SILEX v2.3
File format description

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Pre-Requisites

Pre-Requisites

DIOPTASE uses for its file formats a succession of simple rules to obtain data exchange files quickly and simply.

Here are the rules to be followed:

-The file formats use the OEM, ANSI or UTF16 (Unicode) character standard (UTF16 by default for international character set).

-The data records always end in the following 2 check codes: CR (13 or 0x0D) and LF (10 or 0x0A).

-Data fields in an undefined state (NULL) must be stored as spaces (character 32).

-No check characters are allowed apart from the end-of-record CR/LF

-The Data types are structured as follows:

Note: UTF16 file format use 2 bytes for each characters and have a special character for text file type detection at begin of file : 0xFFFE.

Type	Nature	Characteristics
A	Text data	The data is justified to the left of the field
N	Numerical data	The data does not have any particular justification and must **not be signed**.
n.	Numerical data with a decimal	The data does not have any particular justification and must **not be signed**. The decimal separator is a "." (point).
D	Date and Time data	The Date and Time data is formatted as follows: YYYYMMDDhhmmss (must be truncated to the required length). Due to technical constraints, the dates must be between 1980 and 2037.
H	Binary data	Binary data is codified in the Hexadecimal ASCII format (a byte uses 2 characters from: "0123456789ABCDEF").
B	Boolean data	Boolean data has 2 states: "0" or "1".

Route File

Internal file structure

A route file is comprised of several different record types. The record type is always specified by the first character (it can be 0, 1, 2, 3, 4, 5 and 6). Although the records are different, they are all the same length: 512 characters (514 with the CR+LF).
This file necessarily starts with a route record (Type "0"). It is recommended to sort the record types by ascending order. The 2 record types required for defining one or more routes are "0" or "1" type.

A route file is structured as follows:

0 (route header type)
1 (meter card type)
1 (meter card type)
1 (meter card type)
1 (meter card type)
3 (optional meter change type)
3 (optional meter change type)
…
...

If you would like to include several routes in the same file, the records must be structured as follows:

0 (route header type)
1 (meter card type)
1 (meter card type)
1 (meter card type)
1 (meter card type)
3 (optional meter change type)
3 (optional meter change type)
…
0 (route header type)
1 (meter card type)
1 (meter card type)
1 (meter card type)
…

Route record

This Record is used to define a unique route identification; it also indicates beginning of a route as well as the end of the previous route (if applicable).

Structure description

Description	Start	Size	Type	Required	Modifiable	Group
Record identification Used to indicate that the current record contains route information. It always has the value "**0**".	1	1	A	●	O	
Route code Used to indicate a unique route identifier (N.B.: This identifier must be convertible into a DOS file name).	2	8	A	●	O	0A
Route name Used to provide "human" information about the route code.	10	20	A	O	O	0A
Number of meter digits by default Used to indicate the number of digits for meters that do not have a specifically defined number of digits (Must be between 4 and 8).	30	2	N	O	O	
Route message Used to indicate a global message for the route.	32	160	A	O	●	
Consumption limit 1 (obsolete) Used to indicate Consumption limit 1 (Note! Although this field has 10 characters, the maximum value is 99999999).	192	10	N	O	O	0B
Minimum % of error for Limit 1 (obsolete) Used to indicate the minimum percent of error (0-100) allowed for Limit 1.	202	3	N	O	O	0B
Maximum % of error for Limit 1 (obsolete) Used to indicate the maximum percent of error (0-999) allowed for Limit 1.	205	3	N	O	O	0B
Consumption limit 2 (obsolete) Used to indicate Consumption limit 2 (Note! Although this field has 10 characters, the maximum value is 99999999).	208	10	N	O	O	0C
Minimum % of error for Limit 2 (obsolete) Used to indicate the minimum percent of error (0-100) allowed for Limit 2.	218	3	N	O	O	0C
Maximum % of error for Limit 2 (obsolete) Used to indicate the maximum percent of error (0-999) allowed for Limit 2.	221	3	N	O	O	0C
Consumption limit 3 (obsolete) Used to indicate Consumption limit 3 (Note! Although this field has 10 characters, the maximum value is 99999999).	224	10	N	O	O	0D
Minimum % of error for Limit 3 (obsolete) Used to indicate the minimum percent of error (0-100) allowed for Limit 3.	234	3	N	O	O	0D
Maximum % of error for Limit 3 (obsolete) Used to indicate the maximum percent of error (0-999) allowed for Limit 3.	237	3	N	O	O	0D
Consumption limit 4 (obsolete) Used to indicate Consumption limit 4 (Note! Although this field has 10 characters, the maximum value is 99999999).	240	10	N	O	O	0E
Minimum % of error for Limit 4 (obsolete) Used to indicate the minimum percent of error (0-100) allowed for Limit 4	250	3	N	O	O	0E
Maximum % of error for Limit 4 (obsolete) Used to indicate the maximum percent of error (0-999) allowed for Limit 4	253	3	N	O	O	0E

