WR #	GSCN Name	Effective Date
18-101	Optically Readable Sensor Indicator	**25-Sep-2018**

Associated Work Request (WR) Number:

18-101

Background:

Certain industries have products, for which optically readable sensors/monitors have been developed that can indicate exposure. This exposure can be temperature, environmental, pressure, radiation, shake etc. The location and function of these monitors can be less than intuitive. Manufacturers of these sensors are developing mobile device apps and software to program scanners that will interpret the sensor output and instruct the user based on that output. These manufacturers wish to use a GS1 barcode to encode description of the sensor.

There is currently no way to indicate in a GS1 barcode the presence and function of a sensor/monitor on a package (fresh or frozen food, Healthcare, flowers etc.)

Business Requirements:

- Indicate presence and interpret the output of a sensor/monitor- this data to be delivered via the routine barcode scan most commonly via a mobile device app or appropriately programmed scanner
- The proposal is for an AI for a 50 alpha-numeric character field to indicate the presence and action of optically readable sensors/monitors on packaging. AIM Global, Inc. has agreed to manage the data for this field.

GS1 General Specification Change:

The recommended changes are highlighted below, relative to GS1 General Specifications version 18.

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AI	Data Content	Format (*)	FNC1 required (****)	Data title
723s (******)	Certification reference	N4+X2+X..28	(FNC1)	CERT # s
8001	Roll products (width, length, core diameter, direction, splices)	N4+N14	(FNC1)	DIMENSIONS
8002	Cellular mobile telephone identifier	N4+X..20	(FNC1)	CMT No
8003	Global Returnable Asset Identifier (GRAI)	N4+N14+X..16	(FNC1)	GRAI
8004	Global Individual Asset Identifier (GIAI)	N4+X..30	(FNC1)	GIAI
8005	Price per unit of measure	N4+N6	(FNC1)	PRICE PER UNIT
8006	Identification of an individual trade item piece	N4+N14+N2+N2	(FNC1)	ITIP or GCTIN (******)
8007	International Bank Account Number (IBAN)	N4+X..34	(FNC1)	IBAN
8008	Date and time of production	N4+N8+N..4	(FNC1)	PROD TIME
8009	Optically Readable Sensor Indicator	N4+X..50	(FNC1)	OPTSEN
8010	Component/Part Identifier (CPID)	N4+X..30	(FNC1)	CPID
8011	Component/Part Identifier serial number (CPID SERIAL)	N4+N..12	(FNC1)	CPID SERIAL
8012	Software version	N4+X..20	(FNC1)	VERSION
8013	Global Model Number (GMN)	N4+X..30	(FNC1)	GMN or BUDI-DI (*******)
8017	Global Service Relation Number to identify the relationship between an organisation offering services and the provider of services	N4+N18	(FNC1)	GSRN - PROVIDER
8018	Global Service Relation Number to identify the relationship between an organisation offering services and the recipient of services	N4+N18	(FNC1)	GSRN - RECIPIENT
8019	Service Relation Instance Number (SRIN)	N4+N..10	(FNC1)	SRIN
8020	Payment slip reference number	N4+X..25	(FNC1)	REF No
8110	Coupon code identification for use in North America	N4+X..70	(FNC1)	-
8026	ITIP of contained pieces	N4+N18	(FNC1)	ITIP CONTENT
8111	Loyalty points of a coupon	N4+N4	(FNC1)	POINTS
8112	Paperless coupon code identification for use in North America (AI 8112)~~Paperless coupon code identification for use in North America (AI 8112)~~	N4+X..70	(FNC1)	-
8200	Extended Packaging URL	N4+X..70	(FNC1)	PRODUCT URL
90	Information mutually agreed between trading partners	N2+X..30	(FNC1)	INTERNAL
91 to 99	Company internal information	N2+X..90	(FNC1)	INTERNAL

NOTES:
(*): The first position indicates the length (number of digits) of the GS1 Application Identifier. The following value refers to the format of the data content. The following convention is applied:

- n implied decimal point position
- N numeric digit
- X any character in figure 7.11-1
- N3 3 numeric digits, predefined length
- N..3 up to 3 numeric digits
- X..3 up to 3 characters in figure 7.11-1

(**): If only year and month are available, DD must be filled with two zeroes.

