



HTX

INTERFACE SPECIFICATION

VERSION 3.6

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1. Introduction

1.1. Purpose

The objective of this document is to describe the communication interface of the HTX-Server to a customer system. Important facts during the developing progress for that interface are:

- Developing a simple Order-Routing Interface for an easy-to-use customer access to the HTX-System
- Automatic booking for order execution with the possibility of configuration
- Public access control
- Restriction to selected stock exchanges only or to a maximum order size etc.

2. Interface description

2.1. Communication progress

Although the transportation protocol is transparent for the customer application one has to build up a connection through a lower level of the transportation medium. For different reasons the communication is based on a standardised network protocol – the **TCP/IP** protocol.

The initiative to establish a connection is always taken by the customer application. The HTX-Server has a passive function during the **login progress**, i.e. it waits until there is an connection login inquiry from the customer. Therefore the Server has a build-in listener port.

Once the physical connection has established the customer application must identify itself for security reason, i.e. the first messages to the Server has to be a Login Request. After positive identification the Server creates a new session and sends a Login Response telling the application that a new state as achieved.

The **application phase** is commence. From now all messages are stored in a database and in addition in a log file. The reason for that mechanism is the ability to recover the whole history during a session. Therefore each Message contains a counter in the following manner:

Customer application		HTX-Server
Login Request	→	
	←	Login Response (1)
Request/Response (1)	→	
	←	Request/Response (2)
Request/Response (2)	→	
	...	

When the connection break-down the customer application has to reconnect, e.g. establishing the physical TCP/IP link, and then to send the Login Request again. After that the customer application must check the order state of the last Request to enter, change or delete an order without Response. So one can be sure that the last action before break down, e.g. any Request to the HTX-Server except Heartbeat confirmation, was successful. In case of wrong order state depends on the action the customer application has to repeat the Request once again.

Reasons for a connection break-down may be different. On the one hand is may a technical problem which has to solve. On the other hand there are application errors which can be:

1. HTX-Server receives a messages incorrect counter id (failure)
2. HTX-Server receives syntactically incorrect messages (failure)
3. HTX-Server receives messages containing implausible data (failure)
4. HTX-Server receives more than allowed messages per time interval (failure)

5. Heartbeat events from the HTX-Server are not acknowledged by the client (timeout for connection).

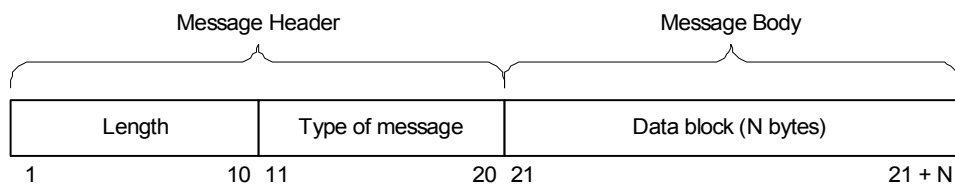
In both cases the HTX-Server tries to send the Message "Close connection" before it physical closes the TCP/IP link.

Please note: Events (Change, Delete or Execution of an order) without a customer acknowledge will be send once again after Login.

2.2. Message Specification

2.2.1. Introduction

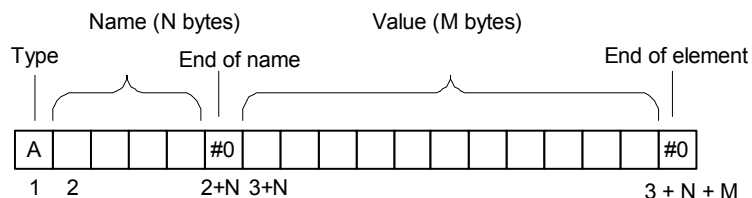
All messages are divided in two parts - header and body. The message header contains information about the message itself. It has a fixed structure as in shown in picture below. The body contains the data block. All data are stored in special **data elements** containing the type + name (called **FIDs** = field identifiers) and the value of the field. Usually a messages contains more then one FID.



picture: General structure of a native Message

Length means the length of the whole message including the header. Length is an right adjusted integer with leading zeros, e.g. 0000000123. **Type of message** contains the numeric code of the message. Same rules as Length will applied, e.g. MSG_TYPE_LOGIN → 0000000083.

Note: One can also provide Length and Type as an left adjusted integer. In this case first (and optional following bytes) after the number has to be 0x00, e.g. 1 2 3 #0 #0 #0 #0 #0 #0.



picture: Structure of data elements

Type (first byte of the data element) is always set to character "A" which means **Value** must only contain ASCII-printable characters 0x20 .. 0xFF. **Name** is the FID as hex-decimal code without leading zeros, terminated by 0x00 , e.g. FID_QUOTE → 1D #0. To avoid large transfer volume one has to trim left or right non-significant spaces in value.

The order of data elements (FIDs) is always undefined.

There are several types of FID-Content:

- numeric: signed numbers with/without floating point (e.g. 1000.5)
- numeric / hex: integer number coded hex-decimal (e.g. 'e8' → 232)
- alphanumeric: ASCII-printable characters (e.g. 'A' .. 'Z', '1'..'2', etc.)

