

# Specifications

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# Mnemonics Database

We store our mnemonic definitions within a flat tab delimited plain text format. The format has evolved over time to support required functionality.

The first row contains the header. The header defines the columns contents. The columns can be in any order.

Each row defines a single mnemonic and is uniquely identified by the `DATA_ID`. `DATA_ID` is also often referred to as `Housekeeping ID` or `HKID` for shorthand.

If required, the column must exist but row values may still be empty. Empty values will be default initialized.

Column	Type	Description	Required	Empty Allowed	Default Value
SUB_SYSTEM	String	The subsystem. May be empty. Ex: CDH	Yes	Yes	Empty String
NAME	String	The mnemonic's name. Ex: PowerSupplyCurrent	Yes	No	
DESCRIPTION	String	The mnemonic's description	Yes	Yes	Empty String
ADC_#	Integer	The ADC channel	No	Yes	0
DATA_ID	Integer	The unique ID	Yes	No	
PACKET_TYPE	Integer	The packet type or CCSDS Application ID	Yes	No	
PACKET_SUBTYPE	Integer	Packet subtype	No	Yes	0
PACKET_NAME	String	The name of the packet the mnemonic belongs to	No	Yes	Empty String
APPLY_WHEN	String	Apply when condition of the format: HKID=RANGE.	No	Yes	No apply when conditions
DECODE_TYPE	Integer	The decoder type	Yes	No	
DECODE_ID1	Integer	Decode ID 1	Yes	No	
DECODE_ID2	Integer	Decode ID 2	Yes	No	
DECODE_ID3	Integer	Decode ID 3	Yes	No	
DECODE_ID4	Integer	Decode ID 4	Yes	No	
CLOCK	String	The clock's name	No	Yes	Empty String
RAW_FMT	String	The raw format	Yes	No	

Column	Type	Description	Required	Empty Allowed	Default Value
ENG_FMT	String	The string formatting when engineering conversion is applied	Yes	No	
ENG_EQ_TYPE	Integer	The type of conversion to apply to the raw value	Yes	No	
ENG_K1	Double	Eng Coefficient 1	Yes	No	
ENG_K2	Double	Eng Coefficient 2	Yes	No	
SCI_UNITS	String	The science units	Yes	Yes	
SCI_FMT	String	The string formatting when science conversion is applied	Yes	No	
SCI_EQ_TYPE	Integer	The type of conversion to apply	Yes	No	
SCI_FROM_ENG	bool	If true, the engineering conversion will be applied before applying the science conversion	Yes	No	
SCI_K1	Double	Science Coefficient 1	Yes	No	
SCI_K2	Double	Science Coefficient 2	Yes	No	
SCI_K3	Double	Science Coefficient 3	Yes	No	
SCI_K4	Double	Science Coefficient 4	Yes	No	
SCI_K5	Double	Science Coefficient 5	Yes	No	
SCI_K6	Double	Science Coefficient 6	Yes	No	
SCI_K7	Double	Science Coefficeint 7	Yes	No	
SCI_K8	Double	Science Coefficient 8	Yes	No	
MUX_CH	Integer	The corresponding mux channel for this mnemonic	No	Yes	
LIMIT_TYPE_1	Integer	Bit pattern defining the limit configuration	No	Yes	
YELLOW_LIMIT_1	Double	The yellow limit value	No	Yes	
RED_LIMIT_1	Double	The red limit value	No	Yes	

Column	Type	Description	Required	Empty Allowed	Default Value
LIMIT_TYPE_2	Integer	Bit pattern defining the limit configuration	No	Yes	
YELLOW_LIMIT_2	Double	The yellow limit value	No	Yes	
RED_LIMIT_2	Double	The red limit value	No	Yes	
LIMITS	JSON	The limit set definition	No	Yes	
EXTRA_1	String	Used for various purposes depending on the SCI_EQ_TYPE	No	Yes	
XINA_MINE_TYPE	Integer	The XINA mining mode	No	Yes	
XINA_MINE_RAW	bool	Whether or not to mine the RAW values	No	Yes	
XINA_MINE_ENG	bool	Whether or not to mine the ENG values	No	Yes	
DISCRETE_LABELS	String	Maps a value to string	No	Yes	
BUNDLE_ID	Integer	The XINA bundle ID	No	Yes	

# Metadata File