APPLICATION SERVER  
GATEWAY

**METER ENERGY – MODULE**

**Connection and Technical Specification**

Version 1.0.5 (Aug 2015)



**PT. PLN (PERSERO) KANTOR PUSAT**

**2015**

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# REVISIONS

|  |  |  |
| --- | --- | --- |
| **VERSION** | **DATE** | **DESCRIPTION** |
| 1.0.1 | Aug, 2013 | Channel Load Profile has 14 |
| 1.0.2 | Jan, 2014 | 1. Column for MTI=3200 has been deleted  * TotalKVAMaxEkspor * TotalKVAMaxImpor  1. Alter length any column for MTI=3200 2. Change PAN define for MTI=3200 |
| 1.0.3 | Feb, 2014 | 1. Add new parameter 3800 – 302 sync Time 2. Kolom Spek teknis nambah 1 kolom Keterangan 3. Max Retries , No limit until get RC=0000 |
| 1.0.4 | Mar, 2014 | Add and revision of PAN in 3200 ,3100 , and 3300 |
| 1.0.5 | Aug, 2015 | 1. Message flow, Request data Lost (3200+Req) 2. In 3200 ,alter sequence of FaktorKerja and Frequency 3. In 3200 ,Set Unit (Kilo, Mega, or Unit) 4. In Additional Private Data 3210,add new Request Data Lost 5. In 3100 add Total KWH Kirim and Terima and Alter Sequence of KWH WBP. 6. Add Reference number into database , for message data accuration. |

# SECTION 1

## Background

PLN (Perusahaan Listrik Negara) is a government company supplies electricity for All Indonesian. As one of public company, major purpose is how to collect meter Energy transaction from generation, transmission , and distribution . Currently, there is more than Meter using AMR with Pull data accessing PLN database directly using different approach. Along with internal requirements comes from internal PLN and based on existing operation problems, PLN proposed a single and centralized data access through a unified gateway using financial standard messaging protocol, ISO8583:2003 (<http://www.iso.org>).

The simple idea is all meters which is need to access PLN’s database must enter through single unified and standard gateway using standard message and standard mechanism. Further, direct access to database is highly prohibited.