Description	Start	Size	Type	Required	Modifiable	Group
Meter information area 1 label Used to define the label for Modifiable area 1 in the "Meter information" field on the Subscriber card record (Type "1").	256	16	A	O	O	0F
Meter information area 1 position Used to define the starting position of Modifiable area 1 in the "Meter information" field (the position of the first character is 1).	272	3	N	O	O	0F
Meter information area 1 size Used to define the size of Modifiable area 1 in the "Meter information" field.	275	2	N	O	O	0F
Meter information area 1 type Used to define the type of Modifiable area in the "Meter information" field (1 = NUMERICAL and 2 = ALPHANUMERICAL).	277	1	N	O	O	0F
Meter information area 2 label Used to define the label for Modifiable area 2 in the "Meter information" field on the Subscriber card record (Type "1").	278	16	A	O	O	0G
Meter information area 2 position Used to define the starting position of Modifiable area 2 in the "Meter information" field (the position of the first character is 1).	294	3	N	O	O	0G
Meter information area 2 size Used to define the size of Modifiable area 2 in the "Meter information" field.	297	2	N	O	O	0G
Meter information area 2 type Used to define the type of Modifiable area 2 in the "Meter information" field (1 = NUMERICAL and 2 = ALPHANUMERICAL).	299	1	N	O	O	0G
Meter information area 3 label Used to define the label for Modifiable area 3 label in the "Meter information" field on the Subscriber card record (Type "1").	300	16	A	O	O	0H
Meter information area 3 position Used to define the starting position of Modifiable area 3 in the "Meter information" field (the position of the first character is 1).	316	3	N	O	O	0H
Meter information area 3 size Used to define the size of Modifiable area 3 in the "Meter information" field.	319	2	N	O	O	0H
Meter information area 3 type Used to define the type of Modifiable area 3 in the "Meter information" field (1 = NUMERICAL and 2 = ALPHANUMERICAL).	321	1	N	O	O	0H
Meter information area 4 label Used to define the label for Modifiable area 4 in the "Meter information" field on the Subscriber card record (Type "1").	322	16	A	O	O	0J
Meter information area 4 position Used to define the starting position of Modifiable area 4 in the "Meter information" field (the position of the first character is 1).	338	3	N	O	O	0J
Meter information area 4 size Used to define the size of Modifiable area 4 in the "Meter information" field.	341	2	N	O	O	0J
Meter information area 4 type Used to define the type of Modifiable area 4 in the "Meter information" field (1 = NUMERICAL and 2 = ALPHANUMERICAL).	343	1	N	O	O	0J
Meter information area 5 label Used to define the label for Modifiable area 5 in the "Meter information" field on the Subscriber card record (Type "1").	344	16	A	O	O	0K
Meter information area 5 position Used to define the starting position of Modifiable area 5 in the "Meter information" field (the position of the first character is 1).	360	3	N	O	O	0K
Meter information area 5 size Used to define the size of Modifiable area 5 in the "Meter information" field.	363	2	N	O	O	0K
Meter information area 5 type Used to define the type of Modifiable area 5 in the "Meter information" field (1 = NUMERICAL and 2 = ALPHANUMERICAL).	365	1	N	O	O	0K

Description	Start	Size	Type	Required	Modifiable	Group
Subscriber information area 1 label Used to define the label for Modifiable area 1 in the "Subscriber information" field on the Subscriber card record (Type "1").	366	16	A	O	O	0M
Subscriber information area 1 position Used to define the starting position of Modifiable area 1 in the "Subscriber information" field (the position of the first character is 1).	382	3	N	O	O	0M
Subscriber information area 1 size Used to define the size of Modifiable area 1 in the "Subscriber information" field.	385	2	N	O	O	0M
Subscriber information area 1 type Used to define the type of Modifiable area 1 in the "Subscriber information" field (1 = NUMERICAL and 2 = ALPHANUMERICAL).	387	1	N	O	O	0M
Subscriber information area 2 label Used to define the label for Modifiable area 2 in the "Subscriber information" field on the Subscriber card record (Type "1").	388	16	A	O	O	0N
Subscriber information area 2 position Used to define the starting position of Modifiable area 2 in the "Subscriber information" field (the position of the first character is 1).	404	3	N	O	O	0N
Subscriber information area 2 size Used to define the size of Modifiable area 2 in the "Subscriber information" field.	407	2	N	O	O	0N
Subscriber information area 2 type Used to define the type of Modifiable area 2 in the "Subscriber information" field (1 = NUMERICAL and 2 = ALPHANUMERICAL).	409	1	N	O	O	0N
Subscriber information area 3 label Used to define the label for Modifiable area 3 in the "Subscriber information" field on the Subscriber card record (Type "1").	410	16	A	O	O	0P
Subscriber information area 3 position Used to define the starting position of Modifiable area 3 in the "Subscriber information" field (the position of the first character is 1).	426	3	N	O	O	0P
Subscriber information area 3 size Used to define the size of Modifiable area 3 in the "Subscriber information" field.	429	2	N	O	O	0P
Subscriber information area 3 type Used to define the type of Modifiable area 3 in the "Subscriber information" field (1 = NUMERICAL and 2 = ALPHANUMERICAL).	431	1	N	O	O	0P
Subscriber information area 4 label Used to define the label for Modifiable area 4 in the "Subscriber information" field on the Subscriber card record (Type "1").	432	16	A	O	O	0R
Subscriber information area 4 position Used to define the starting position of Modifiable area 4 in the "Subscriber information" field (the position of the first character is 1).	448	3	N	O	O	0R
Subscriber information area 4 size Used to define the size of Modifiable area 4 in the "Subscriber information" field.	451	2	N	O	O	0R
Subscriber information area 4 type Used to define the type of Modifiable area 4 in the "Subscriber information" field (1 = NUMERICAL and 2 = ALPHANUMERICAL).	453	1	N	O	O	0R
Subscriber information area 5 label Used to define the label for Modifiable area 5 in the "Subscriber information" field on the Subscriber card record (Type "1").	454	16	A	O	O	0S
Subscriber information area 5 position Used to define the starting position of Modifiable area 5 in the "Subscriber information" field (the position of the first character is 1).	470	3	N	O	O	0S
Subscriber information area 5 size Used to define the size of Modifiable area 5 in the "Subscriber information" field.	473	2	N	O	O	0S
Subscriber information area type Used to define the type of Modifiable area 5 in the "Subscriber information" field (1 = NUMERICAL and 2 = ALPHANUMERICAL).	475	1	N	O	O	0S

