QRTMD TSX and TSXV Index Feed

TX1

Functional Specifications

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For questions, contact TMX Vendor Services, vendor_services@tmx.com, 416-947-4705.

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Chapter 1   Introduction

This specification defines the communications interface and the information records transmitted on the Quantum RTMD (QRTMD) Toronto Stock Exchange/TSX Venture Exchange Index Feed (TX1).

This data feed is comprised of levels from Toronto Stock Exchange (TSX) and TSX Venture Exchange (TSXV).

To develop and implement systems that can receive and process TX1 data, this document must be used with the *Quantum RTMD Protocol Specification and Service Access Guide.*

Chapter 2　　Transmission Format

Each message is framed by STX and ETX characters. The format used is:

STX	HEADER	MESSAGE	ETX

STX and ETX indicate the beginning and end of the record being transmitted.

2.1　　Data format

All times contained in messages are based on a 24-hour clock, Eastern Standard Time (EST).

Whenever a field is "blank", it contains the ASCII space character (HEX 20). Unless stated otherwise:

- All numeric fields are right justified, zero-filled.
- All alphanumeric fields are left justified, blank filled

2.2　　Message header

The following standard message header is supplied on each message (size in bytes, fields in ASCII):

Message Length	Sequence Number	Service Identifier	Retransmission Identifier	Continuation Identifier	Message Type	Exchange Identifier
4	9	3	1	1	2	2

- **Message Length**: Does not include the STX and ETX characters
- **Sequence Number**: Every message is assigned a sequence number from 000000001 to 999999999 (decimal, ASCII), with wrap-around. The sequence number is incremented by 1 for each message sent.
- Service Identifier: "TX1"
- **Re-transmission Identifier**: Contains the following value:

0	Normal transmission

- **Continuation Identifier**: Contains the following value:

0	Stand-alone message

- **Message Type**: Left justified, padded with a blank when necessary.
- **Exchange Identifier**: Left justified, padded with a blank when necessary and contains the value of "T".

Related topics:

- "Business Content Messages"

2.3   Message retransmission

The TX1 service includes support for automated message retransmission as described in Reference [1].

Chapter 3   Business Content Messages

Table 1: Messages transmitted on TX1

Message Type	Message
K	S&P/TSX Official Index Level
PA	Beginning of Index Summary

3.1   Message record formats and definitions

3.1.1   Message type K – S&P/TSX Official Index Level

Field Name	Length (Bytes)	Data Type	Definition	Validation Rules/Comments
Message Header	22			See Section 2.2.
Time	4	Alphanumeric	Time of the index level calculation	HHMM
Index ID	4	Alphanumeric	Identifies the index	See Appendix B.
Last Level	8	Numeric	The level of the index as of the time of the calculation	NNNNNNDD, where: • N = integer • D =decimal
Net Change	6	Signed numeric	Net change from previous index level close	+/-NNNDD, where: • N = integer • D = decimal Will be + if net change is zero
Volume	11	Numeric	Total number of shares traded for the index	
Value	12	Numeric	Total dollar of shares traded for the index	
Open Level	8	Numeric	Level of the index at the first calculation of the day	NNNNNNDD, where: • N = integer • D = decimal
Settlement Value	8	Numeric	Settlement open	NNNNNNDD, where: • N = integer • D = decimal
Special Opening Quote	8	Numeric	Adjusted index open value **Note**: As the constituents open, the index open value is recalculated.	NNNNNNDD, where: • N = integer • D = decimal
Percent Trading	7	Numeric	Percentage of the index constituents that are open	NNNDDDD, where: • N = integer • D = decimal
High Level	8	Numeric	Highest level of the index for the day	NNNNNNDD, where: • N = integer • D = decimal

Field Name	Length (Bytes)	Data Type	Definition	Validation Rules/Comments
Low Level	8	Numeric	Lowest level of the index for the day	NNNNNNDD, where: • N = integer • D = decimal
P/E	7	Signed numeric	Price/Earnings ratio for the index	+/-NNNDD, where: • N = integer • D = decimal Always set to + 0000000
Yield	5	Numeric	Dividend Yield for the index, expressed as a percentage	NNNDD, where: • N = integer • D = decimal Always set to 00000
Markers	1	Alphabetic		C = Close
Bid Price	7	Numeric	Value for the Index based on the latest bid price of the stocks comprising the Index.	NNNNNDD, where: • N = integer • D = decimal
Ask Price	7	Numeric	Value for the Index based on the latest ask price of the stocks comprising the Index.	NNNNNDD, where: • N = integer • D = decimal

Total: **141**

Note: The last K message of the day for a given index will contain the 'C' marker.

