

**Table 3-2. Data Elements in the TMY2 Format
(For All Except the First Record)**

Field Position	Element	Values	Definition
002 - 009 002 - 003 004 - 005 006 - 007 008 - 009	Local Standard Time Year Month Day Hour	 61 - 90 1 - 12 1 - 31 1 - 24	 Year, 1961-1990 Month Day of month Hour of day in local standard time
010 - 013	Extraterrestrial Horizontal Radiation	0 - 1415	Amount of solar radiation in Wh/m ² received on a horizontal surface at the top of the atmosphere during the 60 minutes preceding the hour indicated
014 - 017	Extraterrestrial Direct Normal Radiation	0 - 1415	Amount of solar radiation in Wh/m ² received on a surface normal to the sun at the top of the atmosphere during the 60 minutes preceding the hour indicated
018 - 023 018 - 021 022 023	Global Horizontal Radiation Data Value Flag for Data Source Flag for Data Uncertainty	 0 - 1200 A - H, ? 0 - 9	Total amount of direct and diffuse solar radiation in Wh/m ² received on a horizontal surface during the 60 minutes preceding the hour indicated
024 - 029 024 - 027 028 029	Direct Normal Radiation Data Value Flag for Data Source Flag for Data Uncertainty	 0 - 1100 A - H, ? 0 - 9	Amount of solar radiation in Wh/m ² received within a 5.7° field of view centered on the sun during the 60 minutes preceding the hour indicated
030 - 035 030 - 033 034 035	Diffuse Horizontal Radiation Data Value Flag for Data Source Flag for Data Uncertainty	 0 - 700 A - H, ? 0 - 9	Amount of solar radiation in Wh/m ² received from the sky (excluding the solar disk) on a horizontal surface during the 60 minutes preceding the hour indicated
036 -	Global Horiz. Illuminance		Average total amount of direct and

041 036 - 039 040 041	Data Value Flag for Data Source Flag for Data Uncertainty	0 - 1300 I, ? 0 - 9	diffuse illuminance in hundreds of lux received on a horizontal surface during the 60 minutes preceding the hour indicated 0 to 1300 = 0 to 130,000 lux
042 - 047 042 - 045 046 047	Direct Normal Illuminance Data Value Flag for Data Source Flag for Data Uncertainty	0 - 1100 I, ? 0 - 9	Average amount of direct normal illuminance in hundreds of lux received within a 5.7° field of view centered on the sun during the 60 minutes preceding the hour indicated. 0 to 1100 = 0 to 110,000 lux
048 - 053 048 - 051 052 053	Diffuse Horiz. Illuminance Data Value Flag for Data Source Flag for Data Uncertainty	0 - 800 I, ? 0 - 9	Average amount of illuminance in hundreds of lux received from the sky (excluding the solar disk) on a horizontal surface during the 60 minutes preceding the hour indicated. 0 to 800 = 0 to 80,000 lux
054 - 059 054 - 057 058 059	Zenith Luminance Data Value Flag for Data Source Flag for Data Uncertainty	0 - 7000 I, ? 0 - 9	Average amount of luminance at the sky's zenith in tens of Cd/m ² during the 60 minutes preceding the hour indicated. 0 to 7000 = 0 to 70,000 Cd/m ²
060 - 063 060 - 061 062 063	Total Sky Cover Data Value Flag for Data Source Flag for Data Uncertainty	0 - 10 A - F 0 - 9	Amount of sky dome in tenths covered by clouds or obscuring phenomena at the hour indicated
064 - 067 064 - 065 066 067	Opaque Sky Cover Data Value Flag for Data Source Flag for Data Uncertainty	0 - 10 A - F 0 - 9	Amount of sky dome in tenths covered by clouds or obscuring phenomena that prevent observing the sky or higher cloud layers at the hour indicated
068 - 073 068 - 071 072	Dry Bulb Temperature Data Value Flag for Data Source Flag for Data Uncertainty	-500 to 500 A - F 0 - 9	Dry bulb temperature in tenths of °C at the hour indicated -500 to 500 = -50.0 to 50.0°C

073			
074 - 079 074 - 077 078 079	Dew Point Temperature Data Value Flag for Data Source Flag for Data Uncertainty	-600 to 300 A - F 0 - 9	Dew point temperature in tenths of °C at the hour indicated -600 to 300 = -60.0 to 30.0°C
080 - 084 080 - 082 083 084	Relative Humidity Data Value Flag for Data Source Flag for Data Uncertainty	0 - 100 A - F 0 - 9	Relative humidity in percent at the hour indicated
085 - 090 085 - 088 089 090	Atmospheric Pressure Data Value Flag for Data Source Flag for Data Uncertainty	700 - 1100 A - F 0 - 9	Atmospheric pressure at station in millibars at the hour indicated
091 - 095 091 - 093 094 095	Wind Direction Data Value Flag for Data Source Flag for Data Uncertainty	0 - 360 A - F 0 - 9	Wind direction in degrees at the hour indicated. (N = 0 or 360, E = 90, S = 180, W = 270). For calm winds, wind direction equals zero.
096 - 100 096 - 098 099 100	Wind Speed Data Value Flag for Data Source Flag for Data Uncertainty	0 - 400 A - F 0 - 9	Wind speed in tenths of meters per second at the hour indicated. 0 to 400 = 0 to 40.0 m/s
101 - 106 101 - 104 105 106	Visibility Data Value Flag for Data Source Flag for Data Uncertainty	0 - 1609 A - F, ? 0 - 9	Horizontal visibility in tenths of kilometers at the hour indicated. 7777 = unlimited visibility 0 to 1609 = 0.0 to 160.9 km 9999 = missing data
107 - 113 107 - 111 112 113	Ceiling Height Data Value Flag for Data Source Flag for Data Uncertainty	0 - 30450 A - F, ? 0 - 9	Ceiling height in meters at the hour indicated. 77777 = unlimited ceiling height 88888 = cirroform 99999 = missing data
114 - 123	Present Weather	See Appendix	Present weather conditions denoted by

		B	a 10-digit number. See Appendix B for key to present weather elements.
124 - 128 124 - 126 127 128	Precipitable Water Data Value Flag for Data Source Flag for Data Uncertainty	0 - 100 A - F 0 - 9	Precipitable water in millimeters at the hour indicated
129 - 133 129 - 131 132 133	Aerosol Optical Depth Data Value Flag for Data Source Flag for Data Uncertainty	0 - 240 A - F 0 - 9	Broadband aerosol optical depth (broad-band turbidity) in thousandths on the day indicated. 0 to 240 = 0.0 to 0.240
134 - 138 134 - 136 137 138	Snow Depth Data Value Flag for Data Source Flag for Data Uncertainty	0- 150 A - F, ? 0 - 9	Snow depth in centimeters on the day indicated. 999 = missing data
139 - 142 139 - 140 141 142	Days Since Last Snowfall Data Value Flag for Data Source Flag for Data Uncertainty	0 - 88 A - F, ? 0 - 9	Number of days since last snowfall. 88 = 88 or greater days 99 = missing data
Note: For ceiling height data, integer variable should accept data values as large as 99999.			

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