Description	Start	Size	Type	Required	Modifiable	Group
Filler Used to standardise Route file records. The filler only contains "SPACE" characters (ASCII 32).	476	31	A	●	O	
Reserved Reserved area. This area contains "SPACE" characters (ASCII 32) by default.	507	6	A	O	O	
Carriage return Contains the standard carriage return CR+LF (ASCII 13 + ASCII 10) for Text files.	513	2	A	●	O	

Group descriptions

0A The "Route Code" and "Route labels" fields are linked; defining the "Route label" field allows you to perform a substitution in the displays in order to identify the various routes (only the "Route code" prevails as the unique route identifier).

0B 0C 0D 0E If a value is indicated for one of these groups, all of the fields in that group must be defined. These groups, although independent, are linked for defining individual consumption limits for each of the subscriber cards in the current route.

0F 0G 0H 0J 0K If a value is indicated for one of these groups, all of the fields in that group must be defined (the label may be left empty). These groups are used to define the modifiable areas in the "Meter information" areas for each of the meters in the current route.
Note! These fields are still only supported for compatibility purposes; for each new interface, you must now complete the 2 Daily Consumption fields on the Meter/Subscriber record.

0M 0N 0P 0R 0S If a value is indicated for one of these groups, all of the fields in that group must be defined (the name may be left empty). These groups are used to define the modifiable areas in the "Meter information" field for each of the meters in the current route.

Meter/Subscriber card record

This record is used to individually define information for a subscriber and a meter. The reading information is stored there.

Structure description

Description	Start	Size	Type	Required	Modifiable	Group
Record identification Used to indicate that the current record contains meter information. It always has the value"**1**".	1	1	A	●	O	
Card order number Used to indicate the card order for the route.	2	4	N	●	O	1A
Subscriber information This field can be considered as a "catch-all" that contains a set of information defined by the billing department. It is strongly recommended to divide this field into 5 lines of 30 characters. This field may not be left empty as it is a required field.	6	150	A	●	●	1A
History 1 Reading type This field contains any information defined by the billing department for History 1.	156	1	A	O	O	1B
History 1 Reading date This field contains the date of History 1 (each history date must be unique in that record).	157	8	D	O	O	1B
History 1 consumption This field contains the History 1 consumption. As defined in the "Pre-Requisites" chapter, numerical values may not be **negative.**	165	10	N	O	O	1B
History 2 Reading type This field contains any information defined by the billing department for History 2.	175	1	A	O	O	1C
History 2 Reading date This field contains the date of History 2 (each history date must be unique in that record).	176	8	D	O	O	1C
History 2 consumption This field contains the History 2 consumption. As defined in the "Pre-Requisites" chapter, numerical values may not be **negative.**	184	10	N	O	O	1C
History 3 Reading type This field contains any information defined by the billing department for History 3.	194	1	A	O	O	1D
History 3 Reading date This field contains the date of History 3 (each history date must be unique in that record).	195	8	D	O	O	1D
History 3 consumption This field contains the History 3 consumption. As defined in the "Pre-Requisites" chapter, numerical values may not be **negative.**	203	10	N	O	O	1D
History 4 Reading type This field contains any information defined by the billing department for History 4.	213	1	A	O	O	1E
History 4 Reading date This field contains the date of History 4 (each history date must be unique in that record).	214	8	D	O	O	1E
History 4 consumption This field contains the History 4 consumption. As defined in the "Pre-Requisites" chapter, numerical values may not be **negative.**	222	10	N	O	O	1E

