meter units 11	Power of 10
405	Meter units 12	Power of 10
406	Meter units 13	Power of 10
407	Meter units 14	Power of 10
408	Meter units 15	Power of 10
409	Meter units 16	Power of 10
410	Meter units 17	Power of 10
411	Meter units 18	Power of 10
412	Meter units 19	Power of 10
413	Meter units 20	Power of 10
414	Meter units 21	Power of 10
415	Meter units 22	Power of 10
416	Meter units 23	Power of 10
417	Meter units 24	Power of 10
418	Analogue input units 1	Power of 10
419	Analogue input units 2	Power of 10

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420	Analogue input units 3	Power of 10
421	Analogue input units 4	Power of 10
422	Analogue input units 5	Power of 10
423	Analogue input units 6	Power of 10
424	Analogue input units 7	Power of 10
425	Analogue input units 8	Power of 10
426	Number of samples if the variable code is E0	Value
427	V1 alarm	Inst (V*10)
428	V2 alarm	Inst (V*10)
429	V3 alarm	Inst (V*10)
430	V (any of the above three)	Inst (V*10)
431	I1 alarm	Inst (mA)
432	I2 alarm	Inst (mA)
433	I3 alarm	Inst (mA)
434	I (any of the above three)	Inst (mA)
435	W1 alarm	Inst (W)
436	W2 alarm	Inst (W)
437	W3 alarm	Inst (W)
438	W (any of the above three)	Inst (W)
439	varL1 alarm	Inst (W)
440	varL2 alarm	Inst (W)
441	varL3 alarm	Inst (W)
442	varL (any of the above three)	Inst (W)
443	varC1 alarm	Inst (W)
444	varC2 alarm	Inst (W)
445	varC3 alarm	Inst (W)
446	varC (any of the above three)	Inst (W)
447	PF1 alarm	Inst
448	PF2 alarm	Inst
449	PF3 alarm	Inst
450	PF alarm (any of the above three)	Inst
451	Vthd1 alarm	Inst (V*10)
452	Vthd2 alarm	Inst (V*10)
453	Vthd3 alarm	Inst (V*10)
454	Vthd alarm (any of the above three)	Inst (V*10)
455	Ithd1 alarm	Inst
456	Ithd2 alarm	Inst
457	Ithd3 alarm	Inst
458	Ithd alarm (any of the above three)	Inst
459	Unbalance alarm	(V*10)
460	Symmetry alarm	(V*10)
461	Frequency alarm	(Hz*10)
462	No. of evq1 to set off an alarm	
463	No. of evq2 to set off an alarm	
464	No. of evq3 to set off an alarm	
465	No. of evq of any of the above three to set off an alarm	

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466	Neutral voltage units	
467	Multiplying factor of the gain V	Power of 10
468	Multiplying factor of the gain I	Power of 10
469	Multiplying factor of the gain In	Power of 10
470	In gain	

Variable code	Variable	Type	Variable code	Variable	Type	Variable code	Variable	Type
650	IL1 Fundamenta l	x10	700	IL2 Fundamenta l	x10	750	IL3 Fundamental	x10
651	IL1 Harmonic 2	x10	701	IL2 Harmonic 2	x10	751	IL3 Harmonic 2	x10
652	IL1 Harmonic 3	x10	702	IL2 Harmonic 3	x10	752	IL3 Harmonic 3	x10
653	IL1 Harmonic 4	x10	703	IL2 Harmonic 4	x10	753	IL3 Harmonic 4	x10
654	IL1 Harmonic 5	x10	704	IL2 Harmonic 5	x10	754	IL3 Harmonic 5	x10
655	IL1 Harmonic 6	x10	705	IL2 Harmonic 6	x10	755	IL3 Harmonic 6	x10
656	IL1 Harmonic 7	x10	706	IL2 Harmonic 7	x10	756	IL3 Harmonic 7	x10
657	IL1 Harmonic 8	x10	707	IL2 Harmonic 8	x10	757	IL3 Harmonic 8	x10
658	IL1 Harmonic 9	x10	708	IL2 Harmonic 9	x10	758	IL3 Harmonic 9	x10
659	IL1 Harmonic 10	x10	709	IL2 Harmonic 10	x10	759	IL3 Harmonic 10	x10
660	IL1 Harmonic 11	x10	710	IL2 Harmonic 11	x10	760	IL3 Harmonic 11	x10
661	IL1 Harmonic 12	x10	711	IL2 Harmonic 12	x10	761	IL3 Harmonic 12	x10
662	IL1 Harmonic 13	x10	712	IL2 Harmonic 13	x10	762	IL3 Harmonic 13	x10
663	IL1 Harmonic 14	x10	713	IL2 Harmonic 14	x10	763	IL3 Harmonic 14	x10
664	IL1 Harmonic 15	x10	714	IL2 Harmonic 15	x10	764	IL3 Harmonic 15	x10
665	IL1 Harmonic 16	x10	715	IL2 Harmonic 16	x10	765	IL3 Harmonic 16	x10
666	IL1 Harmonic 17	x10	716	IL2 Harmonic 17	x10	766	IL3 Harmonic 17	x10
667	IL1 Harmonic 18	x10	717	IL2 Harmonic 18	x10	767	IL3 Harmonic 18	x10
668	IL1 Harmonic 19	x10	718	IL2 Harmonic 19	x10	768	IL3 Harmonic 19	x10