## Connection Architecture

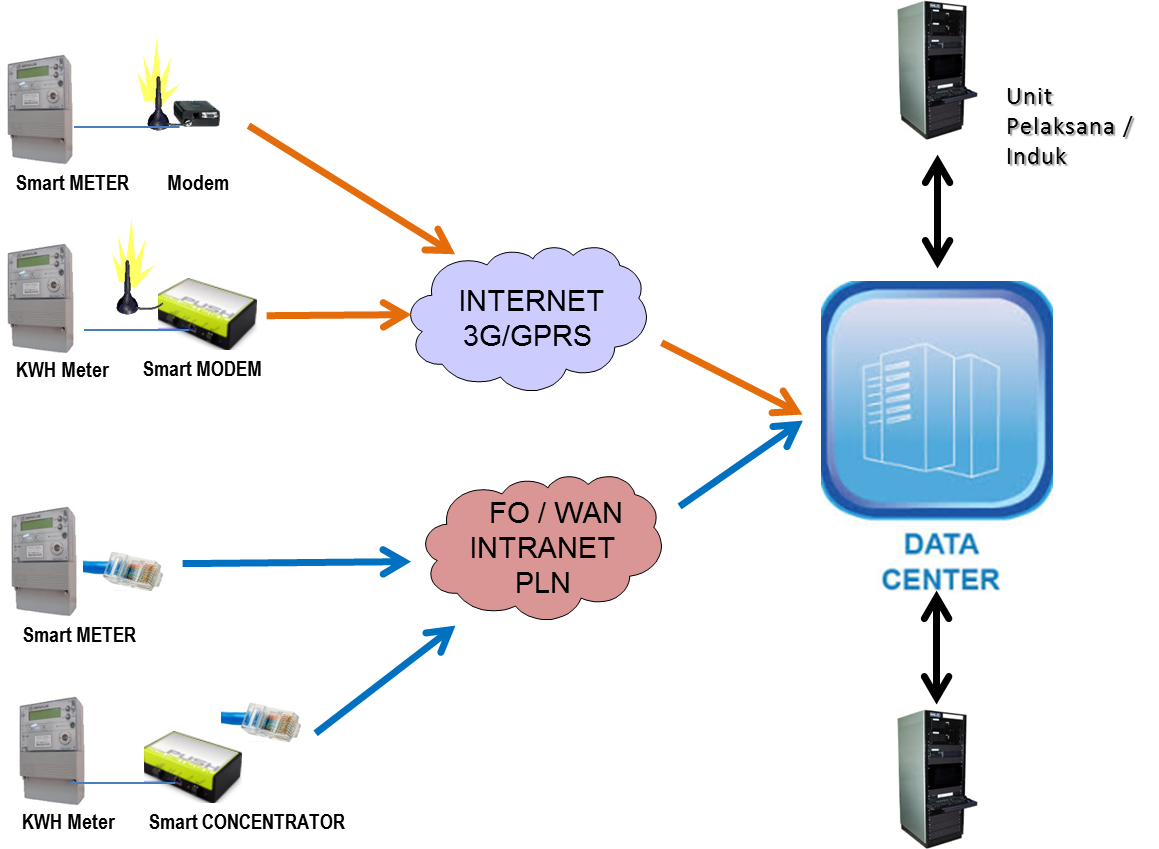


Figure 1 Skema

METER System can access Gateway PLN System using dedicated communication channel like FO or using any telecommunication provider like 3G/GPRS for link reliability and availability reasons. Any other connection other than mentioned, must be discussed first with DIVSIM.

# SECTION 2 MESSAGE/PROTOCOL SPECIFICATION

## Messaging System

TCP/IP Communication System will bring the information from KWh Meter System and PLN-Application Server Gateway and vice-versa.

The standard communication protocol that used by PLN Application Server is TCP/IP (“telnet” like), where client must send a negative byte value -1 (hexa-1x01 in JAVA/C instead of bytes of CRLF characters for real telnet application) to indicate END OF MESSAGE (EOM). Every request message will be responded by an appropriate reply according to each request type

Each message must be trailed by a negative byte value -1 (hexa-1x01 in JAVA/C) indicates end of message (EOM). The Meter must be blocked, wait for a response from PLN Gateway (synchronous). If a connection time-out was occurred (20-40 seconds were lapsed), SWITCHING can assume the network link was broken and response with TIMEOUT was

## Message Sequence and Flow

Message sequence and flow can be illustrated as following:



Before doing any activities, METER must sign-on first by sending a message with type 3800 – Network Management Request and action 001 – Sign-On to GATEWAY with a predefined identification code(METER ID) provided by PLN. If the METER signed-on successfully (described in response message sent by GATEWAY with type 3810 – Network Management Response), METER can do any SEND DATA as long as available network connection to GATEWAY.

To enable Send data, METER must send message any type 3100 – STAND BILLING Request to PLN GATEWAY System. The key information must be send in this message is METER ID NUMBER ,the unique number. GATEWAY will response with message type 3110 –Response.

If technical problem was occurred, broken network link for instance, there is possibility that METER does not get the response sent by GATEWAY. In this case, METER must sent message RE-TRIES with the same type MTI until succes.

# SECTION 3 MESSAGE FLOW

While sending/receiving message, Meter KWh may get one of two following situations:

* Normal
* FAIL to get response message
* Late Response
* Repeat Sending data
* Request Lost Data

METER must be smart when the situation is not NORMAL. METER System must send re-tries request if it was occurred and send until get response in a period of time. PLN was recommended that the grace period for sending and receiving messages are 20 – 40 seconds. Grace period here means how long METER or GATEWAY must be wait the message before disconnecting the connection and assumes that other party or network is broken.