Corrections are sometimes made during the day, which can change the day's high or day's low, and will be reflected in the next K message.

Feed clients can expect official Index close levels (disseminated on K messages with marker C) any time after they receive the PA message. Please note that the exact time at which these levels are sent will depend on the analysts determining the official close levels.

Open Level is the index value calculated at 9:30 AM using the opening value for constituents that have opened and previous day close value for constituents that have not opened yet.

Special Opening Quote is a dynamic value that is re-calculated as constituents open after 9:30 AM.

Settlement Open is the final open value once all constituents are open (ie. when Percent Trading reaches 100%). Only Indices that act as underlying for derivative contracts will have this value. The actual sent time may be delayed for 10-15 minutes because it needs to be validated by data analysts at S&P.

Percent Trading will only be available for indices that act as underlying for derivative contracts.

3.1.2   Message type PA – Beginning of Index Summary

Field Name	Length (Bytes)	Data Type	Definition	Validation Rules/Comments
Message Header	22			See Section 2.2.

This message indicates that the end of day Index (message type K) is to follow.

Chapter 4   Markers

Marker	Meaning	Message Type
C	Closing Values	K

Note: The last K message of the day contains the "C" marker.

Chapter 5   Transmission Times

5.1   Operating times

Clients can listen on the TX1 port at any time during the day. Dissemination of business content messages begins at approximately 8:30 am EST.

Index Summaries messages are broadcast after the end of day summaries.

5.2   Message transmission times

Message Type	Message Name	Transmission Times (EST)		Notes
		Start (approx)	End (approx)	
K	S&P/TSX Official Index Level	8:30 a.m.	4:30 p.m.	
PA	Beginning of Index Summary	4:30 p.m.		Sent once just before disseminating official index close levels (K messages with marker C).

Appendix A ASCII Character Set

HEX	ASCII	HEX	ASCII	HEX	ASCII
00	NUL	2D	-	5A	Z
01	SOH	2E	.	5B	
02	STX	2F	/	5C	
03	ETX	30	0	5D	
04	EOT	31	1	5E	
05	ENQ	32	2	5F	
06	ACK	33	3		
07	BEL	34	4	5B	
08	BS	35	5	5C	
09	HT	36	6	5D	
0A	LF	37	7	5E	
0B	VT	38	8	60	
0C	FF	39	9	61	a
0D	CR	3A		62	b
0E	SO	3B		63	c
0F	SI	3C		64	d
10	DLE	3D		65	e
11	DC1	3E		66	f
12	DC2	3F		67	g
13	DC3	40	@	68	h
14	DC4	41	A	69	i
15	NAK	42	B	6A	j
16	SYN	43	C	6B	k
17	ETB	44	D	6C	l
18	CAN	45	E	6D	m
19	EM	46	F	6E	n
1A	SUB	47	G	6F	o
1B	ESC	48	H	70	p
1C	FS	49	I	71	q
1D	GS	4A	J	72	r
1E	RS	4B	K	73	s

HEX	ASCII	HEX	ASCII	HEX	ASCII
1F	US	4C	L	74	t
20	SP	4D	M	75	u
21	!	4E	N	76	v
22	"	4F	O	77	w
23	#	50	P	78	y
24	$	51	Q	79	z
25	%	52	R	7A	
26	&	53	S	7B	
27	'	54	T	7C	
28	(	55	U	7D	
29	)	56	V	7E	
2A	*	57	W	7F	DEL
2B	+	58	X		
2C	,	59	Y		

Appendix B Index Codes and Names

For list of equity stock indices, see the [Indices and Constituents](#) page of the TSX Market Activity section on TMXMoney.com.

Appendix C References

1. *Quantum RTMD Protocol Specifications and Service Access Guide*,v2.00, TMX Group, December 2012
2. The Indices and Constituents page of the TSX Market Activity section on TMXMoney.com

Appendix D Revision History

Rev	Date	Changes Made
1.13	2013/08/16	• Removed KS message type. • Changed reference in first paragraph of introduction from QRTMD to TX1. • Added Bid Price and Ask Price data fields to K message type • Corrected, updated and added items to Notes in Section 3.1.1. • Updated Note in Section 5.1. • Removed "every minute" from note in section 5.2. • Changed K message transmission start time to 8:30 AM in section 5.2.
1.12	2013/01/09	• Added "Contact Information" section. • Added information about the QRTMD Protocol Specification and Service Access Guide to the Introduction.
1.11	2012/02/01	Corrected link to TMX Money Indices and Constituents page
1.1	2012/01/20	Added Settlement Value, Special Opening Quote, and Percent Trading fields to Message Type K – S&P/TSX Official Price Level
1.0	2011/09/28	Initial release