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669	IL1 Harmonic 20	x10	719	IL2 Harmonic 20	x10	769	IL3 Harmonic 20	x10
670	IL1 Harmonic 21	x10	720	IL2 Harmonic 21	x10	770	IL3 Harmonic 21	x10
671	IL1 Harmonic 22	x10	721	IL2 Harmonic 22	x10	771	IL3 Harmonic 22	x10
672	IL1 Harmonic 23	x10	722	IL2 Harmonic 23	x10	772	IL3 Harmonic 23	x10
673	IL1 Harmonic 24	x10	723	IL2 Harmonic 24	x10	773	IL3 Harmonic 24	x10
674	IL1 Harmonic 25	x10	724	IL2 Harmonic 25	x10	774	IL3 Harmonic 25	x10
675	IL1 Harmonic 26	x10	725	IL2 Harmonic 26	x10	775	IL3 Harmonic 26	x10
676	IL1 Harmonic 27	x10	726	IL2 Harmonic 27	x10	776	IL3 Harmonic 27	x10
677	IL1 Harmonic 28	x10	727	IL2 Harmonic 28	x10	777	IL3 Harmonic 28	x10
678	IL1 Harmonic 29	x10	728	IL2 Harmonic 29	x10	778	IL3 Harmonic 29	x10
679	IL1 Harmonic 30	x10	729	IL2 Harmonic 30	x10	779	IL3 Harmonic 30	x10
680	IL1 Harmonic 31	x10	730	IL2 Harmonic 31	x10	780	IL3 Harmonic 31	x10
681	IL1 Harmonic 32	x10	731	IL2 Harmonic 32	x10	781	IL3 Harmonic 32	x10
682	IL1 Harmonic 33	x10	732	IL2 Harmonic 33	x10	782	IL3 Harmonic 33	x10
683	IL1 Harmonic 34	x10	733	IL2 Harmonic 34	x10	783	IL3 Harmonic 34	x10
684	IL1 Harmonic 35	x10	734	IL2 Harmonic 35	x10	784	IL3 Harmonic 35	x10
685	IL1 Harmonic 36	x10	735	IL2 Harmonic 36	x10	785	IL3 Harmonic 36	x10
686	IL1 Harmonic 37	x10	736	IL2 Harmonic 37	x10	786	IL3 Harmonic 37	x10
687	IL1 Harmonic 38	x10	737	IL2 Harmonic 38	x10	787	IL3 Harmonic 38	x10
688	IL1 Harmonic 39	x10	738	IL2 Harmonic 39	x10	788	IL3 Harmonic 39	x10
689	IL1 Harmonic 40	x10	739	IL2 Harmonic 40	x10	789	IL3 Harmonic 40	x10
690	IL1 Harmonic 41	x10	740	IL2 Harmonic 41	x10	790	IL3 Harmonic 41	x10
691	IL1 Harmonic 42	x10	741	IL2 Harmonic 42	x10	791	IL3 Harmonic 42	x10
692	IL1 Harmonic 43	x10	742	IL2 Harmonic 43	x10	792	IL3 Harmonic 43	x10
693	IL1	x10	743	IL2	x10	793	IL3 Harmonic	x10

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	Harmonic 44			Harmonic 44			44	
694	IL1 Harmonic 45	x10	744	IL2 Harmonic 45	x10	794	IL3 Harmonic 45	x10
695	IL1 Harmonic 46	x10	745	IL2 Harmonic 46	x10	795	IL3 Harmonic 46	x10
696	IL1 Harmonic 47	x10	746	IL2 Harmonic 47	x10	796	IL3 Harmonic 47	x10
697	IL1 Harmonic 48	x10	747	IL2 Harmonic 48	x10	797	IL3 Harmonic 48	x10
698	IL1 Harmonic 49	x10	748	IL2 Harmonic 49	x10	798	IL3 Harmonic 49	x10
699	IL1 Harmonic 50	x10	749	IL2 Harmonic 50	x10	799	IL3 Harmonic 50	x10

Variable code	Magnitude	Value
800	Vd (Direct voltage)	
801	Vi (Inverse voltage)	
802	Vh (Homopolar voltage)	
803	No. of phase 1 10 cycle block meter blocks with evq	
804	No. of phase 2 10 cycle block meter blocks with evq	
805	No. of phase 3 10 cycle block meter blocks with evq	
806	No. of phase 1 10 cycle block meter blocks with voltage outside limits	
807	No. of phase 2 10 cycle block meter blocks with voltage outside limits	
808	No. of phase 3 10 cycle block meter blocks with voltage outside limits	
809	150 cycle, phase 1 integrations meter for all STD parameters except voltage	
810	150 cycle, phase 2 integrations meter for all STD parameters except voltage	
811	150 cycle, phase 3 integrations meter for all STD parameters except voltage	
812	150 cycle, phase 1 voltage integrations	
813	150 cycle, phase 2 voltage integrations	
814	150 cycle, phase 3 voltage integrations	
815	Nothing (used to tally recordings)	
816	Transformer primary for Neutral Current	
817	Power demand L1 (Period)	Variable 391
818	Power demand L2 (Period)	Variable 391
819	Power demand L3 (Period)	Variable 391
820	Power demand III (Period)	Variable 391
821	Power demand Tariff 1 (Period)	Variable 391

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822	Power demand Tariff 2 (Period)	Variable 391
823	Power demand Tariff 3 (Period)	Variable 391
824	Transformer secondary for In	

Variable code	Variable	Type
1000	DC-1	Inst.
1001	DC-2	Inst.
1002	Data/Time Pd	Tariff 1
1003	PD Active power	Tariff 1
1004	PD Apparent power	Tariff 1
1005	PD Current	Tariff 1
1006	VL1-L2	Inst (Vsec)
1007	VL2-L3	Inst (Vsec)
1008	VL3-L1	Inst (Vsec)
1009	kVA L1 (inst)	
1010	kVA L2 (inst)	
1011	kVA L3 (inst)	
1012	THD IL1 (inst)	
1013	THD IL2 (inst)	
1014	THD IL3 (inst)	
1015	Vneutral (inst)	

Variable code	Variable	Type
1100	DC-1	Max.
1101	DC-2	Max.
1102	Data/Time Pd	Tariff 2
1103	PD Active Power	Tariff 2
1104	PD Apparent Power	Tariff 2
1105	PD Current	Tariff 2
1106	VL1-L2	Max (Vsec)
1107	VL2-L3	Max (Vsec)
1108	VL3-L1	Max (Vsec)
1109	kVA L1 (max)	
1110	kVA L2 (max)	
1111	kVA L3 (max)	
1112	THD IL1 (max)	
1113	THD IL2 (max)	
1114	THD IL3 (max)	
1115	Vneutral (max)	

Variable code	Variable	Type
1200	DC-1	Min.
1201	DC-2	Min.
1202	Data/Time Pd	Tariff 3
1203	PD Active power	Tariff 3
1204	PD Apparent power	Tariff 3
1205	PD Current	Tariff 3
1206	VL1-L2 (Min)	Min (Vsec)
1207	VL2-L3 (Min)	Min (Vsec)
1208	VL3-L1 (Min)	Min (Vsec)
1209	kVA L1 (min)	
1210	kVA L2 (min)	
1211	kVA L3 (min)	
1212	THD IL1 (min)	
1213	THD IL2 (min)	
1214	THD IL3 (min)	
1215	Vneutral (min)	

Variable code	Variable	Type
1300	Maximum VL1 harmonic 2	Inst.