## Normal

METER BILLING

GATEWAY APPLICATION

**REQ DTA**

**RESP DTA**

**KETERANGAN :**

REQ DTA : Meter Mengirimkan Data Billing padaperiodeTertentu, kodemsg=3100

RESP DTA : Meter MenerimaResponSuksesdari Gateway, kodemsg=3110

## Late Respone

METER BILLING

GATEWAY APPLICATION

**REQ DTA**

**RESP DTA**

**Late Respon**

**KETERANGAN :**

REQ DTA : Meter Mengirimkan Data Billing padaperiodeTertentu, kodemsg=3100

RESP DTA : Meter MenerimaResponSuksesdari Gateway, kodemsg=3110

Late respon : karenajaringan / DB Sibuk

## Time Out

METER BILLING

GATEWAY APPLICATION

**REQ DTA**

**RESP DTA**

**KETERANGAN :**

REQ DTA : Meter Mengirimkan Data Billing pada periode Tertentu

RESP DTA : Meter Menerima Respon Sukses dari Gateway

Time Out : failed Communication

**Time Out**

**REQ DTA - 2**

**RESP DTA - 2**

## Re-Tries sending if Time out/fail

METER BILLING

GATEWAY APPLICATION

**REQ DTA**

**RESP DTA**

**KETERANGAN :**

REQ DTA : Meter Mengirimkan Data Billing pada periode Tertentu

RESP DTA : Meter Menerima Respon Sukses dari Gateway

Time Out : failed Communication

**Time Out**

**REQ DTA - 2**

**RESP DTA - 2**

**Time Out**

**REQ DTA - 3**

**RESP DTA - 3**

## Request Data Lost

METER BILLING

GATEWAY APPLICATION

**REQ**

**RESP + REQ**

**KETERANGAN :**

REQ : Meter Mengirimkan Load Profile 3200

RESP: Meter Menerima Respon Sukses dari Gateway + Request data Lost (3210)

# SECTION 4 MESSAGE/PROTOCOL SPECIFICATION

## Network Management

## A.1 Request Message

Message Type Identifier : 3800

Sender : Meter KWh

Purpose : Request network management action to GATEWAY

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **No** | **Name** | **Sub Field** | **Type** | **Length** | **format** | **Description** | **Value / e.g.** | **information** |
| 1 | MTI |  | N | 4 |  | Message Type Indicator 3800 = NetMan Request |  |  |
| 2 | Date & Time, Local Meter |  | N | 14 | CCYYMMDDhhmmss | 20130821091010 | 2013-08-21 09:10:10 |  |
| 3 | Action code |  | AN | 3 |  | 001 = sign-on 002 = sign-off 301 = echo test  302 = sync time | 001 = first connection  301 = keep exists send every 5 minutes GSM/GPRS and every 24 hours in TCP/IP | 302 = synchronize between meter and server time at 00:00AM  002 = end connection |
| 4 | Additional Private Data |  |  |  |  |  |  |  |
|  |  | Serial number Meter | AN | 15 | space right-padding | Serial Number Meter 071008504 | 071008504 |  |
|  |  | IP Address | AN | 15 |  | XXX.XXX.XXX.XXX | 172.168.102.100 | Ip connection |

## A.2 Respon Message

Message Type Identifier : 3810

Sender : Gateway PLN

Purpose : Response the network management action request to Meter KWh

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **No** | **Name** | **Sub Field** | **Type** | **Length** | **format** | **Description** | **Value / e.g.** | **information** |
| 1 | MTI |  | N | 4 |  | Message Type Indicator 3810 = NetMan Response |  |  |
| 2 | Date & Time, Local Meter |  | N | 14 | CCYYMMDDhhmmss | 20130821091010 | 2013-08-21 09:10:10 | Jika clock di Meter berselang 5 Menit dengan jam server, maka clock di Meter diupdate dengan jam server (action code=302) |
| 3 | Action code |  | AN | 3 |  | 001 = sign-on 002 = sign-off 301 = echo test  302 = sync time |  | 302=synchronize time |
| 4 | Response Code |  | AN | 2 |  | 00 = successful 05 = ERROR - Other 11 = ERROR - Need to sign-on 30 = ERROR - Invalid message 32 = ERROR - Unregistered Meter 68 = ERROR - Timeout 90 = ERROR - Cut-off is in progress |  |  |
| 5 | Additional Private Data |  |  |  |  |  |  |  |
|  |  | Serial number Meter | AN | 15 | space right-padding | Serial Number Meter 071008504 |  |  |