Note: The value between brackets indicates the maximum lengt of a FID (e.g. numeric (10) means 10 digits including sign and decimal point)

2.2.2. Overview over all messages

The following messages group by their functionality are available:

1. Communication-related Message

Login for creating a new Server session and establishing the link

MSG_TYPE_LOGIN [30]

MSG_TYPE_LOGIN_RESPONSE [31]

Heartbeat check TCP/IP link (initiated by HTX-Server)

MSG_TYPE_HEARTBEAT [32]

MSG_TYPE_HEARTBEAT_RESPONSE [33]

Close the Connection (initiated by HTX-Server)

MSG_TYPE_CLOSE_CONNECTION [34]

Error (initiated by HTX-Server)

MSG_TYPE_ERROR_EVENT [226]

MSG_TYPE_ERROR_EVENT_RESPONSE [227]

2. Order-related Messages

Enter an Order

MSG_TYPE_ENTER_ORDER [210]

MSG_TYPE_ENTER_ORDER_RESPONSE [211]

Enter an OCO-Order

MSG_TYPE_ENTER_OCO_ORDER [500]

MSG_TYPE_ENTER_OCO_ORDER_RESPONSE [501]

Modify an OCO-Order

MSG_TYPE_MODIFY_OCO_ORDER [502]

MSG_TYPE_MODIFY_OCO_ORDER_RESPONSE [503]

Request Quotes

MSG_TYPE_QUOTE_REQUEST [257]

MSG_TYPE_QUOTE_RESPONSE [258]

Modify an Order

MSG_TYPE_MODIFY_ORDER [214]

MSG_TYPE_MODIFY_ORDER_RESPONSE [215]

Delete an Order

MSG_TYPE_DELETE_ORDER [216]

MSG_TYPE_DELETE_ORDER_RESPONSE [217]

Order Execution (initiated by HTX-Server)

MSG_TYPE_ORDER_EXECUTION_EVENT [220]

MSG_TYPE_ORDER_EXECUTION_EVENT_RESPONSE [221]

Order Complete (initiated by HTX-Server)

MSG_TYPE_ORDER_COMPLETE_EVENT	[222]
MSG_TYPE_ORDER_COMPLETE_EVENT_RESPONSE	[223]
Order Change	
MSG_TYPE_ORDER_CHANGE_EVENT	[224]
MSG_TYPE_ORDER_CHANGE_EVENT_RESPONSE	[225]
Get order parameters by order id (i.e. after break-down link)	
MSG_TYPE_GET_ORDER	[212]
MSG_TYPE_GET_ORDER_RESPONSE	[213]
3. Portfolio-related Messages	
MSG_TYPE_PORTFOLIO_SUBSCRIPTION	[263]
MSG_TYPE_PORTFOLIO_SUBSCRIPTION_RESPONSE	[265]
MSG_TYPE_PORTFOLIO_UPDATE	[264]
4. Account-related Messages	
MSG_TYPE_TRADING_POWER_SUBSCRIPTION	[340]
MSG_TYPE_TRADING_POWER_SUBSCRIPTION_RESPONSE	[341]
MSG_TYPE_TRADING_POWER_UPDATE	[342]
5. Order-Subscription	
MSG_TYPE_ORDER_SUBSCRIPTION	[330]
MSG_TYPE_ORDER_SUBSCRIPTION_RESPONSE	[331]
MSG_TYPE_ORDER_UPDATE	[332]

Note: Messages, sent by the HTX system, may contain FIDs, not explained in the following message definitions. The User application should ignore such FIDs.

2.2.3. MSG_TYPE_LOGIN

Direction: User application → HTX – Server

FID	type (max Length)	Description	Req'd
FID_USERNAME	alphanumeric (30)	Name of the user / user application	M
FID_PASSWORD	alphanumeric (30)	... and the password for the username	M

2.2.4. MSG_TYPE_LOGIN_RESPONSE

Direction: HTX – Server → User application

FID	type (max Length)	Description	Req'd
FID_SESSION_ID	numeric / hex (10)	ID for the new created session	M
FID_ZAEHLER	numeric / hex (10)	always 1 (refer to communication progress)	M
FID_ERRORCODE	numeric / hex (5)	Numeric return code (0 means okay, <> 0 refer to table "Return codes")	M
FID_ERRORTXT	alphanumeric (255)	Text field for return code.	M

Note: HTX creates a FID_SESSION_ID for future use. Actually HTX will not verify the FID_SESSION_ID, received from the User application.

2.2.5. MSG_TYPE_HEARTBEAT

Direction: HTX – Server → User application

FID	type (max Length)	Description	Req'd
FID_SESSION_ID	numeric / hex (10)	ID for the session	M
FID_ZAEHLER	numeric / hex (10)	Counter (refer to communication progress)	M

2.2.6. MSG_TYPE_HEARTBEAT_RESPONSE

Direction: User application → HTX – Server

FID	type (max Length)	Description	Req'd
FID_SESSION_ID	numeric / hex (10)	ID for the session	M
FID_ZAEHLER	numeric / hex (10)	Counter (refer to communication progress)	M

2.2.7. MSG_TYPE_CLOSE_CONNECTION

Direction: HTX – Server ↔ User application

FID_ERRORCODE and FID_ERRORTXT may contain the reason for the connection termination.

FID	type (max Length)	Description	Req'd
FID_SESSION_ID	numeric / hex (10)	ID for the session	M
FID_ZAEHLER	numeric / hex (10)	Counter (refer to communication progress)	M
FID_ERRORCODE	numeric / hex (5)	Numeric return code (0 means okay, <> 0 refer to table "Return codes")	M
FID_ERRORTXT	alphanumeric (255)	Text field for return code. In the majority of cases the "FID_ZAEHLER" of the message that caused a close connection is included at the end of this text. "FID_ZAEHLER" is represented in parentheses as hexadecimal value.	M