Description	Start	Size	Type	Required	Modifiable	Group
Meter information This field can be considered as a "catch-all" that contains a set of information defined by the billing department. It is strongly recommended to divide this field into 4 lines of 30 characters. This field may not be left empty as it is a required field.	232	120	A	●	●	
Theoretical meter serial number This field is used to indicate the meter serial number theoretically linked to the card. The contents of this field must be unique in that route. If you would like to use AMR systems, you must extend this constraint to the entire database. This field may not be left empty as it is a required field.	352	12	A	●	O	1F
Theoretical meter digits number This field contains the theoretical number of digits (rollers) in the meter's m^3 index (must be between 4 and 8). This field is required if an AMR system is used.	364	2	N	O	O	1G
Corrected meter serial number This field is used to indicate the meter ID that is actually indicated on-site. Information feedback management is required for this field if it is not left empty.	366	12	A	O	●	1F
Corrected meter digits number This field contains the corrected number of digits (rollers) in the meter's m^3 index (must be between 4 and 8). Information feedback management is required for this field if it is not left empty.	378	2	N	O	●	1G
Meter installation year This field is used to indicate the year of meter renovation / installation.	380	4	N	O	O	
Previous reading date This field is used to indicate the date on which the previous reading was taken.	384	8	D	O	O	1H
Previous reading index This field contains the index that was entered at the previous reading.	392	10	N	O	O	1H
Estimated minimum daily consumption This field contains a numerical value indicating the estimated minimum daily consumption in m^3 per day.	402	12	n.	O	●	1J
Estimated maximum daily consumption This field contains a numerical value indicating the estimated maximum daily consumption in m^3 per day.	414	12	n.	O	●	1J
Reading Date/Time This field contains the date and time at which the index was entered or modified.	426	12	D	O	●	1H
Reading index This field contains the index that was entered at the reading.	438	10	N	O	●	1H
Reading status This field is completed when entering an index. It can take the following values: - 1: Normal reading - 2: Reading with nil consumption - 3: Reading with consumption lower than estimated - 4: Reading with consumption higher than estimated	448	1	N	O	●	1H
Reading consumption This field contains the consumption calculated using the previous index, the index entered and the number of digits (management of 0 cycles). As defined in the "Pre-Requisites" chapter, numerical values may not be **negative.**	449	10	N	O	●	1H
Reading method This field is completed when entering an index. - M: Manual reading - A: Automatic reading (radio, BUS system, …)	459	1	A	O	●	1H
Marking code This field is used as a link with the marking table (it is linked to the subscriber).	460	2	A	O	●	1A
Message code This field is used as a link with the pre-defined message table (it is linked to the meter).	462	2	A	O	●	
Particular message This field contains a message or an observation.	464	30	A	O	●	

Description	Start	Size	Type	Required	Modifiable	Group
Last update Date/Time This field contains the date and time of the last card modification.	494	12	D	○	●	
Meter change authorisation Activates or not the possibility of performing a meter change on this card. Option activated for a value strictly equal to "1" (see Meter Change Record). New interfaces must always activate this field and support meter change record feedback. Therefore, this field is always set to "1".	506	1	N	●	○	
Fluid Type This optional field is used to define the type of fluid/energy measured by the meter. The possible types are: -"SPACE" or "W" for an m3 water meter. -"C" for an m3 cold water meter. -"H" for an m3 hot water meter. -"E" for a KW electrical meter. -"G" for an m3 gas meter. -"T" for a KW heat energy meter.	507	1	A	○	○	
Reading officer's code This field contains the code of the reading officer who performed the last card modification.	508	2	A	○	●	
Filler Used to standardise Route file records. The filler only contains "SPACE" characters (ASCII 32).	510	3	A	●	○	
Carriage return Contains the standard carriage return CR+LF (ASCII 13 + ASCII 10) for Text files.	513	2	A	●	○	

Group descriptions

1A These 3 fields are grouped as they are required for managing the multi-meter system (1 subscriber with several meters). To activate this mode, all of these fields on all of the meters (records) for an individual subscriber must be perfectly equal. This mechanism is the only one that allows you to "override" the prohibition of repetitions in the "Card number" for an individual route. N.B.: A technical constraint prevents you from having more than **16** meters for an individual subscriber.

1B 1C 1D 1E These groups are used to define the list of consumption histories (the "History type" field is completely optional). In addition, 2 rules must be respected:

-The consumptions may not be negative.

-Date repetitions on individual meters are prohibited.

1F The "Corrected meter serial number" is the field that is completed if the meter serial number is corrected The "Theoretical meter serial number" is never modified; it is a unique reference in the route (you are strongly recommended to extend this rule to the entire database). The billing/receipt software must take this field into account.

1G The "Corrected number of meter digits" is the field that is completed if the number of meter digits (rollers) is corrected. The "Theoretical number of meter digits" is never modified. If these 2 fields are absent, it is the number of digits defined by default in the route header that is taken into account; if this field is not defined either, the number of digits used for measuring 0 cycles performed by the meter is 8.

1H If one of these 2 fields is not defined, the 2 fields will be set to an **undefined** state (if the date is later than the current date, the 2 fields will be set to an **undefined** state). Not defining these 2 fields prevents you from checking the index's validity when entering and calculating consumption.

1J These 2 fields allow you to check the validity of the meter index entered. If these fields are not completed (**which is not recommended**), another mechanism is set up in order to complete these 2 fields automatically. The consumption histories (which must **never** contain estimates in this case) as well as the limit values defined in groups 0B 0C 0D 0E of the route header are used for this.

1H If one of these fields is completed, the "Date/Time of reading", "Reading index", "Reading status" and "Reading method" fields are required. The "Consumption reading" field is only required if group 1H (previous index) is defined.

AMR (Automatic Meter Reading) Record

This **optional** record contains the technical information required for an AMR reading.