Variable code	Variable	Type
1350	Maximum VL2 harmonic 2	Inst.

Variable code	Variable	Type
1400	Maximum VL3 harmonic 2	Inst.

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	for each 150 cycles within a period			for each 150 cycles within a period			for each 150 cycles within a period	
1301	Maximum VL1 harmonic 3 for each 150 cycles within a period	Inst.	1351	Maximum VL2 harmonic 3 for each 150 cycles within a period	Inst.	1401	Maximum VL3 harmonic 3 for each 150 cycles within a period	Inst.
1302	Maximum VL1 harmonic 4 for each 150 cycles within a period	Inst.	1352	Maximum VL2 harmonic 4 for each 150 cycles within a period	Inst.	1402	Maximum VL3 harmonic 4 for each 150 cycles within a period	Inst.
1303	Maximum VL1 harmonic 5 for each 150 cycles within a period	Inst.	1353	Maximum VL2 harmonic 5 for each 150 cycles within a period	Inst.	1403	Maximum VL3 harmonic 5 for each 150 cycles within a period	Inst.
1304	Maximum VL1 harmonic 6 for each 150 cycles within a period	Inst.	1354	Maximum VL2 harmonic 6 for each 150 cycles within a period	Inst.	1404	Maximum VL3 harmonic 6 for each 150 cycles within a period	Inst.
1305	Maximum VL1 harmonic 7 for each 150 cycles within a period	Inst.	1355	Maximum VL2 harmonic 7 for each 150 cycles within a period	Inst.	1405	Maximum VL3 harmonic 7 for each 150 cycles within a period	Inst.
1306	Maximum VL1 harmonic 8 for each 150 cycles within a period	Inst.	1356	Maximum VL2 harmonic 8 for each 150 cycles within a period	Inst.	1406	Maximum VL3 harmonic 8 for each 150 cycles within a period	Inst.
1307	Maximum VL1 harmonic 9 for each 150 cycles within a period	Inst.	1357	Maximum VL2 harmonic 9 for each 150 cycles within a period	Inst.	1407	Maximum VL3 harmonic 9 for each 150 cycles within a period	Inst.
1308	Maximum VL1 harmonic 10 for each 150 cycles within	Inst.	1358	Maximum VL2 harmonic 10 for each 150 cycles within	Inst.	1408	Maximum VL3 harmonic 10 for each 150 cycles within	Inst.

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	a period			a period			a period			
1309	Maximum VL1 harmonic 11 for each 150 cycles within a period	Inst.		1359	Maximum VL2 harmonic 11 for each 150 cycles within a period	Inst.		1409	Maximum VL3 harmonic 11 for each 150 cycles within a period	Inst.
1310	Maximum VL1 harmonic 12 for each 150 cycles within a period	Inst.		1360	Maximum VL2 harmonic 12 for each 150 cycles within a period	Inst.		1410	Maximum VL3 harmonic 12 for each 150 cycles within a period	Inst.
1311	Maximum VL1 harmonic 13 for each 150 cycles within a period	Inst.		1361	Maximum VL2 harmonic 13 for each 150 cycles within a period	Inst.		1411	Maximum VL3 harmonic 13 for each 150 cycles within a period	Inst.
1312	Maximum VL1 harmonic 14 for each 150 cycles within a period	Inst.		1362	Maximum VL2 harmonic 14 for each 150 cycles within a period	Inst.		1412	Maximum VL3 harmonic 14 for each 150 cycles within a period	Inst.
1313	Maximum VL1 harmonic 15 for each 150 cycles within a period	Inst.		1363	Maximum VL2 harmonic 15 for each 150 cycles within a period	Inst.		1413	Maximum VL3 harmonic 15 for each 150 cycles within a period	Inst.
1314	Maximum VL1 harmonic 16 for each 150 cycles within a period	Inst.		1364	Maximum VL2 harmonic 16 for each 150 cycles within a period	Inst.		1414	Maximum VL3 harmonic 16 for each 150 cycles within a period	Inst.
1315	Maximum VL1 harmonic 17 for each 150 cycles within a period	Inst.		1365	Maximum VL2 harmonic 17 for each 150 cycles within a period	Inst.		1415	Maximum VL3 harmonic 17 for each 150 cycles within a period	Inst.
1316	Maximum VL1 harmonic 18 for each 150 cycles within a period	Inst.		1366	Maximum VL2 harmonic 18 for each 150 cycles within a period	Inst.		1416	Maximum VL3 harmonic 18 for each 150 cycles within a period	Inst.
1317	Maximum	Inst.		1367	Maximum	Inst.		1417	Maximum	Inst.

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	VL1 harmonic 19 for each 150 cycles within a period			VL2 harmonic 19 for each 150 cycles within a period			VL3 harmonic 19 for each 150 cycles within a period	
1318	Maximum VL1 harmonic 20 for each 150 cycles within a period	Inst.		1368	Maximum VL2 harmonic 20 for each 150 cycles within a period	Inst.	1418	Maximum VL3 harmonic 20 for each 150 cycles within a period
1319	Maximum VL1 harmonic 21 for each 150 cycles within a period	Inst.		1369	Maximum VL2 harmonic 21 for each 150 cycles within a period	Inst.	1419	Maximum VL3 harmonic 21 for each 150 cycles within a period
1320	Maximum VL1 harmonic 22 for each 150 cycles within a period	Inst.		1370	Maximum VL2 harmonic 22 for each 150 cycles within a period	Inst.	1420	Maximum VL3 harmonic 22 for each 150 cycles within a period
1321	Maximum VL1 harmonic 23 for each 150 cycles within a period	Inst.		1371	Maximum VL2 harmonic 23 for each 150 cycles within a period	Inst.	1421	Maximum VL3 harmonic 23 for each 150 cycles within a period
1322	Maximum VL1 harmonic 24 for each 150 cycles within a period	Inst.		1372	Maximum VL2 harmonic 24 for each 150 cycles within a period	Inst.	1422	Maximum VL3 harmonic 24 for each 150 cycles within a period
1323	Maximum VL1 harmonic 25 for each 150 cycles within a period	Inst.		1373	Maximum VL2 harmonic 25 for each 150 cycles within a period	Inst.	1423	Maximum VL3 harmonic 25 for each 150 cycles within a period
1324	Maximum VL1 harmonic 26 for each 150 cycles within a period	Inst.		1374	Maximum VL2 harmonic 26 for each 150 cycles within a period	Inst.	1424	Maximum VL3 harmonic 26 for each 150 cycles within a period
1325	Maximum VL1 harmonic 27	Inst.		1375	Maximum VL2 harmonic 27	Inst.	1425	Maximum VL3 harmonic 27