2.2.8. MSG_TYPE_ENTER_ORDER

Direction: User application → HTX – Server

FID	type (max Length)	Description	Req'd
FID_SESSION_ID	numeric / hex (10)	ID for the session	M
FID_ZAEHLER	numeric / hex (10)	Counter (refer to communication progress)	M
FID_USER_ORDER_NO	alphanumeric (16)	Unique order id (user-defined, minimum length 2 characters). Useful to identify order executions.	M
FID_ALGO_ID	numeric / hex (2)	This field contains the algorithm Ids required by the German High Frequency Trading law. Length up to 2 characters (allowed values 0A..63). Values lower then 0A and greater then 63 are not allowed.	O
FID_DEPOT	alphanumeric (18)	Depot number	M
FID_WKN	alphanumeric (6)	The German national share id (e.g. DaimlerChrysler AG → 710000) (Less significant then FID_ISIN; optional field if FID_ISIN exists)	C
FID_ISIN	alphanumeric (12)	The international share id (More significant then FID_WKN; optional field if FID_WKN exists)	C
FID_BOERSENPLATZ	alphanumeric (3)	Stock exchange (for valid entries refer to table "Stock exchanges")	M

FID	type (max Length)	Description	Req'd
FID_GESCHAEFTSART	alphanumeric (1)	Type of order: Either "V" (sell) or "K" (buy)	M
FID_VOLUMEN	numeric (15)	Numbers of shares to buy or for sale	M
FID_LIMIT	numeric (15)	Limit Price (0.0 means market order; for stocks BER, DUS, HAM, HAN, STU, FRA this value is used as Stop Price when FID_LIMIT_ZUSATZ=S).	M
FID_STOP_LIMIT	numeric (15)	Stop Price (used for all stocks except BER, DUS, HAM, HAN, STU, FRA)	0
FID_LIMIT_ZUSATZ	alphanumeric (1)	Optional field for limitation: <ul style="list-style-type: none"> - "S" ... stop loss, stop buy - "I" ... Immediate or cancel (IOC) - "F" ... Fill or kill (FOK) 	0
FID_KURSART	alphanumeric (2)	Optional (Execution at): <ul style="list-style-type: none"> - "EK" ... opening price - "SK" ... closing price - "KS" ... Kassa time (special intraday auction) - "VA" ... variable (Default) 	0
FID_ORDER_TYPE	alphanumeric (1)	Optional field, stock exchange depended: <ul style="list-style-type: none"> - "P" ... Midpoint Order (XETRA only) The request will be rejected if the stock exchange does not support the order type.	0
FID_GUELTIGKEIT	alphanumeric (10)	Order validation date (valid until dd.mm.yyyy)	M
FID_OPEN_CLOSE	alphanumeric (1)	Optional field for EUREX-Orders: <ul style="list-style-type: none"> - "O" ... Open Position - "C" ... Close Position 	0
FID_ICEBERG_VISSIZE	numeric (15)	Visible iceberg size (Xetra only)	0

FID	type (max Length)	Description	Req'd
FID_QUOTE_ID	alphanumeric (35)	Unique Key from OTC-System (refer to FID_QUOTE_ID in MSG_TYPE_QUOTE_RESPONSE) Optional field, only required for quote based OTC-Trading Note: There are OTC trading partners supporting both, quote based and order based trading. If FID_QUOTE_ID is not present in MSG_TYPE_ENTER_ORDER, HTX will not handle an order as quote based order!	0
FID_OCO_LIMIT	numeric (20)	Only for order type '0' Limitation for the 2 nd part of an OCO order	0

Remarks:

- For order type '0' the stop limit and the oco limit are required.
- Orders of type '0' can not be modified.

2.2.9. MSG_TYPE_ENTER_ORDER_RESPONSE

Direction: HTX – Server → User application

FID	type (max Length)	Description	Req'd
FID_SESSION_ID	numeric / hex (10)	ID for the session	M
FID_ZAEHLER	numeric / hex (10)	Counter (refer to communication progress)	M
FID_USER_ORDER_NO	alphanumeric (16)	User-defined order id.	M
FID_BI_ORDER_NO	alphanumeric (16)	Unique order id (created by HTX).	0
FID_ERRORCODE	numeric / hex (5)	Numeric return code (0 means okay, <> 0 refer to table "Return codes")	M
FID_ERRORTTEXT	alphanumeric (255)	Text field for return code.	M

2.2.10. MSG_TYPE_ENTER_OCO_ORDER

Direction: User application → HTX – Server

FID	type (max Length)	Description	Req'd
FID_SESSION_ID	numeric / hex (10)	ID for the session	M
FID_ZAEHLER	numeric / hex (10)	Counter (refer to communication progress)	M
FID_USER_ORDER_NO	alphanumeric (16)	Unique order id of the first order (user-defined, minimum length 2 characters). Useful to identify order executions.	M
FID_ALGO_ID	numeric / hex (2)	This field contains the algorithm Ids required by the German High Frequency Trading law. Length up to 2 characters (allowed values 0A..63). Values lower then 0A and greater then 63 are not allowed.	0
FID_DEPOT	alphanumeric (18)	Depot number	M
FID_ISIN	alphanumeric (12)	The international share id (More significant then FID_WKN; optional field if FID_WKN exists)	M
FID_BOERSENPLATZ	alphanumeric (3)	Stock exchange (for valid entries refer to table "Stock exchanges")	M
FID_GESCHAEFTSART	alphanumeric (1)	Type of order: Either "V" (sell) or "K" (buy)	M
FID_VOLUMEN	numeric (15)	Numbers of shares to buy or for sale	M
FID_LIMIT	numeric (15)	Limit Price of the first order (must be greater then 0.0).	M
FID_GUELTIGKEIT	alphanumeric (10)	Order validation date (valid until dd.mm.yyyy)	M
FID_STOP_LIMIT_SEC	numeric (15)	Stop Price of the second order	M
FID_USER_ORDER_NO_SEC	alphanumeric (16)	Unique order id of the second order (must be different of the FID_USER_ORDER_NO)	M