Structure description

Description	Start	Size	Type	Required	Modifiable	Group
Record identification Used to indicate that the current record contains AMR information. It always has the value "**2**".	1	1	A	●	O	
AMR installation date Used to indicate the AMR's configuration date.	2	8	D	●	●	
Meter reference Used to indicate the Meter type.	10	16	A	O	●	
Meter serial number Used to indicate the serial number of the meter that is associated to the AMR.	26	12	A	●	●	
AMR index number Used to indicate the sensor to which the meter is connected.	38	2	N	●	●	
Maximum meter value Used to indicate the total number of digits in the meter's m^3 index.	40	10	N	●	●	
Meter unit Used to indicate the unit used by the meter's m^3 index.	50	6	n.	●	●	
AMR reference Used to indicate the AMR type.	56	16	A	●	●	
AMR serial number Used to indicate the AMR's serial number.	72	16	A	●	●	
AMR's internal identifier Indicates the AMR module's internal address (may be different from the AMR's serial number)	88	16	A	●	●	
AMR data Contains hexadecimal data ensuring correct operation of the AMR (configured during installation).	104	128	H	●	●	
Pulse weight Used to indicate the multiplication coefficient for the AMR's internal identifier that is used to obtain an m^3 index.	232	10	n.	●	●	
Maximum AMR value Used to indicate the AMR index's maximum value (Used for managing the AMR's 0 cycles).	242	10	N	●	●	
Previous reading date Used to indicate the date and time at which the previous AMR reading was taken.	252	8	D	●	●	2A
Previous meter index Used to indicate the meter index at the previous reading.	260	16	n.	●	●	2A
Previous AMR index Used to indicate the AMR's internal index at the previous reading.	276	10	N	●	●	2A
Previous AMR alarms Contains hexadecimal data concerning the various AMR alarms (Note! The 2 bytes are reversed: LSB then MSB) - Bit 0 -> Fraud (past or current) - Bit 1 -> Leak (past or current) - Bit 2 -> Backflow (past or current) - Bit 3 -> End of battery life (current) - Bit 4 -> Module defect (current) - Bit 5 -> Clock fault (current) - Bit 6 -> Fraud (current) - Bit 7 -> Leak (current) - Bit 8 -> Backflow (current) - Bit 9 -> Meter blocked (past or current) - Bit 10 -> Underflow (past or current) - Bit 11 -> Overflow (past or current)	286	4	H	●	●	2A
Previous AMR status Contains hexadecimal data concerning the previous reading.	290	64	H	●	●	2A

Description	Start	Size	Type	Required	Modifiable	Group
Current reading date Used to indicate the date and time at which the current AMR reading was taken.	354	8	D	O	●	2B
Current meter index Used to indicate the meter's index at the previous reading.	362	16	n.	O	●	2B
Current AMR index Used to indicate the AMR's internal index at the previous reading.	378	10	N	O	●	2B
Current AMR alarms Contains hexadecimal data concerning the various AMR alarms (Note: The 2 bytes are reversed: LSB then MSB) - Bit 0 -> Fraud (past or current) - Bit 1 -> Leak (past or current) - Bit 2 -> Backflow (past or current) - Bit 3 -> End of battery life (current) - Bit 4 -> Module defect (current) - Bit 5 -> Clock fault (current) - Bit 6 -> Fraud (current) - Bit 7 -> Leak (current) - Bit 8 -> Backflow (current) - Bit 9 -> Meter blocked (past or current) - Bit 10 -> Underflow (past or current) - Bit 11 -> Overflow (past or current)	388	4	H	O	●	2B
Current AMR status Contains hexadecimal data concerning the previous reading.	392	64	H	O	●	2B
Reserved Reserved area; it only contains "SPACE" characters (ASCII 32).	456	1	A	O	●	
Filler Used to standardise Route file records. The filler only contains "SPACE" characters (ASCII 32).	457	56	A	●	O	
Carriage return Contains the standard carriage return CR+LF (ASCII 13 + ASCII 10) for Text files.	513	2	A	●	O	

Group descriptions

2A These 5 fields are indissociable and must be completed.

2B These 5 fields are indissociable. They must either all be in an undefined state (NULL) or all completed.

Meter change record

This record is created when a meter is changed (not to be confused with serial number correction). It can only be created if the "Meter change authorisation" field in the "Subscriber/Meter card record" is set to "1". If this record is defined, feedback management is required for all of the related information.

Structure description

Description	Start	Size	Type	Required	Modifiable	Group
Record identification Used to indicate that the current record contains meter change information. It always has the value "**3**".	1	1	A	●	O	
Theoretical serial number for the old meter Used to provide a link between the meter change record and the "Theoretical meter serial number" field in the Subscriber card record.	2	12	A	●	O	
New meter's serial number Used to indicate the Meter's new serial number.	14	12	A	●	●	3A
New meter's digits number Used to indicate the new number of digits in the new Meter's index.	26	2	N	●	●	3A
New meter's starting index Used to indicate the Meter's new index.	28	10	N	●	●	3A
New meter's installation date Used to indicate the record's date of creation or last modification.	38	8	D	●	●	3A
Filler Used to standardise Route file records. The filler only contains "SPACE" characters (ASCII 32).	456	57	A	●	O	
Carriage return Contains the standard carriage return CR+LF (ASCII 13 + ASCII 10) for Text files.	513	2	A	●	O	

Group descriptions

3A These 4 fields are indissociable and must be completed.

Extended AMR record

This record is an extension of the AMR record. It resumes certain information already present in the AMR record and adds new information (histories, backflow,…). However, it may be omitted.