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	for each 150 cycles within a period			for each 150 cycles within a period			for each 150 cycles within a period	
1326	Maximum VL1 harmonic 28 for each 150 cycles within a period	Inst.	1376	Maximum VL2 harmonic 28 for each 150 cycles within a period	Inst.	1426	Maximum VL3 harmonic 28 for each 150 cycles within a period	Inst.
1327	Maximum VL1 harmonic 29 for each 150 cycles within a period	Inst.	1377	Maximum VL2 harmonic 29 for each 150 cycles within a period	Inst.	1427	Maximum VL3 harmonic 29 for each 150 cycles within a period	Inst.
1328	Maximum VL1 harmonic 30 for each 150 cycles within a period	Inst.	1378	Maximum VL2 harmonic 30 for each 150 cycles within a period	Inst.	1428	Maximum VL3 harmonic 30 for each 150 cycles within a period	Inst.
1329	Maximum VL1 harmonic 31 for each 150 cycles within a period	Inst.	1379	Maximum VL2 harmonic 31 for each 150 cycles within a period	Inst.	1429	Maximum VL3 harmonic 31 for each 150 cycles within a period	Inst.
1330	Maximum VL1 harmonic 32 for each 150 cycles within a period	Inst.	1380	Maximum VL2 harmonic 32 for each 150 cycles within a period	Inst.	1430	Maximum VL3 harmonic 32 for each 150 cycles within a period	Inst.
1331	Maximum VL1 harmonic 33 for each 150 cycles within a period	Inst.	1381	Maximum VL2 harmonic 33 for each 150 cycles within a period	Inst.	1431	Maximum VL3 harmonic 33 for each 150 cycles within a period	Inst.
1332	Maximum VL1 harmonic 34 for each 150 cycles within a period	Inst.	1382	Maximum VL2 harmonic 34 for each 150 cycles within a period	Inst.	1432	Maximum VL3 harmonic 34 for each 150 cycles within a period	Inst.
1333	Maximum VL1 harmonic 35 for each 150 cycles within	Inst.	1383	Maximum VL2 harmonic 35 for each 150 cycles within	Inst.	1433	Maximum VL3 harmonic 35 for each 150 cycles within	Inst.

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	a period			a period			a period	
1334	Maximum VL1 harmonic 36 for each 150 cycles within a period	Inst.	1384	Maximum VL2 harmonic 36 for each 150 cycles within a period	Inst.	1434	Maximum VL3 harmonic 36 for each 150 cycles within a period	Inst.
1335	Maximum VL1 harmonic 37 for each 150 cycles within a period	Inst.	1385	Maximum VL2 harmonic 37 for each 150 cycles within a period	Inst.	1435	Maximum VL3 harmonic 37 for each 150 cycles within a period	Inst.
1336	Maximum VL1 harmonic 38 for each 150 cycles within a period	Inst.	1386	Maximum VL2 harmonic 38 for each 150 cycles within a period	Inst.	1436	Maximum VL3 harmonic 38 for each 150 cycles within a period	Inst.
1337	Maximum VL1 harmonic 39 for each 150 cycles within a period	Inst.	1387	Maximum VL2 harmonic 39 for each 150 cycles within a period	Inst.	1437	Maximum VL3 harmonic 39 for each 150 cycles within a period	Inst.
1338	Maximum VL1 harmonic 40 for each 150 cycles within a period	Inst.	1388	Maximum VL2 harmonic 40 for each 150 cycles within a period	Inst.	1438	Maximum VL3 harmonic 40 for each 150 cycles within a period	Inst.
1339	Maximum VL1 harmonic 41 for each 150 cycles within a period	Inst.	1389	Maximum VL2 harmonic 41 for each 150 cycles within a period	Inst.	1439	Maximum VL3 harmonic 41 for each 150 cycles within a period	Inst.
1340	Maximum VL1 harmonic 42 for each 150 cycles within a period	Inst.	1390	Maximum VL2 harmonic 42 for each 150 cycles within a period	Inst.	1440	Maximum VL3 harmonic 42 for each 150 cycles within a period	Inst.
1341	Maximum VL1 harmonic 43 for each 150 cycles within a period	Inst.	1391	Maximum VL2 harmonic 43 for each 150 cycles within a period	Inst.	1441	Maximum VL3 harmonic 43 for each 150 cycles within a period	Inst.
1342	Maximum	Inst.	1392	Maximum	Inst.	1442	Maximum	Inst.

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	VL1 harmonic 44 for each 150 cycles within a period			VL2 harmonic 44 for each 150 cycles within a period			VL3 harmonic 44 for each 150 cycles within a period	
1343	Maximum VL1 harmonic 45 for each 150 cycles within a period	Inst.		1393	Maximum VL2 harmonic 45 for each 150 cycles within a period	Inst.	1443	Maximum VL3 harmonic 45 for each 150 cycles within a period
1344	Maximum VL1 harmonic 46 for each 150 cycles within a period	Inst.		1394	Maximum VL2 harmonic 46 for each 150 cycles within a period	Inst.	1444	Maximum VL3 harmonic 46 for each 150 cycles within a period
1345	Maximum VL1 harmonic 47 for each 150 cycles within a period	Inst.		1395	Maximum VL2 harmonic 47 for each 150 cycles within a period	Inst.	1445	Maximum VL3 harmonic 47 for each 150 cycles within a period
1346	Maximum VL1 harmonic 48 for each 150 cycles within a period	Inst.		1396	Maximum VL2 harmonic 48 for each 150 cycles within a period	Inst.	1446	Maximum VL3 harmonic 48 for each 150 cycles within a period
1347	Maximum VL1 harmonic 49 for each 150 cycles within a period	Inst.		1397	Maximum VL2 harmonic 49 for each 150 cycles within a period	Inst.	1447	Maximum VL3 harmonic 49 for each 150 cycles within a period
1348	Maximum VL1 harmonic 50 for each 150 cycles within a period	Inst.		1398	Maximum VL2 harmonic 50 for each 150 cycles within a period	Inst.	1448	Maximum VL3 harmonic 50 for each 150 cycles within a period
1450	Maximum VL1 harmonic 2 within a period	Inst.		1500	Maximum VL2 harmonic 2 within a period	Inst.	1550	Maximum VL3 harmonic 2 within a period
1451	Maximum VL1 harmonic 3 within a	Inst.		1501	Maximum VL2 harmonic 3 within a	Inst.	1551	Maximum VL3 harmonic 3 within a