2.2.11. MSG_TYPE_ENTER_OCO_ORDER_RESPONSE

Direction: HTX – Server → User application

FID	type (max Length)	Description	Req'd
FID_SESSION_ID	numeric / hex (10)	ID for the session	M
FID_ZAEHLER	numeric / hex (10)	Counter (refer to communication progress)	M
FID_USER_ORDER_NO	alphanumeric (16)	User-defined order id of the first order	M
FID_BI_ORDER_NO	alphanumeric (16)	Unique order id of the first order (created by HTX)	0

FID	type (max Length)	Description	Req'd
FID_OR_ORDER_ID	numeric / hex (10)	Unique identifier of the first order	M
FID_USER_ORDER_NO _SEC	alphanumeric (16)	User-defined order id of the second order	M
FID_BI_ORDER_NO_S EC	alphanumeric (16)	Unique order id of the second order (created by HTX)	O
FID_OR_ORDER_ID_S EC	numeric / hex (10)	Unique identifier of the second order	M
FID_ERRORCODE	numeric / hex (5)	Numeric return code (0 means okay, <> 0 refer to table "Return codes")	M
FID_ERRORTXT	alphanumeric (255)	Text field for return code.	M

2.2.12. MSG_TYPE_MODIFY_OCO_ORDER

Direction: User application → HTX – Server

FID	type (max Length)	Description	Req'd
FID_SESSION_ID	numeric / hex (10)	ID for the session	M
FID_ZAEHLER	numeric / hex (10)	Counter (refer to communication progress)	M
FID_USER_ORDER_NO	alphanumeric (16)	Unique order id of the first order	M
FID_ALGO_ID	numeric / hex (2)	This field contains the algorithm Ids required by the German High Frequency Trading law. Length up to 2 characters (allowed values 0A..63). Values lower then 0A and greater then 63 are not allowed.	O
FID_VOLUMEN	numeric (15)	Numbers of shares to buy or for sale	M
FID_LIMIT	numeric (15)	Limit Price of the first order (must be greater then 0.0).	M
FID_GUELTIGKEIT	alphanumeric (10)	Order validation date (valid until dd.mm.yyyy)	M
FID_STOP_LIMIT_SEC	numeric (15)	Stop Price of the second order	M

2.2.13. MSG_TYPE_MODIFY_OCO_ORDER_RESPONSE

Direction: HTX – Server → User application

FID	type (max Length)	Description	Req'd
FID_SESSION_ID	numeric / hex (10)	ID for the session	M
FID_ZAEHLER	numeric / hex (10)	Counter (refer to communication progress)	M
FID_USER_ORDER_NO	alphanumeric (16)	User-defined order id of the first order	M
FID_OR_ORDER_ID	numeric / hex (10)	Unique identifier of the first order	M
FID_ERRORCODE	numeric / hex (5)	Numeric return code (0 means okay, <> 0 refer to table "Return codes")	M
FID_ERRORTXT	alphanumeric (255)	Text field for return code.	M

2.2.14. MSG_TYPE_QUOTE_REQUEST

Direction: User application → HTX – Server

FID	type (max Length)	Description	Req'd
FID_SESSION_ID	numeric / hex (10)	ID for the session	M
FID_ZAEHLER	numeric / hex (10)	Counter (refer to comm. progress)	M
FID_QUOTE_REQUEST_ID	numeric / hex (10)	Unique quote request id (user-defined). Useful to identify quote responses	M
FID_BOERSENPLATZ	alphanumeric (3)	Internal ID to identify the issuer and OTC-Place – refers to a XCOM-internal table (ASB_EMITTENTEN, EMITTENT)	M
FID_GESCHAEFTSART	alphanumeric (1)	Type of Quote Request "V" for sell; "K" for buy	M
FID_VOLUMEN	numeric (15)	Number of shares	M
FID_ISIN	alphanumeric (12)	The international share id	M

2.2.15. MSG_TYPE_QUOTE_RESPONSE

Direction: HTX – Server → User application

FID	type (max Length)	Description	Req'd
FID_SESSION_ID	numeric / hex (10)	ID for the session	M
FID_ZAEHLER	numeric / hex (10)	Counter (refer to comm. progress)	M
FID_QUOTE_REQUEST_ID	alphanumeric (10)	Unique quote request id (user-defined)	M
FID_OQUOTE_ID	alphanumeric (35)	Unique Key from OTC-System, In case of a order, the order must contain this key to refer to this quote-offer	0

FID	type (max Length)	Description	Req'd
FID_BID_PRICE	numeric (15)	Price Indication BID	M
FID_ASK_PRICE	numeric (15)	Price Indication OFFER	M
FID_BID_SIZE	numeric (15)	SIZE Indication BID	M
FID_ASK_SIZE	numeric (15)	SIZE Indication OFFER	M
FID_ISIN	alphanumeric (12)	The international share id	M
FID_TIMEOUT	numeric (3)	Timeout Indication from OTC-System received in message-process (value in seconds) sequence to fill: <ol style="list-style-type: none"> 1. [seconds] in case of OTC-System send this information 2. "0", in case of OTC-System not send this information 	0
FID_STOCK_ERROR_CODE	alphanumeric (11)	Stock error code number	0
FID_STOCK_ERROR_TEXT	alphanumeric (255)	Stock error text	0
FID_ERROR_CODE	numeric / hex (5)	Numeric return code (0 means okay, <> 0 refer to table "Return codes")	M
FID_ERROR_TEXT	alphanumeric (255)	Text field for return code.	M

2.2.16. MSG_TYPE_MODIFY_ORDER

Direction: User application → HTX – Server

FID	type (max Length)	Description	Req'd
FID_SESSION_ID	numeric / hex (10)	ID for the session	M
FID_ZAEHLER	numeric / hex (10)	Counter (refer to communication progress)	M
FID_USER_ORDER_NO	alphanumeric (16)	User-defined order id (refer to MSG_TYPE_ENTER_ORDER).	M
FID_ORDER_ID	numeric / hex (10)	Unique identifier for each order	C
FID_ALGO_ID	numeric / hex (2)	This field contains the algorithm Ids required by the German High Frequency Trading law. Length up to 2 characters (allowed values 0A..63). Values lower then 0A and greater then 63 are not allowed.	0