Catatan :

Jika clock di Meter berselang 5 Menit dengan jam server, maka clock di Meter diupdate dengan jam server (action code=302)

## End Of Billing

## B.1 Request Message

Message Type Identifier : 3100

Sender : Meter KWh

Purpose : Send Stand Billing to GATEWAY

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **No** | **Name** | **Sub Field** | **Type** | **Length** | **format** | **Description** | **Value / e.g.** | **information** |
| 1 | MTI |  | N | 4 |  | Message Type Indicator 3100 = Send Stand Billing |  |  |
| 2 | Date & Time, Local Meter |  | N | 14 | CCYYMMDDhhmmss | 20130821091010 | 2013-08-21 09:10:10 |  |
| 3 | Primary Account Number (PAN) |  | N | 3 | zero left-padding | 401 Terima dari Luar Pln  402 Terima dari Proyek  403 Terima dari Sewa  404 Terima dari Unit Lain  405 Pembangkit Sendiri  406 PS KIT  407 PS Gi  408 Kirim Ke Unit Lain  409 Kirim Ke Luar Pln  410 Kirim Ke Proyek  411 PS DIST  412 KTT | Fungsi Meter : 407 = Meter Pemakaian Sendiri Gardu Induk |  |
| 4 | Additional Private Data |  |  |  |  |  |  |  |
|  |  | Serial number Meter | AN | 15 | space right-padding | Serial Number Meter 071008504 | 071008504 |  |
|  |  | Date & Time, Meter saved | N | 14 | CCYYMMDDhhmmss | 20130821091010 | 2013-08-21 09:10:10 |  |
|  |  | Stand Minor Unit | N | 1 | 1 .. 6 | Number of decimal value 0 = no decimal value n = n-last digits of value amount are decimal values | 6 |  |
|  |  | Stand KWh WBP kirim | AN | 15 | zero left-padding | 000000000400500 | 400.5 | Snapshot sesuai Setting Waktu |
|  |  | Stand KWh WBP terima | AN | 15 | zero left-padding | 000006402510000 | 6402.51 | Snapshot sesuai Setting Waktu |
|  |  | Stand KWh LWBP1 kirim | AN | 15 | zero left-padding | 000000400500000 | 400.5 | Snapshot sesuai Setting Waktu |
|  |  | Stand KWh LWBP1 terima | AN | 15 | zero left-padding | 000006402510000 | 6402.51 | Snapshot sesuai Setting Waktu |
|  |  | Stand KWh LWBP2 kirim | AN | 15 | zero left-padding | 00000004005000 | 400.5 | Snapshot sesuai Setting Waktu |
|  |  | Stand KWh LWBP2 terima | AN | 15 | zero left-padding | 000006402510000 | 6402.51 | Snapshot sesuai Setting Waktu |
|  |  | Stand KWH TOTAL kirim | AN | 15 | zero left-padding | 000006402510000 | 6402.51 | Snapshot sesuai Setting Waktu |
|  |  | Stand KWH TOTAL Terima | AN | 15 | zero left-padding | 000006402510000 | 6402.51 | Snapshot sesuai Setting Waktu |
|  |  | Stand KVArh kirim | AN | 15 | zero left-padding | 000000654500000 | 654.5 | Snapshot sesuai Setting Waktu |
|  |  | Stand KVArh terima | AN | 15 | zero left-padding | 000000301500000 | 301.5 | Snapshot sesuai Setting Waktu |
|  |  | Stand KVAMax | AN | 15 | zero left-padding | 000000999550000 | 999.55 | Snapshot sesuai Setting Waktu |
|  |  | Date & Time, KVAMax | N | 14 | CCYYMMDDhhmmss | 20130821091010 | 8/21/2013  09:10:10 | Snapshot sesuai Setting Waktu |

Catatan :

