TYPE CONVERSION

We distinguish between data transport and data processing types. In addition we differentiate between bits, as a minimal information value, and samples, expressed as a set of bits, but where each bit does not have independent meaning.

TRANSPORT BIT TYPES:
BITSTREAM: Basic C type char. Size 1 byte = 8 bits

TRANSPORT SAMPLE TYPES:
INT8:   Basic C type char (8 bits)
INT16:   Basic C type short integer (16 bits).
INT32:   Basic C type integer (32 bits)
FLOAT: Basic C type floats (32 bits).

PROCESSING BIT TYPES:
BITSTREAM: Basic C type char. Size 1 byte = 8 bits
BIT8:   Basic C type char. Every 8 bits (one byte) carry the information related

PROCESSING SAMPLE TYPES:
INT8:   Basic C type char (8 bits).
INT16:   Basic C type short integer (16 bits).
INT32:   Basic C type integer (32 bits)
FLOAT: Basic type floats (32 bits).

Following table summarises valid type conversion and associated details.

		INPUT					
		BITs		**SAMPLES**			
		BITSTREAM	**BIT8**	**INT8**	**INT16**	**INT32**	**FLOAT**
OUTPUT — **BITs**	**BITSTREAM**	NO CHANGE / CHECKED	Each integer (8 bits representing 0 or 1) is used as a bit to build a byte. / CHECKED	NOT ALLOWED / CHECKED	NOT ALLOWED / CHECKED	NOT ALLOWED / CHECKED	NOT ALLOWED / CHECKED
	BIT8	Each one of the bits of the input byte is converted to an short integer (8 bits) with value 0 or 1. / CHECKED	NO CHANGE / CHECKED	NOT ALLOWED / CHECKED	NOT ALLOWED / CHECKED	NOT ALLOWED / CHECKED	NOT ALLOWED / CHECKED
OUTPUT — **SAMPLES**	**INT8**	NOT ALLOWED / CHECKED	NOT ALLOWED / CHECKED	NO CHANGE / CHECKED	Each INT16 is scaled to a INT8. INT8= INT16/256. / CHECKED	Each INT32 is scaled to a INT8. INT8= INT32/16843009 / CHECKED	Each FLOAT is scaled to a INT8. MAXINPUT needed. ESCALE= MAXINPUT/256. INT8= FLOAT/ESCALE. / CHECKED
	INT16	NOT ALLOWED / CHECKED	NOT ALLOWED / CHECKED	Each INT8 is converter to an INT16 (integer 16 bits) / CHECKED	NO CHANGE / CHECKED	Each INT32 is scaled to a INT16. INT32= INT32/65536 / CHECKED	Each FLOAT is scaled to a INT16. MAXINPUT needed. ESCALE= MAXINPUT/65535. INT16= FLOAT/ESCALE. / CHECKED
	INT32	NOT ALLOWED / CHECKED	NOT ALLOWED / CHECKED	Each INT8 is converter to an INT32 (integer 32 bits) / CHECKED	Each INT16 is converter to an INT32 (integer 32 bits) / CHECKED	NO CHANGE / CHECKED	Each FLOAT is scaled to a INT32. MAXINPUT needed. ESCALE= MAXINPUT/232. INT32= FLOAT/ESCALE / CHECKED
	FLOAT	NOT ALLOWED / CHECKED	NOT ALLOWED / CHECKED	Each INT8 is converter to an FLOAT / CHECKED	Each INT16 is converter to a FLOAT / CHECKED	Each INT32 is converter to a FLOAT / CHECKED	NO CHANGE / CHECKED