Structure description

Description	Start	Size	Type	Required	Modifiable	Group
Record identification Used to indicate that the current record contains information for the extended AMR. It always has the value "**4**".	1	1	A	●	O	
Meter reference Used to indicate the Meter type.		16	A	●	●	
Meter serial number Used to indicate the Meter that is associated to the AMR information.	18	12	A	●	●	
AMR reference Used to indicate the AMR type.	30	16	A	●	●	
AMR serial number Used to indicate the AMR's serial number.	46	16	A	●	●	
AMR index number Used to indicate the sensor to which the meter is connected.	62	2	N	●	●	
Reading date Used to indicate the reading date for this record.	64	12	D	●	●	
Current meter index Used to indicate the meter's index at the reading.	76	9	n.	●	●	
Backflow index Used to indicate the backflow index at the reading.	85	9	n.	●	●	
Fraud alarm Used to indicate if the fraud alarm is active at the time of reading.	94	1	B	●	●	
Leak alarm Used to indicate if the leak alarm is active at the time of reading.	95	1	B	●	●	
Backflow alarm Used to indicate if the backflow alarm is active at the time of reading.	96	1	B	●	●	
Battery alarm Used to indicate if the Battery alarm is active at the time of reading.	97	1	B	●	●	
Module defect alarm Used to indicate if the sensor defect alarm is active at the time of reading.	98	1	B	●	●	
Clock fault alarm Used to indicate if the clock fault alarm is active at the time of reading.	99	1	B	●	●	
Reserved alarms Area provided for future alarms. They are currently not used and contain "SPACE" characters (ASCII 32).	100	2	A	O	●	

Description	Start	Size	Type	Required	Modifiable	Group
History 1 Date/Time Used to indicate the date of History 1.	102	12	D	O	●	4A
History 1 index Used to indicate the index on the date of History 1.	114	9	n.	O	●	4A
History 1 alarms Used to indicate the alarms actives on the date of History 1.	123	1	A	O	●	4A
History 2 Date/Time Used to indicate the date of History 2.	124	12	D	O	●	4B
History 2 index Used to indicate the index on the date of History 2.	136	9	n.	O	●	4B
History 2 alarms Used to indicate the alarms actives on the date of History 2.	145	1	A	O	●	4B
History 3 Date/Time Used to indicate the date of History 3.	146	12	D	O	●	4C
History 3 index Used to indicate the index on the date of History 3.	158	9	n.	O	●	4C
History 3 alarms Used to indicate the alarms actives on the date of History 3. .	167	1	A	O	●	4C
History 4 Date/Time Used to indicate the date of History 4. .	168	12	D	O	●	4D
History 4 index Used to indicate the index on the date of History 4.	180	9	n.	O	●	4D
History 4 alarms Used to indicate the alarms actives on the date of History 4.	189	1	A	O	●	4D
History 5 Date/Time Used to indicate the date of History 5.	190	12	D	O	●	4E
History 5 index Used to indicate the index on the date of History 5.	202	9	n.	O	●	4E
History 5 alarms Used to indicate the alarms actives on the date of History 5.	211	1	A	O	●	4E
History 6 Date/Time Used to indicate the date of History 6.	212	12	D	O	●	4F
History 6 index Used to indicate the index on the date of History 6.	224	9	n.	O	●	4F
History 6 alarms Used to indicate the alarms actives on the date of History 6.	233	1	A	O	●	4F
History 7 Date/Time Used to indicate the date of History 7.	234	12	D	O	●	4G
History 7 index Used to indicate the index on the date of History 7.	246	9	n.	O	●	4G
History 7 alarms Used to indicate the alarms actives on the date of History 7.	255	1	A	O	●	4G
History 8 Date/Time Used to indicate the date of History 8.	256	12	D	O	●	4H
History 8 index Used to indicate the index on the date of History 8.	268	9	n.	O	●	4H
History 8 alarms Used to indicate the alarms actives on the date of History 8.	277	1	A	O	●	4H

Description	Start	Size	Type	Required	Modifiable	Group
History 9 Date/Time Used to indicate the date of History 9.	278	12	D	O	●	4J
History 9 index Used to indicate the index on the date of History 9.	290	9	n.	O	●	4J
History 9 alarms Used to indicate the alarms actives on the date of History 9.	299	1	A	O	●	4J
History 10 Date/Time Used to indicate the date of History 10.	300	12	D	O	●	4K
History 10 index Used to indicate the index on the date of History 10.	312	9	n.	O	●	4K
History 10 alarms Used to indicate the alarms actives on the date of History 10.	321	1	A	O	●	4K
History 11 Date/Time Used to indicate the date of History 11.	322	12	D	O	●	4L
History 11 index Used to indicate the index on the date of History 11.	334	9	n.	O	●	4L
History 11 alarms Used to indicate the alarms actives on the date of History 11.	343	1	A	O	●	4L
History 12 Date/Time Used to indicate the date of History 12.	344	12	D	O	●	4M
History 12 index Used to indicate the index on the date of History 12.	356	9	n.	O	●	4M
History 12 alarms Used to indicate the alarms actives on the date of History 12.	365	1	A	O	●	4M
History 13 Date/Time Used to indicate the date of History 13.	366	12	D	O	●	4N
History 13 index Used to indicate the index on the date of History 13.	378	9	n.	O	●	4N
History 13 alarms Used to indicate the alarms actives on the date of History 13.	387	1	A	O	●	4N
History 14 Date/Time Used to indicate the date of History 14.	388	12	D	O	●	4P
History 14 index Used to indicate the index on the date of History 14.	400	9	n.	O	●	4P
History 14 alarms Used to indicate the alarms actives on the date of History 14.	409	1	A	O	●	4P
History 15 Date/Time Used to indicate the date of History 15.	410	12	D	O	●	4R
History 15 index Used to indicate the index on the date of History 15.	422	9	n.	O	●	4R
History 15 alarms Used to indicate the alarms actives on the date of History 15.	431	1	A	O	●	4R
History 16 Date/Time Used to indicate the date of History 16.	432	12	D	O	●	4S
History 16 index Used to indicate the index on the date of History 16.	444	9	n.	O	●	4S
History 16 alarms Used to indicate the alarms actives on the date of History 16.	453	1	A	O	●	4S