FID	type (max Length)	Description	Req'd
FID_VOLUMEN	numeric (15)	Numbers of shares to buy or for sale (stocks ETR and MUN only)	0
FID_LIMIT	numeric (15)	refer to MSG_TYPE_ENTER_ORDER	M
FID_STOP_LIMIT	numeric (15)	refer to MSG_TYPE_ENTER_ORDER	0
FID_GUELTIGKEIT	alphanumeric (10)	Order validation date (valid until dd.mm.yyyy)	M
FID_ORDER_TYPE	alphanumeric (1)	Optional field, stock exchange depended: - "P" ... Midpoint Order (XETRA only)	0
FID_ICEBERG_VISSIZE	numeric (15)	Visible iceberg size (Xetra only)	0
FID_DWZ_ORDER_NO	Alphanumeric (30)	Optional field for identification the order at the exchange	0
FID_ORDER_VERSION_NO	Alphanumeric (30)	Optional field for identification the order-state at the exchange	0

Attention: Use only one of the both identifier (FID_USER_ORDER_NO or FID_ORDER_NO).
 Otherwise the response contains an error.

2.2.17. MSG_TYPE_MODIFY_ORDER_RESPONSE

Direction: HTX – Server → User application

FID	type (max Length)	Description	Req'd
FID_SESSION_ID	numeric / hex (10)	ID for the session	M
FID_ZAEHLER	numeric / hex (10)	Counter (refer to communication progress)	M
FID_USER_ORDER_NO	alphanumeric (16)	User-defined order id (as specified in Request)	M
FID_ERRORCODE	numeric / hex (5)	Numeric return code (0 means okay, <> 0 refer to table "Return codes")	M
FID_ERRORTXT	alphanumeric (255)	Text field for return code.	M

2.2.18. MSG_TYPE_DELETE_ORDER

Direction: User application → HTX – Server

FID	type (max Length)	Description	Req'd
FID_SESSION_ID	numeric / hex (10)	ID for the session	M

FID	type (max Length)	Description	Req'd
FID_ZAEHLER	numeric / hex (10)	Counter (refer to communication progress)	M
FID_USER_ORDER_NO	alphanumeric (16)	User-defined order id (refer to MSG_TYPE_ENTER_ORDER).	C
FID_ALGO_ID	numeric / hex (2)	This field contains the algorithm Ids required by the German High Frequency Trading law. Length up to 2 characters (allowed values 0A..63). Values lower then 0A and greater then 63 are not allowed.	O
FID_ORDER_ID	numeric / hex (10)	Unique identifier for each order	C

Attention: In some cases an order can't deleted, e.g. the order has already execute or the order book is closed. Then in the response an error occurred telling the reason.
 Use only one of the both identifier (FID_USER_ORDER_NO or FID_ORDER_NO). Otherwise the response contains an error.

2.2.19. MSG_TYPE_DELETE_ORDER_RESPONSE

Direction: HTX – Server → User application

FID	type (max Length)	Description	Req'd
FID_SESSION_ID	numeric / hex (10)	ID for the session	M
FID_ZAEHLER	numeric / hex (10)	Counter (refer to communication progress)	M
FID_USER_ORDER_NO	alphanumeric (16)	User-defined order id (as specified in Request)	C
FID_ORDER_ID	numeric / hex (10)	Unique identifier for each order	C
FID_ERRORCODE	numeric / hex (5)	Numeric return code (0 means okay, <> 0 refer to table "Return codes")	M
FID_ERRORTXT	alphanumeric (255)	Text field for return code.	M

2.2.20. MSG_TYPE_ORDER_EXECUTION_EVENT

In opposite of the Request/Response mechanism an event is initiate by the HTX Server telling the customer application that something is happened.

Direction: HTX – Server → User application

FID	type (max Length)	Description	Req'd
FID_SESSION_ID	numeric / hex (10)	ID for the session	M
FID_ZAEHLER	numeric / hex (10)	Counter (refer to communication progress)	M

FID	type (max Length)	Description	Req'd
FID_USER_ORDER_NO	alphanumeric (16)	User-defined order id (refer to MSG_TYPE_ENTER_ORDER).	M
FID_EXE_VOLUMEN	numeric (15)	Quantity of last execution.	M
FID_KURS	numeric (15)	Last execution price.	M
FID_REST_VOLUMEN	numeric (15)	Quantity of order which hasn't execute yet (open quantity).	M
FID_ZEIT	alphanumeric (19)	Date and time when the execution was made in Format: dd.mm.yyyy HH:MM:SS	M
FID_EXECUTION_NUM BER	numeric / hex (10)	Identity No. for last execution (Used to identify the acknowledge).	M
FID_WAEHRUNG	alphanumeric (3)	Currency	0
FID_DEVISENKURS	numeric (16)	Exchange rate	0
FID_REF_EXTERN	alphanumeric (16)	External reference	0
FID_OR_ORDER_ID	numeric / hex (10)	Internal order referemce	0
FID_DWZ_ORDER_NO	Alphanumeric (30)	Optional field for identification the order at the exchange	0
FID_ORDER_VERSION NO	Alphanumeric (30)	Optional field for identification the order-state at the exchange	0

2.2.21. MSG_TYPE_ORDER_EXECUTION_EVENT_RESPONSE

Direction: User application → HTX – Server

FID	type (max Length)	Description	Req'd
FID_SESSION_ID	numeric / hex (10)	ID for the session	M
FID_ZAEHLER	numeric / hex (10)	Counter (refer to communication progress)	M
FID_USER_ORDER_NO	alphanumeric (16)	User-defined order id (as specified in Event)	M
FID_EXECUTION_NUM BER	numeric / hex (10)	Identity No. of the last execution event (Used to identify the acknowledge).	M