1. End Of Billing dikirim per Tanggal 1 pukul 10:00:00 WIB clock pada Meter.
2. Urutan STAND KWH End Of Billing :
   1. KWH WBP
   2. KWH LWBP 1
   3. KWH LWBP 2
   4. KWH TOTAL
3. Jika pada Meter Eksisting Tidak ada channel LWBP1 atau LWBP2 🡪 Stand KWHmeter di isi ke kolom KWH TOTAL
4. Jika pada Meter Eksisting Tidak ada channel LWBP1 / LWBP2 / WBP 🡪 Stand KWHmeter di isi ke kolom KWH TOTAL

## B.2 Respon Message

Message Type Identifier : 3110

Sender : Gateway PLN

Purpose : Response stand Billing request to Meter KWh

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **No** | **Name** | **Sub Field** | **Type** | **Length** | **format** | **Description** | **Value / e.g.** | **information** |
| 1 | MTI |  | N | 4 |  | Message Type Indicator | 3110 = Stand Billing Response |  |
| 2 | Date & Time, Local Meter |  | N | 14 | CCYYMMDDhhmmss | 20130821091010 | 2013-08-21 09:10:10 |  |
| 3 | Primary Account Number (PAN) |  | N | 3 | zero left-padding | 401 Terima dari Luar Pln  402 Terima dari Proyek  403 Terima dari Sewa  404 Terima dari Unit Lain  405 Pembangkit Sendiri  406 PS KIT  407 PS Gi  408 Kirim Ke Unit Lain  409 Kirim Ke Luar Pln  410 Kirim Ke Proyek  411 PS DIST  412 KTT | Fungsi Meter : 407 = Meter Pemakaian Sendiri Gardu Induk |  |
| 4 | Response Code |  | AN | 2 |  | 00 = successful 05 = ERROR - Other 11 = ERROR - Need to sign-on 30 = ERROR - Invalid message 32 = ERROR - Unregistered Meter 68 = ERROR - Timeout 90 = ERROR - Cut-off is in progress |  |  |
| 5 | Additional Private Data |  |  |  |  |  |  |  |
|  |  | Serial number Meter | AN | 15 | space right-padding | Serial Number Meter 071008504 | 071008504 |  |

## Load Profile

## C.1 Request Message

Message Type Identifier : 3200

Sender : Meter KWh

Purpose : Send Load profile to GATEWAY

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **No** | **Name** | **Sub Field** | **Type** | **Length** | **format** | **Description** | **Value / e.g.** | **information** |
| 1 | MTI |  | N | 4 |  | Message Type Indicator 3200 = SendLoad Profile |  |  |
| 2 | Date & Time, Local Meter |  | N | 14 | CCYYMMDDhhmmss | 20130821091010 | 2013-08-21 09:10:10 |  |
| 3 | Primary Account Number (PAN) |  | N | 3 | zero left-padding | 401 Terima dari Luar Pln  402 Terima dari Proyek  403 Terima dari Sewa  404 Terima dari Unit Lain  405 Pembangkit Sendiri  406 PS KIT  407 PS Gi  408 Kirim Ke Unit Lain  409 Kirim Ke Luar Pln  410 Kirim Ke Proyek  411 PS DIST  412 KTT | Fungsi Meter : 407 = Meter Pemakaian Sendiri Gardu Induk |  |
| 4 | Additional Private Data |  |  |  |  |  |  |  |
|  |  | Serial number Meter | AN | 15 | space right-padding | Serial Number Meter 071008504 | 071008504 |  |
|  |  | Date & Time, Meter saved | N | 14 | CCYYMMDDhhmmss | 20130821091010 | 2013-08-21 09:10:10 |  |
|  |  | Stand Minor Unit | N | 1 | 1 .. 6 | Number of decimal value 0 = no decimal value n = n-last digits of value amount are decimal values | 6 | Jumlah decimal  dibelakang koma |
|  |  | Total KWh kirim | AN | 15 | zero left-padding | Total Kwh kirim 000000040050000 | 40.05 Kwh | Summary 30 Menit |
|  |  | TotalKVArh kirim | AN | 15 | zero left-padding | Total KVArh kirim 000000190010000 | 190.01 KVarh | Summary 30 Menit |
|  |  | TotalKWh terima | AN | 15 | zero left-padding | Total Kwh terima 000000640251000 | 640.251 Kwh | Summary 30 Menit |
|  |  | TotalKVArh terima | AN | 15 | zero left-padding | Total KVArh terima 000000000150000 | 0.15 KVarh | Summary 30 Menit |
|  |  | TeganganFasa R | AN | 9 | zero left-padding | TeganganFasa R  499500000 | 499.5 | Snapshot |
|  |  | TeganganFasa S | AN | 9 | zero left-padding | TeganganFasa S  000198980 | 0.19898 | Snapshot |
|  |  | TeganganFasa T | AN | 9 | zero left-padding | TeganganFasa T  020011000 | 20.011 | Snapshot |
|  |  | ArusFasa R | AN | 10 | zero left-padding | ArusFasa R  0002248000 | 2.048 A | Snapshot |
|  |  | ArusFasa S | AN | 10 | zero left-padding | ArusFasa S  0003048000 | 3.048 A | Snapshot |
|  |  | ArusFasa T | AN | 10 | zero left-padding | ArusFasa T  0002208000 | 2.208 A | Snapshot |
|  |  | FaktorKerja | AN | 7 | zero left-padding | Factor Kerja (cos q)  0990000 | 0.99 | Snapshot |
|  |  | Frekuensi | AN | 8 | zero left-padding | Frekuensi  49500000 | 49.5 Hertz | Snapshot |
|  |  | Total Daya MW | AN | 11 | zero left-padding | Daya  00029125000 | 29.125 | Snapshot |
|  |  | Total Daya MVAR | AN | 11 | zero left-padding | Daya Reaktif  13000160000 | 13000.16 | Snapshot |