Description	Start	Size	Type	Required	Modifiable	Group
History 17 Date/Time Used to indicate the date of History 17.	454	12	D	O	●	4T
History 17 index Used to indicate the index on the date of History 17.	466	9	n.	O	●	4T
History 17 alarms Used to indicate the alarms actives on the date of History 17.	475	1	A	O	●	4T
History 18 Date/Time Used to indicate the date of History 18.	476	12	D	O	●	4U
History 18 index Used to indicate the index on the date of History 18.	488	9	n.	O	●	4U
History 18 alarms Used to indicate the alarms actives on the date of History 18.	497	1	A	O	●	4U
Filler Used to standardise Route file records. The filler only contains "SPACE" characters (ASCII 32).	498	15	A	●	O	
Carriage return Contains the standard carriage return CR+LF (ASCII 13 + ASCII 10) for Text files.	513	2	A	●	O	

Group descriptions

4A 4B 4C 4D 4E 4F 4G 4H 4J 4K 4L 4M 4N 4P 4R 4S 4T 4U If one of the values is completed for one of these groups, all of the fields in that group must be completed. These groups, although independent, are linked and follow on from each other. History 1 is the most recent.
The following alarm codes are possible:

-0: No alarm
-1: Fraud
-2: Leak
-3: Fraud + Leak
-4: Backflow
-5: Leak + Backflow
-6: Fraud + Backflow
-7: Leak + Fraud + Backflow

Enquiry page definition record

This **optional** record is used to define the structure of enquiry pages.

Structure description

Description	Start	Size	Type	Required	Modifiable	Group
Record identification Used to indicate that the current record contains information for defining enquiry pages. It always has the value "**5**".	1	1	A	●	O	
Page number Used to define the code for the enquiry page. It is also used to define the page order (must be unique in an individual route). Although this is an alphanumerical field, only the codes "0" – "9" are accepted.	2	1	A	●	O	
Code "A" Label Defines the text linked to Code "A"	3	20	A	O	O	5A
Code "B" Label Defines the text linked to Code "B"	23	20	A	O	O	5A
Code "C" Label Defines the text linked to Code "C"	43	20	A	O	O	5A
Code "D" Label Defines the text linked to Code "D"	63	20	A	O	O	5A
Code "E" Label Defines the text linked to Code "E"	83	20	A	O	O	5A
Code "F" Label Defines the text linked to Code "F"	103	20	A	O	O	5A
Code "G" Label Defines the text linked to Code "G"	123	20	A	O	O	5A
Code "H" Label Defines the text linked to Code "H"	143	20	A	O	O	5A
Code "I" Label Defines the text linked to Code "I"	163	20	A	O	O	5A
Code "J" Label Defines the text linked to Code "J"	1	20	A	O	O	5A
Code "K" Label Defines the text linked to Code "K"	203	20	A	O	O	5A
Code "L" Label Defines the text linked to Code "L"	223	20	A	O	O	5A
Code "M" Label Defines the text linked to Code "M"	243	20	A	O	O	5A
Code "N" Label Defines the text linked to Code "N"	263	20	A	O	O	5A
Code "O" Label Defines the text linked to Code "O"	283	20	A	O	O	5A
Code "P" Label Defines the text linked to Code "P"	303	20	A	O	O	5A

Description	Start	Size	Type	Required	Modifiable	Group
Area 1 label Used to define the label for Area 1.	323	16	A	O	O	5B
Area 1 type Used to define the Area 1 type.	339	1	A	O	O	5B
Area 1 size Used to define the maximum number of characters that can be entered in Area 1.	340	2	N	O	O	5B
Area 1 codes list Contains the codes for the various labels selectable for Area 1.	342	8	A	O	O	5B
Area 2 label Used to define the label for Area 2.	350	16	A	O	O	5C
Area 2 type Used to define the Area 2 type.	366	1	A	O	O	5C
Area 2 size Used to define the maximum number of characters that can be entered in Area 2.	367	2	N	O	O	5C
Area 2 codes list Contains the codes for the various labels selectable for Area 2.	369	8	A	O	O	5C
Area 3 label Used to define the label for Area 3.	377	16	A	O	O	5D
Area 3 type Used to define the Area 3 type.	393	1	A	O	O	5D
Area 3 size Used to define the maximum number of characters that can be entered in Area 3.	394	2	N	O	O	5D
Area 3 codes list Contains the codes for the various labels selectable for Area 3.	396	8	A	O	O	5D
Area 4 label Used to define the label for Area 4.	404	16	A	O	O	5E
Area 4 type Used to define the Area 4 type.	420	1	A	O	O	5E
Area 4 size Used to define the maximum number of characters that can be entered in Area 4.	421	2	N	O	O	5E
Area 4 codes list Contains the codes for the various labels selectable for Area 4.	423	8	A	O	O	5E
Area 5 label Used to define the label for Area 5.	431	16	A	O	O	5F
Type of Area 5 type Used to define the Area 5 type.	447	1	A	O	O	5F
Area 5 size Used to define the maximum number of characters that can be entered in Area 5.	448	2	N	O	O	5F
Area 5 codes list Contains the codes for the various labels selectable for Area 5.	450	8	A	O	O	5F
Filler Used to standardise Route file records. The filler only contains "SPACE" characters (ASCII 32).	458	53	A	●	O	
Reserved Reserved area. This area contains "SPACE" characters (ASCII 32) by default.	511	2	A	O	O	
Carriage return Contains the standard carriage return CR+LF (ASCII 13 + ASCII 10) for Text files.	513	2	A	●	O	