2.2.22. MSG_TYPE_ORDER_COMPLETE_EVENT

Direction: HTX – Server → User application

FID	type (max Length)	Description	Req'd
FID_SESSION_ID	numeric / hex (10)	ID for the session	M

FID	type (max Length)	Description	Req'd
FID_ZAEHLER	numeric / hex (10)	Counter (refer to communication progress)	M
FID_USER_ORDER_NO	alphanumeric (16)	User-defined order id (refer to MSG_TYPE_ENTER_ORDER).	M
FID_EXE_VOLUMEN	numeric (15)	Quantity of last execution.	M
FID_SCHNITTKURS*	numeric (15)	Average price over all executions.	M
FID_ANZ_AUSFUEHRUNGEN*	numeric / hex (5)	Number of partial executions.	M
FID_REASONCODE	numeric / hex (5)	Short code to describe the execution state.	M
FID_REASONTEXT	alphanumeric (255)	Text description for FID_REASONCODE.	M
FID_STOCK_ERROR_CODE	alphanumeric (11)	Stock error code number	M
FID_STOCK_ERROR_TEXT	alphanumeric (255)	Stock error text	M

- It's possible that an order will execute in one transaction. Then the number of executions is equal 1 and the average price over all executions is equal the last execution price.

2.2.23. MSG_TYPE_ORDER_COMPLETE_EVENT_RESPONSE

Direction: User application → HTX – Server

FID	type (max Length)	Description	Req'd
FID_SESSION_ID	numeric / hex (10)	ID for the session	M
FID_ZAEHLER	numeric / hex (10)	Counter (refer to communication progress)	M
FID_USER_ORDER_NO	alphanumeric (16)	User-defined order id (as specified in Event)	M

2.2.24. MSG_TYPE_ORDER_CHANGE_EVENT

Direction: HTX – Server → User application

FID	type (max Length)	Description	Req'd
FID_SESSION_ID	numeric / hex (10)	ID for the session	M
FID_ZAEHLER	numeric / hex (10)	Counter (refer to communication progress)	M
FID_USER_ORDER_NO	alphanumeric (16)	User-defined order id (refer to MSG_TYPE_ENTER_ORDER).	M
FID_LIMIT	numeric (15)	refer to MSG_TYPE_ENTER_ORDER	M

FID	type (max Length)	Description	Req'd
FID_GUELTIGKEIT	alphanumeric (10)	Order validation date (valid until dd.mm.yyyy)	M
FID_STOP_LIMIT	numeric (15)	refer to MSG_TYPE_ENTER_ORDER	M
FID_VOLUMEN	numeric (15)	Numbers of shares to buy or for sale	M
FID_CHANGE_NO	numeric / hex (10)	Identity No. for change event (Used to identify the acknowledge).	M
FID_CHANGE_STATE	char (1)	"T" change queued for later execution, wait for unlocking "U" deletion queued for later execution, wait for unlocking "S" system locked, no insert possible, wait for unlocking "E" order successfully inserted "A" order successfully changed "V" queued deletion rejected "W" queued change rejected "R" order restated (stop order triggered) "X" the second order from an OCO-Order was replaced	M
FID_DWZ_ORDER_NO	Alphanumeric (30)	Optional field for identification the order at the exchange	0
FID_ORDER_VERSION NO	Alphanumeric (30)	Optional field for identification the order-state at the exchange	0
FID_OCO_LIMIT	numeric (20)	Only for order type 'O' Limitation for the 2 nd part of an OCO order	0
FID_LIMIT_ZUSATZ	alphanumeric (1)	Optional field for limitation (stop loss, stop buy), contains "S".	0
FID_FWD_BI_ORDER_NO	alphanumeric (16)	Replace the FID_BI_ORDER_NO on the second order from an OCO-Order	C
FID_FWD_OR_ORDER_ID	numeric / hex (10)	Replace the FID_OR_ORDER_ID on the second order from an OCO-Order	C

Attention: The FID_FWD_BI_ORDER_NO and FID_FWD_ORDER_ID will be send only, in case the second order of an OCO-Order was replaced (FID_CHANGE_STATE equal "X"), after the first order was partial filled.

2.2.25. MSG_TYPE_ORDER_CHANGE_EVENT_RESPONSE

Direction: User application → HTX – Server

FID	type (max Length)	Description	Req'd
FID_SESSION_ID	numeric / hex (10)	ID for the session	M
FID_ZAEHLER	numeric / hex (10)	Counter (refer to communication progress)	M
FID_USER_ORDER_NO	alphanumeric (16)	User-defined order id (as specified in Event)	M
FID_CHANGE_NO	numeric / hex (10)	Identity No. of the change event (Used to identify the acknowledge).	M

2.2.26. MSG_TYPE_ERROR_EVENT

Direction: HTX – Server → User application

FID	type (max Length)	Description	Req'd
FID_SESSION_ID	numeric / hex (10)	ID for the session	M
FID_ZAEHLER	numeric / hex (10)	Counter (refer to communication progress)	M
FID_USER_ORDER_NO	alphanumeric (16)	User-defined order id (as specified in Event)	M
FID_ERROR_NO	numeric / hex (10)	Identity No. for error event (Used to identify the acknowledge).	M
FID_STOCK_ERROR_CODE	alphanumeric (11)	Stock error code number	0
FID_STOCK_ERROR_TEXT	alphanumeric (255)	Stock error text	0
FID_ERRORCODE	numeric / hex (5)	Numeric return code (0 means okay, <> 0 refer to table "Return codes")	M
FID_ERRORTTEXT	alphanumeric (255)	Text field for return code.	M

2.2.27. MSG_TYPE_ERROR_EVENT_RESPONSE

Direction: User application → HTX – Server

FID	type (max Length)	Description	Req'd
FID_SESSION_ID	numeric / hex (10)	ID for the session	M
FID_ZAEHLER	numeric / hex (10)	Counter (refer to communication progress)	M

FID	type (max Length)	Description	Req'd
FID_USER_ORDER_NO	alphanumeric (16)	User-defined order id (as specified in Event)	M
FID_ERROR_NO	numeric / hex (10)	Identity No. of the error event (Used to identify this acknowledge).	M

2.2.28. MSG_TYPE_GET_ORDER

Direction: User application → HTX – Server

Only open orders can be retrieved with this request. The HTX system will never deliver order data for cancelled or filled orders.