1. Load profile dikirim per 30 Menit , terhitung pukul 00:00:00 WIB clock pada Meter
2. Peak Koinsiden (KW) 🡪 Pemakaian energy KWh (load profile) dalam 30 Menit \* 2
3. Satuan Energi :

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Kolom | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| MU/MP | K | K | K | K | K | K | K | U | U | U | U | U | M | M |
| PS | K | K | K | K | U | U | U | U | U | U | U | U | K | K |

K = Kilo , M = Mega , U = Unit

1. Urutan Kolom :
2. KWh Kirim
3. KVArH Kirim
4. KWh Terima
5. KVArH Terima
6. Tegangan R
7. Tegangan S
8. Tegangan T
9. Arus R
10. Arus S
11. Arus T
12. Faktor kerja (cos q)
13. Frequency (Herzt)
14. Daya
15. Daya Reaktif

## C.1 Respon Message

Message Type Identifier : 3210

Sender : Gateway PLN

Purpose : Response Load Profile request to Meter KWh

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **No** | **Name** | **Sub Field** | **Type** | **Length** | **format** | **Description** | **Value / e.g.** | **information** |
| 1 | MTI |  | N | 4 |  | Message Type Indicator 3210 = load Profile Response |  |  |
| 2 | Date & Time, Local Meter |  | N | 14 | CCYYMMDDhhmmss | 20130821091010 | 2013-08-21 09:10:10 |  |
| 3 | Primary Account Number (PAN) |  | N | 3 | zero left-padding | 401 Terima dari Luar Pln  402 Terima dari Proyek  403 Terima dari Sewa  404 Terima dari Unit Lain  405 Pembangkit Sendiri  406 PS KIT  407 PS Gi  408 Kirim Ke Unit Lain  409 Kirim Ke Luar Pln  410 Kirim Ke Proyek  411 PS DIST  412 KTT | Fungsi Meter : 407 = Meter Pemakaian Sendiri Gardu Induk |  |
| 4 | Response Code |  | AN | 2 |  | 00 = successful 05 = ERROR - Other 11 = ERROR - Need to sign-on 30 = ERROR - Invalid message 32 = ERROR - Unregistered Meter 68 = ERROR - Timeout 90 = ERROR - Cut-off is in progress |  |  |
| 5 | Additional Private Data |  |  |  |  |  |  |  |
|  |  | Serial number Meter | AN | 15 | space right-padding | Serial Number Meter 071008504 | 071008504 |  |
|  |  | Request Data Lost | AN | 6 | Zero left padding | First Request = 1..254  End Request = 1..255 | 001255 (if any)  000000 (default) | Request data lost from index 1 until 255.  Index 1 are last data created |