Group descriptions

5A This group is used to define a list of up to 16 different names; they are assigned a unique default code according to their position in the file (Codes "A" – "P"). They are used by groups 5B 5C 5D 5E 5F.

5B 5C 5D 5E 5F These 5 groups are used to define the operation of text boxes on the various enquiry pages. The "Area Label" and "Area Type" fields are required for defining an area.
The Type field defines the various input methods:

-C: Choice selector; the "List of Area codes" field must be completed.
-A: Alphanumerical Input.
-N: Numerical Input.

Enquiry page result record

This **optional** record is used to exploit the various pages designed using the enquiry page definition record.

Structure description

Description	Start	Size	Type	Required	Modifiable	Group
Record identification Used to indicate that the current record contains route information. It always has the value "**6**".	1	1	A	●	O	
Page number Used to define the enquiry page number (unique for an individual meter). It is also used as a link with the enquiry page description record with the same page number.	2	1	A	●	O	
Theoretical meter serial number Used to provide a link between the enquiry page result record and the "Theoretical meter serial number" on the Subscriber card record.	3	12	A	●	O	
Last modification date Used to indicate when the last modification was made to one of the areas on the page.	15	8	A	O	●	
Area 1 mode Contains the mode for Area 1.	23	1	A	O	●	6A
Area 1 code Contains the code for Result 1 (if "C" area type).	24	1	A	O	●	6A
Area 1 result Contains the text of the Area 1 result.	25	30	A	O	●	6A
Area 2 mode Contains the mode for Area 2.	55	1	A	O	●	6B
Area 2 code Contains the code for Result 2 (if "C" area type)	56	1	A	O	●	6B
Area 2 result Contains the text of the Area 2 result.	57	30	A	O	●	6B
Area 3 mode Contains the mode for Area 3.	87	1	A	O	●	6C
Area 3 code Contains the code for Result 3 (if "C" area type)	88	1	A	O	●	6C
Area 3 result Contains the text of the Area 3 result	89	30	A	O	●	6C
Area 4 mode Contains the mode for Area 4.	119	1	A	O	●	6D
Area 4 code Contains the code for Result 4 (if "C" area type)	120	1	A	O	●	6D
Area 4 result Contains the text of the Area 4 result	121	30	A	O	●	6D
Area 5 mode Contains the mode for Area 5.	151	1	A	O	●	6E
Area 5 code Contains the code for Result 5 (if "C" area type)	152	1	A	O	●	6E
Area 5 result Contains the text of the Area 5 result	153	30	A	O	●	6E

Enquiry page result record
(Optional)

Description	Start	Size	Type	Required	Modifiable	Group
Filler Used to standardise Route file records. The filler only contains "SPACE" characters (ASCII 32).	183	330	A	●	O	
Carriage return Contains the standard carriage return CR+LF (ASCII 13 + ASCII 10) for Text files.	513	2	A	●	O	

Group descriptions

6A 6B 6C 6D 6E These 5 groups are used to define the characteristics and the results for the areas on each meter.
The Mode field defines the operation mode of the areas as follows:

-H: Hidden area.
-R: Read only area mode.
-U: Area modification enabled.
-N: Force area modification enabled.

Message File

Message File

Structure

The message file is comprised of a single record type with a length of 22 characters (24 with CR+LF).
The record with the code and the label in an undefined state (NULL) is added implicitly.

Description	Start	Size	Type	Required	Modifiable	Group
Message code Contains the message's unique code. .	1	2	A	●	O	
Message label Contains the message label.	3	20	A	●	O	
Carriage return Contains the standard carriage return CR+LF (ASCII 13 + ASCII 10) for Text files.	23	2	A	●	O	

Marking File

Marking File

Structure

The marking file is comprised of a single record type with a length of 22 characters (24 with CR+LF).
The record with the code and the name in an undefined state (NULL) is added implicitly.

Description	Start	Size	Type	Required	Modifiable	Group
Marking code Contains the marking's unique code.	1	2	A	●	○	
Marking label Contains the marking label.	3	20	A	●	○	
Carriage return Contains the standard carriage return CR+LF (ASCII 13 + ASCII 10) for Text files.	23	2	A	●	○	