FID	type (max Length)	Description	Req'd
FID_SESSION_ID	numeric / hex (10)	ID for the session	M
FID_ZAEHLER	numeric / hex (10)	Counter (refer to communication progress)	M
FID_USER_ORDER_NO	alphanumeric (16)	User-defined order id (refer to MSG_TYPE_ENTER_ORDER).	M

2.2.29. MSG_TYPE_GET_ORDER_RESPONSE

Direction: HTX – Server → User application

FID	type (max Length)	Description	Req'd
FID_SESSION_ID	numeric / hex (10)	ID for the session	M
FID_ZAEHLER	numeric / hex (10)	Counter (refer to communication progress)	M
FID_USER_ORDER_NO	alphanumeric (16)	User-defined order id (refer to MSG_TYPE_ENTER_ORDER).	M
FID_BI_ORDER_NO	alphanumeric (16)	Unique order id (created by HTX).	O
FID_WKN	alphanumeric (6)	The German national share id (e.g. DaimlerChrysler AG → 710000)	C
FID_ISIN	alphanumeric (12)	The international share id	C
FID_BOERSENPLATZ	alphanumeric (3)	Stock exchange (for valid entries refer to table "Stock exchanges")	M
FID_GESCHAEFTSART	alphanumeric (1)	Type of order: Either "V" (sell) or "K" (buy)	M
FID_VOLUMEN	numeric (15)	Numbers of shares to buy or for sale	M
FID_EXE_VOLUMEN	numeric (15)	Order quantity which has execute yet.	O
FID_SCHNITTKURS	numeric (15)	Average price over all executions.	O

FID	type (max Length)	Description	Req'd
FID_LIMIT	numeric (15)	refer to MSG_TYPE_ENTER_ORDER	M
FID_STOP_LIMIT	numeric (15)	refer to MSG_TYPE_ENTER_ORDER	0
FID_LIMIT_ZUSATZ	alphanumeric (1)	Optional field for limitation (stop loss, stop buy), contains "S".	0
FID_KURSART	alphanumeric (2)	Optional (Execution at): "EK" ... opening price "SK" ... closing price "KS" ... Kassa / special Intraday auction "VA" ... variable (Default)	0
FID_GUETIGKEIT	alphanumeric (10)	Order validation date (valid until dd.mm.yyyy)	M
FID_OPEN_CLOSE	alphanumeric (1)	Optional field for EUREX-Orders: - "O" ... Open Position - "C" ... Close Position	0
FID_ICEBERG_VISSIZE	numeric (15)	Visible iceberg size (Xetra only)	0
FID_REASONCODE	numeric / hex (5)	refer to MSG_TYPE_ORDER_COMPLETE_EVENT (is empty for open orders)	M
FID_REASONTEXT	alphanumeric (255)	refer to MSG_TYPE_ORDER_COMPLETE_EVENT (is empty for open orders)	M
FID_ERRORCODE	numeric / hex (5)	Numeric return code (0 means okay, <> 0 refer to table "Return codes")	0
FID_ERRORTTEXT	alphanumeric (255)	Text field for return code.	0
FID_DWZ_ORDER_NO	Alphanumeric (30)	Optional field for identification the order at the exchange	0
FID_ORDER_VERSION NO	Alphanumeric (30)	Optional field for identification the order-state at the exchange	0
FID_OCO_LIMIT	numeric (20)	Only for order type 'O' Limitation for the 2 nd part of an OCO order	0

2.2.30. MSG_TYPE_PORTFOLIO_SUBSCRIPTION

Direction: User application → HTX – Server

FID	type (max Length)	Description	Req'd
FID_SESSION_ID	numeric / hex (10)	ID for the session	M
FID_ZAEHLER	numeric / hex (10)	Counter (refer to communication progress)	M
FID_DEPOT	alphanumeric (18)	Depot number	M
FID_MODE	alphanumeric (1)	Either "S" (subscribe) or "U" (unsubscribe)	M

2.2.31. MSG_TYPE_PORTFOLIO_SUBSCRIPTION_RESPONSE

Direction: HTX – Server → User application

FID	type (max Length)	Description	Req'd
FID_SESSION_ID	numeric / hex (10)	ID for the session	M
FID_ZAEHLER	numeric / hex (10)	Counter (refer to comm. progress)	M
FID_ERRORCODE	numeric / hex (5)	Numeric return code (0 means okay, <> 0 refer to table "Return codes")	M
FID_ERRORTXT	alphanumeric (255)	Text field for return code.	M

2.2.32. MSG_TYPE_PORTFOLIO_UPDATE

Direction: HTX – Server → User application

After an initial message MSG_TYPE_PORTFOLIO_SUBSCRIPTION (FID_MODE=S), sent from the user application, the HTX Server will send one message MSG_TYPE_PORTFOLIO_UPDATE for any booked instrument as a portfolio snapshot.