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	period			period			period	
1452	Maximum VL1 harmonic 4 within a period	Inst.	1502	Maximum VL2 harmonic 4 within a period	Inst.	1552	Maximum VL3 harmonic 4 within a period	Inst.
1453	Maximum VL1 harmonic 5 within a period	Inst.	1503	Maximum VL2 harmonic 5 within a period	Inst.	1553	Maximum VL3 harmonic 5 within a period	Inst.
1454	Maximum VL1 harmonic 6 within a period	Inst.	1504	Maximum VL2 harmonic 6 within a period	Inst.	1554	Maximum VL3 harmonic 6 within a period	Inst.
1455	Maximum VL1 harmonic 7 within a period	Inst.	1505	Maximum VL2 harmonic 7 within a period	Inst.	1555	Maximum VL3 harmonic 7 within a period	Inst.
1456	Maximum VL1 harmonic 8 within a period	Inst.	1506	Maximum VL2 harmonic 8 within a period	Inst.	1556	Maximum VL3 harmonic 8 within a period	Inst.
1457	Maximum VL1 harmonic 9 within a period	Inst.	1507	Maximum VL2 harmonic 9 within a period	Inst.	1557	Maximum VL3 harmonic 9 within a period	Inst.
1458	Maximum VL1 harmonic 10 within a period	Inst.	1508	Maximum VL2 harmonic 10 within a period	Inst.	1558	Maximum VL3 harmonic 10 within a period	Inst.
1459	Maximum VL1 harmonic 11 within a period	Inst.	1509	Maximum VL2 harmonic 11 within a period	Inst.	1559	Maximum VL3 harmonic 11 within a period	Inst.
1460	Maximum VL1 harmonic 12 within a period	Inst.	1510	Maximum VL2 harmonic 12 within a period	Inst.	1560	Maximum VL3 harmonic 12 within a period	Inst.
1461	Maximum VL1 harmonic 13 within a	Inst.	1511	Maximum VL2 harmonic 13 within a	Inst.	1561	Maximum VL3 harmonic 13 within a	Inst.

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	period			period			period	
1462	Maximum VL1 harmonic 14 within a period	Inst.	1512	Maximum VL2 harmonic 14 within a period	Inst.	1562	Maximum VL3 harmonic 14 within a period	Inst.
1463	Maximum VL1 harmonic 15 within a period	Inst.	1513	Maximum VL2 harmonic 15 within a period	Inst.	1563	Maximum VL3 harmonic 15 within a period	Inst.
1464	Maximum VL1 harmonic 16 within a period	Inst.	1514	Maximum VL2 harmonic 16 within a period	Inst.	1564	Maximum VL3 harmonic 16 within a period	Inst.
1465	Maximum VL1 harmonic 17 within a period	Inst.	1515	Maximum VL2 harmonic 17 within a period	Inst.	1565	Maximum VL3 harmonic 17 within a period	Inst.
1466	Maximum VL1 harmonic 18 within a period	Inst.	1516	Maximum VL2 harmonic 18 within a period	Inst.	1566	Maximum VL3 harmonic 18 within a period	Inst.
1467	Maximum VL1 harmonic 19 within a period	Inst.	1517	Maximum VL2 harmonic 19 within a period	Inst.	1567	Maximum VL3 harmonic 19 within a period	Inst.
1468	Maximum VL1 harmonic 20 within a period	Inst.	1518	Maximum VL2 harmonic 20 within a period	Inst.	1568	Maximum VL3 harmonic 20 within a period	Inst.
1469	Maximum VL1 harmonic 21 within a period	Inst.	1519	Maximum VL2 harmonic 21 within a period	Inst.	1569	Maximum VL3 harmonic 21 within a period	Inst.
1470	Maximum VL1 harmonic 22 within a period	Inst.	1520	Maximum VL2 harmonic 22 within a period	Inst.	1570	Maximum VL3 harmonic 22 within a period	Inst.
1471	Maximum VL1 harmonic 23 within a	Inst.	1521	Maximum VL2 harmonic 23 within a	Inst.	1571	Maximum VL3 harmonic 23 within a	Inst.

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	period			period			period	
1472	Maximum VL1 harmonic 24 within a period	Inst.	1522	Maximum VL2 harmonic 24 within a period	Inst.	1572	Maximum VL3 harmonic 24 within a period	Inst.
1473	Maximum VL1 harmonic 25 within a period	Inst.	1523	Maximum VL2 harmonic 25 within a period	Inst.	1573	Maximum VL3 harmonic 25 within a period	Inst.
1474	Maximum VL1 harmonic 26 within a period	Inst.	1524	Maximum VL2 harmonic 26 within a period	Inst.	1574	Maximum VL3 harmonic 26 within a period	Inst.
1475	Maximum VL1 harmonic 27 within a period	Inst.	1525	Maximum VL2 harmonic 27 within a period	Inst.	1575	Maximum VL3 harmonic 27 within a period	Inst.
1476	Maximum VL1 harmonic 28 within a period	Inst.	1526	Maximum VL2 harmonic 28 within a period	Inst.	1576	Maximum VL3 harmonic 28 within a period	Inst.
1477	Maximum VL1 harmonic 29 within a period	Inst.	1527	Maximum VL2 harmonic 29 within a period	Inst.	1577	Maximum VL3 harmonic 29 within a period	Inst.
1478	Maximum VL1 harmonic 30 within a period	Inst.	1528	Maximum VL2 harmonic 30 within a period	Inst.	1578	Maximum VL3 harmonic 30 within a period	Inst.
1479	Maximum VL1 harmonic 31 within a period	Inst.	1529	Maximum VL2 harmonic 31 within a period	Inst.	1579	Maximum VL3 harmonic 31 within a period	Inst.
1480	Maximum VL1 harmonic 32 within a period	Inst.	1530	Maximum VL2 harmonic 32 within a period	Inst.	1580	Maximum VL3 harmonic 32 within a period	Inst.
1481	Maximum VL1 harmonic 33 within a	Inst.	1531	Maximum VL2 harmonic 33 within a	Inst.	1581	Maximum VL3 harmonic 33 within a	Inst.