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3.9.8 Date and time of production: AI (8008)

The GS1 Application Identifier (8008) indicates that the GS1 Application Identifier data fields contain a date and time of production (or assembly). The date and time of production is determined by the manufacturer. The date and time may refer to the trade item itself or to the items contained. The structure is:

- Year: the tens and units of the year (e.g., 2000 = 00), which is mandatory.
- Month: the number of the month (e.g., January = 01), which is mandatory.
- Day: the number of the day of the relevant month (e.g., second day = 02), which is mandatory.
- Hour: the number of the hour based on local time (e.g., 2 p.m. = 14), which is mandatory.
- Minutes: may be dropped if not required.
- Seconds: may be dropped if not required.

Note: This element string can only specify dates ranging from 49 years in the past to 50 years in the future. Determination of the correct century is explained in section *7.12*.

Figure 3.9.8-1. Format of the element string

GS1 Application Identifier	Date and time of production					
	YY	MM	DD	HH	MM	SS
8 0 0 8	N_1 N_2	N_3 N_4	N_5 N_6	N_7 N_8	N_9 N_{10}	N_{11} N_{12}

The data transmitted from the barcode reader means that the element string denoting a date and time of production has been captured. As this element string is an attribute of a trade item, it must be processed together with the GTIN of the trade item to which it relates. When indicating this element string in the non-HRI text section of a barcode label, the following data title SHOULD be used (see also section *3.2*): **PROD TIME**

3.9.9 Optically readable sensor indicator: AI (8009)

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The GS1 Application Identifier (8009) indicates that the GS1 Application Identifier data field contains the optically readable sensor instruction parameters defined by AIM (Association for Automatic Identification and Mobility). The parameter field is alphanumeric and may contain all characters contained in figure 7.11-1. Refer to AIM, Inc. *www.aimglobal.org* for the sensor instruction parameters to be encoded.

Figure 3.9.9-1. Format of the element string

GS1 Application Identifier	AIM defined sensor instruction parameters
8 0 0 9	X—————variable length—————→X_{50}

Note: This data element is intended to be carrier agnostic, however the user is cautioned regarding payload limitations of GS1 data carriers e.g. GS1-128 (48 total characters)

The data transmitted by the barcode reader means that the element string denoting the parameters of a sensor/monitor has been captured. As this element string is an attribute of a trade item or a logistic unit, it must be processed together with the GTIN of the trade item or the SSCC of the logistic unit to which it relates.

Note: This element string may appear in a separate barcode from that used to encode the GTIN or SSCC.

When indicating this element string in the non-HRI text section of a barcode label, the following data title SHOULD be used (see also section 3.2): **OPTSEN**

~~3.9.9~~3.9.10 Component/Part Identifier (CPID): AI (8010)

The GS1 Application Identifier (8010) indicates that the GS1 Application Identifier data field contains the C/P Identifier.

The GS1 Company Prefix is allocated by GS1 Member Organisations to the company that allocates the C/P Identifier, making the number unique worldwide.

The structure and content of the C/P reference is at the discretion of the company that has been assigned the GS1 Company Prefix to uniquely identify each C/P.

The C/P reference format is variable length. The Component & Part reference SHALL only consist of numeric, alphabetic upper-case or special characters "#", "-", or "/", see figure 7.11-2.

Figure 3.9.10-1. Format of the element string

GS1 Application Identifier	Component/Part Identifier	
	GS1 Company Prefix ⟶	C/P reference number ⟶
8 0 1 0	N_1 ... N_j	X_{j+1} ...variable length $X_{k\ (k<=30)}$

The data transmitted from the barcode reader means that the element string denoting a C/P Identifier has been captured. When indicating this element string in the non-HRI text section of a barcode label, the following data title SHOULD be used (see also section 3.2): **CPID**

~~3.9.10~~3.9.11 Component/Part Identifier serial number: AI (8011)

The GS1 Application Identifier (8011) indicates that the GS1 Application Identifier data field contains a C/P serial number. A C/P serial number is assigned to an entity for its lifetime. When combined with a C/P Identifier, a serial number uniquely identifies an individual item. The C/P serial number field is numeric only. The C/P Identifier issuer (e.g., C/P buyer or OEM) determines the C/P serial number.