## Event Log

## D.1 Request Message

Message Type Identifier : 3300

Sender : Meter KWh

Purpose : Send Event Log to GATEWAY

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **No** | **Name** | **Sub Field** | **Type** | **Length** | **format** | **Description** | **Value / e.g.** | **information** |
| 1 | MTI |  | N | 4 |  | Message Type Indicator 3300 = SendEvent Log |  |  |
| 2 | Date & Time, Local Meter |  | N | 14 | CCYYMMDDhhmmss | 20130821091010 | 2013-08-21 09:10:10 |  |
| 3 | Primary Account Number (PAN) |  | N | 3 | zero left-padding | 401 Terima dari Luar Pln  402 Terima dari Proyek  403 Terima dari Sewa  404 Terima dari Unit Lain  405 Pembangkit Sendiri  406 PS KIT  407 PS Gi  408 Kirim Ke Unit Lain  409 Kirim Ke Luar Pln  410 Kirim Ke Proyek  411 PS DIST  412 KTT | Fungsi Meter : 407 = Meter Pemakaian Sendiri Gardu Induk |  |
| 4 | Additional Private Data |  |  |  |  |  |  |  |
|  |  | Serial number Meter | AN | 15 | space right-padding | Serial Number Meter 071008504 | 071008504 |  |
|  |  | Date & Time, Meter saved | N | 14 | CCYYMMDDhhmmss | 20130821091010 | 2013-08-21 09:10:10 |  |
|  |  | Event Code | A | 4 | zero left-padding | 0001 – Tegangan hilang Fasa R  0002 – Tegangan hilang Fasa S  0003 – Tegangan hilang Fasa T  0004 – Arus Hilang Fasa R  0005 – Arus Hilang Fasa R  0006 – Arus Hilang Fasa R  0007 – Frekuensi Treshold keluar dr batas  0008 – Tegangan under voltage  0009 – Unbalanced arus  0010 – Unbalanced tegangan  0011 – Kesalahan Pengkabelan  ……..  8888 – Kejadian pada modem  9999 – Kejadian lain belum didefinisikan | 0001 |  |
|  |  | Event Name | A | 50 | SpaceRight-padding | Event Log Name | Tegangan hilang Fasa R | Bila event code telah didefinisikan event name tidak di isi |

## D.2 Respon Message

Message Type Identifier : 3310

Sender : Gateway PLN

Purpose : Response Event Log request to Meter KWh

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **No** | **Name** | **Sub Field** | **Type** | **Length** | **format** | **Description** | **Value / e.g.** | **information** |
| 1 | MTI |  | N | 4 |  | Message Type Indicator 3310 = Event Log Response |  |  |
| 2 | Date & Time, Local Meter |  | N | 14 | CCYYMMDDhhmmss | 20130821091010 | 2013-08-21 09:10:10 |  |
| 3 | Primary Account Number (PAN) |  | N | 3 | zero left-padding | 401 Terima dari Luar Pln  402 Terima dari Proyek  403 Terima dari Sewa  404 Terima dari Unit Lain  405 Pembangkit Sendiri  406 PS KIT  407 PS Gi  408 Kirim Ke Unit Lain  409 Kirim Ke Luar Pln  410 Kirim Ke Proyek  411 PS DIST  412 KTT | Fungsi Meter : 407 = Meter Pemakaian Sendiri Gardu Induk |  |
| 4 | Response Code |  | AN | 2 |  | 00 = successful 05 = ERROR - Other 11 = ERROR - Need to sign-on 30 = ERROR - Invalid message 32 = ERROR - Unregistered Meter 68 = ERROR - Timeout 90 = ERROR - Cut-off is in progress |  |  |
| 5 | Additional Private Data |  |  |  |  |  |  |  |
|  |  | Serial number Meter | AN | 15 | space right-padding | Serial Number Meter 071008504 | 071008504 |  |

**Catatan :**