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	period			period			period	
1482	Maximum VL1 harmonic 34 within a period	Inst.	1532	Maximum VL2 harmonic 34 within a period	Inst.	1582	Maximum VL3 harmonic 34 within a period	Inst.
1483	Maximum VL1 harmonic 35 within a period	Inst.	1533	Maximum VL2 harmonic 35 within a period	Inst.	1583	Maximum VL3 harmonic 35 within a period	Inst.
1484	Maximum VL1 harmonic 36 within a period	Inst.	1534	Maximum VL2 harmonic 36 within a period	Inst.	1584	Maximum VL3 harmonic 36 within a period	Inst.
1485	Maximum VL1 harmonic 37 within a period	Inst.	1535	Maximum VL2 harmonic 37 within a period	Inst.	1585	Maximum VL3 harmonic 37 within a period	Inst.
1486	Maximum VL1 harmonic 38 within a period	Inst.	1536	Maximum VL2 harmonic 38 within a period	Inst.	1586	Maximum VL3 harmonic 38 within a period	Inst.
1487	Maximum VL1 harmonic 39 within a period	Inst.	1537	Maximum VL2 harmonic 39 within a period	Inst.	1587	Maximum VL3 harmonic 39 within a period	Inst.
1488	Maximum VL1 harmonic 40 within a period	Inst.	1538	Maximum VL2 harmonic 40 within a period	Inst.	1588	Maximum VL3 harmonic 40 within a period	Inst.
1489	Maximum VL1 harmonic 41 within a period	Inst.	1539	Maximum VL2 harmonic 41 within a period	Inst.	1589	Maximum VL3 harmonic 41 within a period	Inst.
1490	Maximum VL1 harmonic 42 within a period	Inst.	1540	Maximum VL2 harmonic 42 within a period	Inst.	1590	Maximum VL3 harmonic 42 within a period	Inst.
1491	Maximum VL1 harmonic 43 within a	Inst.	1541	Maximum VL2 harmonic 43 within a	Inst.	1591	Maximum VL3 harmonic 43 within a	Inst.

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	period			period			period	
1492	Maximum VL1 harmonic 44 within a period	Inst.	1542	Maximum VL2 harmonic 44 within a period	Inst.	1592	Maximum VL3 harmonic 44 within a period	Inst.
1493	Maximum VL1 harmonic 45 within a period	Inst.	1543	Maximum VL2 harmonic 45 within a period	Inst.	1593	Maximum VL3 harmonic 45 within a period	Inst.
1494	Maximum VL1 harmonic 46 within a period	Inst.	1544	Maximum VL2 harmonic 46 within a period	Inst.	1594	Maximum VL3 harmonic 46 within a period	Inst.
1495	Maximum VL1 harmonic 47 within a period	Inst.	1545	Maximum VL2 harmonic 47 within a period	Inst.	1595	Maximum VL3 harmonic 47 within a period	Inst.
1496	Maximum VL1 harmonic 48 within a period	Inst.	1546	Maximum VL2 harmonic 48 within a period	Inst.	1596	Maximum VL3 harmonic 48 within a period	Inst.
1497	Maximum VL1 harmonic 49 within a period	Inst.	1547	Maximum VL2 harmonic 49 within a period	Inst.	1597	Maximum VL3 harmonic 49 within a period	Inst.
1498	Maximum VL1 harmonic 50 within a period	Inst.	1548	Maximum VL2 harmonic 50 within a period	Inst.	1598	Maximum VL3 harmonic 50 within a period	Inst.
1600	Accuracy of the statistical classification of the VL1 harmonic 2	Inst.	1650	Accuracy of the statistical classification of the VL2 harmonic 2	Inst.	1700	Accuracy of the statistical classification of the VL3 harmonic 2	Inst.
1601	Accuracy of the statistical classification of the VL1 harmonic 3	Inst.	1651	Accuracy of the statistical classification of the VL2 harmonic 3	Inst.	1701	Accuracy of the statistical classification of the VL3 harmonic 3	Inst.
1602	Accuracy of the	Inst.	1652	Accuracy of the	Inst.	1702	Accuracy of the	Inst.

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	statistical classification of the VL1 harmonic 4			statistical classification of the VL2 harmonic 4			statistical classification of the VL3 harmonic 4	
1603	Accuracy of the statistical classification of the VL1 harmonic 5	Inst.	1653	Accuracy of the statistical classification of the VL2 harmonic 5	Inst.	1703	Accuracy of the statistical classification of the VL3 harmonic 5	Inst.
1604	Accuracy of the statistical classification of the VL1 harmonic 6	Inst.	1654	Accuracy of the statistical classification of the VL2 harmonic 6	Inst.	1704	Accuracy of the statistical classification of the VL3 harmonic 6	Inst.
1605	Accuracy of the statistical classification of the VL1 harmonic 7	Inst.	1655	Accuracy of the statistical classification of the VL2 harmonic 7	Inst.	1705	Accuracy of the statistical classification of the VL3 harmonic 7	Inst.
1606	Accuracy of the statistical classification of the VL1 harmonic 8	Inst.	1656	Accuracy of the statistical classification of the VL2 harmonic 8	Inst.	1706	Accuracy of the statistical classification of the VL3 harmonic 8	Inst.
1607	Accuracy of the statistical classification of the VL1 harmonic 9	Inst.	1657	Accuracy of the statistical classification of the VL2 harmonic 9	Inst.	1707	Accuracy of the statistical classification of the VL3 harmonic 9	Inst.
1608	Accuracy of the statistical classification of the VL1 harmonic 10	Inst.	1658	Accuracy of the statistical classification of the VL2 harmonic 10	Inst.	1708	Accuracy of the statistical classification of the VL3 harmonic 10	Inst.
1609	Accuracy of the statistical classification of the VL1 harmonic 11	Inst.	1659	Accuracy of the statistical classification of the VL2 harmonic 11	Inst.	1709	Accuracy of the statistical classification of the VL3 harmonic 11	Inst.
1610	Accuracy of the statistical classificatio	Inst.	1660	Accuracy of the statistical classificatio	Inst.	1710	Accuracy of the statistical classificatio	Inst.