The C/P serial number SHALL NOT begin with a "0" digit, unless the entire serial number consists of the single digit "0".

Figure 3.9.11-1. Format of the element string

GS1 Application Identifier	Component/Part Identifier serial number
8 0 1 1	N_1 ——variable length——⟶ N_{12}

The data transmitted from the barcode reader means that the element string denoting a C/P serial number has been captured. As this element string is an attribute of a C/P Identifier, it must be processed together with the C/P Identifier of the C/P to which it relates. When indicating this element string in the non-HRI text section of a barcode label, the following data title SHOULD be used (see also section 3.2): **CPID SERIAL**

~~3.9.11~~3.9.12 Software version: AI (8012)

The GS1 Application Identifier (8012) indicates that the GS1 Application Identifier data field contains a software version number. Software versioning is the process of assigning unique version numbers to unique states of computer software.

Examples include:

- Software versions for regulated healthcare device software.
- Commercially available office productivity software (Microsoft® Word 2013 version 15.0.4701.1001, Adobe® Reader® XI version 11.0.10).

If element string		Then mandatory associated element string	Rule
AI	Designation	AI	
7020	Refurbishment lot ID	(01 XOR 8006***) AND 416	The refurbishment lot ID SHALL occur in combination with the GLN of production/service location and: ▪ the GTIN; or ▪ ~~the identification of an individual trade item piece.~~an ITIP
7021	Functional status	01 XOR 8006***	The functional status SHALL occur in combination with: ▪ the GTIN; or ▪ an ITIP~~the identification of an individual trade item piece.~~
7022	Revision status	(01 XOR 8006***) AND 7021	The revision status SHALL occur in combination with the functional status and: ▪ the GTIN; or ▪ an ITIP~~the identification of an individual trade item piece.~~
723s	Certification reference	01 XOR 8004	Certification reference SHALL occur in combination with: ▪ a GTIN; or ▪ a GIAI
8001	Dimensions of roll products	01	Dimensions of roll products SHALL occur in combination with the GTIN. Note: The GTIN must relate to a variable measure trade item.
8005	Price per unit of measure	01 XOR 02	The price per unit of measure SHALL occur in combination with: ▪ the GTIN; or ▪ the GTIN of contained trade items. Note: The GTIN must relate to a variable measure trade item.
8007	International Bank Account Number	8020 AND 415	The International Bank Account Number SHALL occur in combination with the payment slip reference number and the GLN of the invoicing party.
8008	Date and time of production	01 XOR 02	The date and time of production SHALL occur in combination with: ▪ the GTIN; or ▪ the GTIN of contained trade items.
8009	Optically readable sensor indicator	01 OR 00	The Optically Readable Sensor Indicator Number SHALL occur in combination with the GTIN or SSCC. Note the two data elements may or may not appear in the same data carrier.
8011	CPID serial number	8010	The CPID serial number SHALL occur in combination with the CPID.
8012	Software Version	01 XOR 8006***	The software version SHALL occur in combination with: ▪ the GTIN; or ▪ an ITIP~~the identification of an individual trade item piece.~~
8019	Service Relation Instance Number	8017 XOR 8018	The Service Relation Instance Number SHALL occur in combination with: ▪ the GSRN for the provider; or ▪ the GSRN for the recipient.
8020	Payment slip reference number	415	The payment slip reference number SHALL occur in combination with the GLN of the invoicing party.
8026	ITIP of contained pieces	00 AND 37	The ITIP of contained pieces SHALL occur in combination with an SSCC and the count of the pieces.
8111	Loyalty points of a coupons	255	Loyalty points of a coupon SHALL occur in combination with the GCN.
8200	Extended packaging URL	01	The extended packaging URL SHALL occur in combination with the GTIN.

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