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	n of the VL1 harmonic 12			n of the VL2 harmonic 12			n of the VL3 harmonic 12	
1611	Accuracy of the statistical classification of the VL1 harmonic 13	Inst.	1661	Accuracy of the statistical classification of the VL2 harmonic 13	Inst.	1711	Accuracy of the statistical classification of the VL3 harmonic 13	Inst.
1612	Accuracy of the statistical classification of the VL1 harmonic 14	Inst.	1662	Accuracy of the statistical classification of the VL2 harmonic 14	Inst.	1712	Accuracy of the statistical classification of the VL3 harmonic 14	Inst.
1613	Accuracy of the statistical classification of the VL1 harmonic 15	Inst.	1663	Accuracy of the statistical classification of the VL2 harmonic 15	Inst.	1713	Accuracy of the statistical classification of the VL3 harmonic 15	Inst.
1614	Accuracy of the statistical classification of the VL1 harmonic 16	Inst.	1664	Accuracy of the statistical classification of the VL2 harmonic 16	Inst.	1714	Accuracy of the statistical classification of the VL3 harmonic 16	Inst.
1615	Accuracy of the statistical classification of the VL1 harmonic 17	Inst.	1665	Accuracy of the statistical classification of the VL2 harmonic 17	Inst.	1715	Accuracy of the statistical classification of the VL3 harmonic 17	Inst.
1616	Accuracy of the statistical classification of the VL1 harmonic 18	Inst.	1666	Accuracy of the statistical classification of the VL2 harmonic 18	Inst.	1716	Accuracy of the statistical classification of the VL3 harmonic 18	Inst.
1617	Accuracy of the statistical classification of the VL1 harmonic 19	Inst.	1667	Accuracy of the statistical classification of the VL2 harmonic 19	Inst.	1717	Accuracy of the statistical classification of the VL3 harmonic 19	Inst.
1618	Accuracy of the statistical classification of the VL1 harmonic 20	Inst.	1668	Accuracy of the statistical classification of the VL2 harmonic 20	Inst.	1718	Accuracy of the statistical classification of the VL3 harmonic 20	Inst.

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1619	Accuracy of the statistical classification of the VL1 harmonic 21	Inst.	1669	Accuracy of the statistical classification of the VL2 harmonic 21	Inst.	1719	Accuracy of the statistical classification of the VL3 harmonic 21	Inst.
1620	Accuracy of the statistical classification of the VL1 harmonic 22	Inst.	1670	Accuracy of the statistical classification of the VL2 harmonic 22	Inst.	1720	Accuracy of the statistical classification of the VL3 harmonic 22	Inst.
1621	Accuracy of the statistical classification of the VL1 harmonic 23	Inst.	1671	Accuracy of the statistical classification of the VL2 harmonic 23	Inst.	1721	Accuracy of the statistical classification of the VL3 harmonic 23	Inst.
1622	Accuracy of the statistical classification of the VL1 harmonic 24	Inst.	1672	Accuracy of the statistical classification of the VL2 harmonic 24	Inst.	1722	Accuracy of the statistical classification of the VL3 harmonic 24	Inst.
1623	Accuracy of the statistical classification of the VL1 harmonic 25	Inst.	1673	Accuracy of the statistical classification of the VL2 harmonic 25	Inst.	1723	Accuracy of the statistical classification of the VL3 harmonic 25	Inst.
1624	Accuracy of the statistical classification of the VL1 harmonic 26	Inst.	1674	Accuracy of the statistical classification of the VL2 harmonic 26	Inst.	1724	Accuracy of the statistical classification of the VL3 harmonic 26	Inst.
1625	Accuracy of the statistical classification of the VL1 harmonic 27	Inst.	1675	Accuracy of the statistical classification of the VL2 harmonic 27	Inst.	1725	Accuracy of the statistical classification of the VL3 harmonic 27	Inst.
1626	Accuracy of the statistical classification of the VL1 harmonic 28	Inst.	1676	Accuracy of the statistical classification of the VL2 harmonic 28	Inst.	1726	Accuracy of the statistical classification of the VL3 harmonic 28	Inst.
1627	Accuracy of the	Inst.	1677	Accuracy of the	Inst.	1727	Accuracy of the	Inst.

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	statistical classification of the VL1 harmonic 29			statistical classification of the VL2 harmonic 29			statistical classification of the VL3 harmonic 29	
1628	Accuracy of the statistical classification of the VL1 harmonic 30	Inst.	1678	Accuracy of the statistical classification of the VL2 harmonic 30	Inst.	1728	Accuracy of the statistical classification of the VL3 harmonic 30	Inst.
1629	Accuracy of the statistical classification of the VL1 harmonic 31	Inst.	1679	Accuracy of the statistical classification of the VL2 harmonic 31	Inst.	1729	Accuracy of the statistical classification of the VL3 harmonic 31	Inst.
1630	Accuracy of the statistical classification of the VL1 harmonic 32	Inst.	1680	Accuracy of the statistical classification of the VL2 harmonic 32	Inst.	1730	Accuracy of the statistical classification of the VL3 harmonic 32	Inst.
1631	Accuracy of the statistical classification of the VL1 harmonic 33	Inst.	1681	Accuracy of the statistical classification of the VL2 harmonic 33	Inst.	1731	Accuracy of the statistical classification of the VL3 harmonic 33	Inst.
1632	Accuracy of the statistical classification of the VL1 harmonic 34	Inst.	1682	Accuracy of the statistical classification of the VL2 harmonic 34	Inst.	1732	Accuracy of the statistical classification of the VL3 harmonic 34	Inst.
1633	Accuracy of the statistical classification of the VL1 harmonic 35	Inst.	1683	Accuracy of the statistical classification of the VL2 harmonic 35	Inst.	1733	Accuracy of the statistical classification of the VL3 harmonic 35	Inst.
1634	Accuracy of the statistical classification of the VL1 harmonic 36	Inst.	1684	Accuracy of the statistical classification of the VL2 harmonic 36	Inst.	1734	Accuracy of the statistical classification of the VL3 harmonic 36	Inst.
1635	Accuracy of the statistical classificatio	Inst.	1685	Accuracy of the statistical classificatio	Inst.	1735	Accuracy of the statistical classificatio	Inst.

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	n of the VL1 harmonic 37			n of the VL2 harmonic 37			n of the VL3 harmonic 37	
1636	Accuracy of the statistical classification of the VL1 harmonic 38	Inst.	1686	Accuracy of the statistical classification of the VL2 harmonic 38	Inst.	1736	Accuracy of the statistical classification of the VL3 harmonic 38	Inst.
1637	Accuracy of the statistical classification of the VL1 harmonic 39	Inst.	1687	Accuracy of the statistical classification of the VL2 harmonic 39	Inst.	1737	Accuracy of the statistical classification of the VL3 harmonic 39	Inst.
1638	Accuracy of the statistical classification of the VL1 harmonic 40	Inst.	1688	Accuracy of the statistical classification of the VL2 harmonic 40	Inst.	1738	Accuracy of the statistical classification of the VL3 harmonic 40	Inst.
1639	Accuracy of the statistical classification of the VL1 harmonic 41	Inst.	1689	Accuracy of the statistical classification of the VL2 harmonic 41	Inst.	1739	Accuracy of the statistical classification of the VL3 harmonic 41	Inst.
1640	Accuracy of the statistical classification of the VL1 harmonic 42	Inst.	1690	Accuracy of the statistical classification of the VL2 harmonic 42	Inst.	1740	Accuracy of the statistical classification of the VL3 harmonic 42	Inst.
1641	Accuracy of the statistical classification of the VL1 harmonic 43	Inst.	1691	Accuracy of the statistical classification of the VL2 harmonic 43	Inst.	1741	Accuracy of the statistical classification of the VL3 harmonic 43	Inst.
1642	Accuracy of the statistical classification of the VL1 harmonic 44	Inst.	1692	Accuracy of the statistical classification of the VL2 harmonic 44	Inst.	1742	Accuracy of the statistical classification of the VL3 harmonic 44	Inst.
1643	Accuracy of the statistical classification of the VL1 harmonic 45	Inst.	1693	Accuracy of the statistical classification of the VL2 harmonic 45	Inst.	1743	Accuracy of the statistical classification of the VL3 harmonic 45	Inst.

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1644	Accuracy of the statistical classification of the VL1 harmonic 46	Inst.	1694	Accuracy of the statistical classification of the VL2 harmonic 46	Inst.	1744	Accuracy of the statistical classification of the VL3 harmonic 46	Inst.
1645	Accuracy of the statistical classification of the VL1 harmonic 47	Inst.	1695	Accuracy of the statistical classification of the VL2 harmonic 47	Inst.	1745	Accuracy of the statistical classification of the VL3 harmonic 47	Inst.
1646	Accuracy of the statistical classification of the VL1 harmonic 48	Inst.	1696	Accuracy of the statistical classification of the VL2 harmonic 48	Inst.	1746	Accuracy of the statistical classification of the VL3 harmonic 48	Inst.
1647	Accuracy of the statistical classification of the VL1 harmonic 49	Inst.	1697	Accuracy of the statistical classification of the VL2 harmonic 49	Inst.	1747	Accuracy of the statistical classification of the VL3 harmonic 49	Inst.
1648	Accuracy of the statistical classification of the VL1 harmonic 50	Inst.	1698	Accuracy of the statistical classification of the VL2 harmonic 50	Inst.	1748	Accuracy of the statistical classification of the VL3 harmonic 50	Inst.
1750	Meter 1	Inst.	1800	Meter 1	Max.	1850	Meter 1	Min.
1751	Meter 2	Inst.	1801	Meter 2	Max.	1851	Meter 2	Min.
1752	Meter 3	Inst.	1802	Meter 3	Max.	1852	Meter 3	Min.
1753	Meter 4	Inst.	1803	Meter 4	Max.	1853	Meter 4	Min.
1754	Meter 5	Inst.	1804	Meter 5	Max.	1854	Meter 5	Min.
1755	Meter 6	Inst.	1805	Meter 6	Max.	1855	Meter 6	Min.
1756	Meter 7	Inst.	1806	Meter 7	Max.	1856	Meter 7	Min.
1757	Meter 8	Inst.	1807	Meter 8	Max.	1857	Meter 8	Min.
1758	Meter 9	Inst.	1808	Meter 9	Max.	1858	Meter 9	Min.
1759	Meter 10	Inst.	1809	Meter 10	Max.	1859	Meter 10	Min.
1760	Meter 11	Inst.	1810	Meter 11	Max.	1860	Meter 11	Min.
1761	Meter 12	Inst.	1811	Meter 12	Max.	1861	Meter 12	Min.
1762	Meter 13	Inst.	1812	Meter 13	Max.	1862	Meter 13	Min.
1763	Meter 14	Inst.	1813	Meter 14	Max.	1863	Meter 14	Min.
1764	Meter 15	Inst.	1814	Meter 15	Max.	1864	Meter 15	Min.
1765	Meter 16	Inst.	1815	Meter 16	Max.	1865	Meter 16	Min.
1766	Meter 17	Inst.	1816	Meter 17	Max.	1866	Meter 17	Min.
1767	Meter 18	Inst.	1817	Meter 18	Max.	1867	Meter 18	Min.
1768	Meter 19	Inst.	1818	Meter 19	Max.	1868	Meter 19	Min.

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1769	Meter 20	Inst.	1819	Meter 20	Max.	1869	Meter 20	Min.
1770	Meter 21	Inst.	1820	Meter 21	Max.	1870	Meter 21	Min.
1771	Meter 22	Inst.	1821	Meter 22	Max.	1871	Meter 22	Min.
1772	Meter 23	Inst.	1822	Meter 23	Max.	1872	Meter 23	Min.
1773	Meter 24	Inst.	1823	Meter 24	Max.	1873	Meter 24	Min.
1774	Ent. An. 1	Inst.	1824	Ent. An. 1	Max.	1874	Ent. An. 1	Min.
1775	Ent. An. 2	Inst.	1825	Ent. An. 2	Max.	1875	Ent. An. 2	Min.
1776	Ent. An. 3	Inst.	1826	Ent. An. 3	Max.	1876	Ent. An. 3	Min.
1777	Ent. An. 4	Inst.	1827	Ent. An. 4	Max.	1877	Ent. An. 4	Min.
1778	Ent. An. 5	Inst.	1828	Ent. An. 5	Max.	1878	Ent. An. 5	Min.
1779	Ent. An. 6	Inst.	1829	Ent. An. 6	Max.	1879	Ent. An. 6	Min.
1780	Ent. An. 7	Inst.	1830	Ent. An. 7	Max.	1880	Ent. An. 7	Min.
1781	Ent. An. 8	Inst.	1831	Ent. An. 8	Max.	1881	Ent. An. 8	Min.

Note: Power Factor is given a value between 0 and 200, with the following meaning:

[0,100)	Positive values (the nearer to 100 the better, i.e. it will be closer to 1)
100	Value 1 (optimum)
(100,200]	Negative values (the nearer to 100 the better, i.e. it will be closer to 1)