Subsequently the HTX Server will send further messages MSG_TYPE_PORTFOLIO_UPDATE unsolicited, whenever the volume of at least one instrument has changed or a new position comes into existence. Updates will be sent until the HTX Server receives a message MSG_TYPE_PORTFOLIO_SUBSCRIPTION (FID_MODE=U).

FID	type (max Length)	Description	Req'd
FID_SESSION_ID	numeric / hex (10)	ID for the session	M
FID_ZAEHLER	numeric / hex (10)	Counter (refer to communication progress)	M
FID_DEPOT	alphanumeric (18)	Depot number	M
FID_ISIN	alphanumeric (12)	The international share id	M

FID	type (max Length)	Description	Req'd
FID_VOLUMEN	numeric (15)	signed amount of a position (pieces in case of FID_EINH_EFF_NOTIZ=1 and nominal amount in case of FID_EINH_EFF_NOTIZ=2)	M
FID_EINH_EFF_NOTIZ	alphanumeric (1)	Either "1" (pieces) or "2" (percent)	M
FID_SCHNITTKURS	numeric (15)	buying rate	M
FID_KURS	numeric (15)	price	M
FID_KURS_DATE	alphanumeric (10)	price date (format dd.mm.yyyy)	M
FID_KURS_TIME	alphanumeric (8)	price time (format HH:MM:SS)	M
FID_PL_UNREALIZED	numeric (15)	profit/loss unrealized	M
FID_PL_REALIZED	numeric (15)	profit/loss realized	M

2.2.33. MSG_TYPE_TRADING_POWER_SUBSCRIPTION

Direction: User application → HTX – Server

FID	type (max Length)	Description	Req'd
FID_SESSION_ID	numeric / hex (10)	ID for the session	M
FID_ZAEHLER	numeric / hex (10)	Counter (refer to communication progress)	M
FID_DEPOT	alphanumeric (18)	Depot number	M
FID_CURRENCY_ACCO UNT	alphanumeric (3)	Reserved for future use	O
FID_MODE	alphanumeric (1)	Either "S" (subscribe) or "U" (unsubscribe)	M

2.2.34. MSG_TYPE_TRADING_POWER_SUBSCRIPTION_RESPONSE

Direction: HTX – Server → User application

FID	type (max Length)	Description	Req'd
FID_SESSION_ID	numeric / hex (10)	ID for the session	M
FID_ZAEHLER	numeric / hex (10)	Counter (refer to comm. progress)	M
FID_ERRORCODE	numeric / hex (5)	Numeric return code (0 means okay, <> 0 refer to table "Return codes")	M
FID_ERRORTXT	alphanumeric (255)	Text field for return code.	M

2.2.35. MSG_TYPE_TRADING_POWER_UPDATE

Direction: HTX – Server → User application

After an initial message MSG_TYPE_TRADING_POWER_SUBSCRIPTION (FID_MODE=S), sent from the user application, the HTX Server will send one message MSG_TYPE_TRADING_POWER_UPDATE for the user depot.

Sequently the HTX Server will send further messages MSG_TYPE_TRADING_POWER_UPDATE unsolicited. Updates will be sent until the HTX Server receives a message MSG_TYPE_TRADING_POWER_SUBSCRIPTION (FID_MODE=U).

FID	type (max Length)	Description	Req'd
FID_SESSION_ID	numeric / hex (10)	ID for the session	M
FID_ZAEHLER	numeric / hex (10)	Counter (refer to communication progress)	M
FID_DEPOT	alphanumeric (18)	Depot number	M
FID_BUYING_POWER	numeric (30)	Aggregated buying power	M
FID_AVIABLE_SHORT_SELLING_LIMIT	numeric (30)	Aggregated unused Short Selling Limit	M
FID_USED_SHORT_SELLING_LIMIT	numeric (30)	Aggregated used Short Selling Limit	M
FID_AVIABLE_MARGIN	numeric (30)	Aggregated unused Margin	M
FID_USED_MARGIN	numeric (30)	Aggregated used Margin	M
FID_CURRENCY_ACCOUNT	alphanumeric (3)	Reserved for future use	0

2.2.36. MSG_TYPE_ORDER_SUBSCRIPTION

Direction: User application → HTX – Server

FID	type (max Length)	Description	Req'd
FID_SESSION_ID	numeric / hex (10)	ID for the session	M
FID_ZAEHLER	numeric / hex (10)	Counter (refer to communication progress)	M
FID_DEPOT	alphanumeric (18)	Depot number	M
FID_MODE	alphanumeric (1)	Either "S" (subscribe) or "U" (unsubscribe)	M

2.2.37. MSG_TYPE_ORDER_SUBSCRIPTION_RESPONSE

Direction: HTX – Server → User application

FID	type (max Length)	Description	Req'd
FID_SESSION_ID	numeric / hex (10)	ID for the session	M
FID_ZAEHLER	numeric / hex (10)	Counter (refer to comm. progress)	M
FID_ORDER_COUNT	numeric / hex (10)	Number of Orders	M
FID_ERRORCODE	numeric / hex (5)	Numeric return code (0 means okay, <> 0 refer to table "Return codes")	M
FID_ERRORTXT	alphanumeric (255)	Text field for return code.	M

2.2.38. MSG_TYPE_ORDER_UPDATE

Direction: HTX – Server → User application

After an initial message MSG_TYPE_ORDER_SUBSCRIPTION (FID_MODE=S), sent from the user application, the HTX Server will send one message MSG_TYPE_ORDER_UPDATE for any order as a order snapshot.

Subsequently the HTX Server will send further messages MSG_TYPE_ORDER_UPDATE unsolicited, whenever anything of at least one order has changed or a new order comes into existence. Updates will be sent until the HTX Server receives a message MSG_TYPE_ORDER_SUBSCRIPTION (FID_MODE=U).

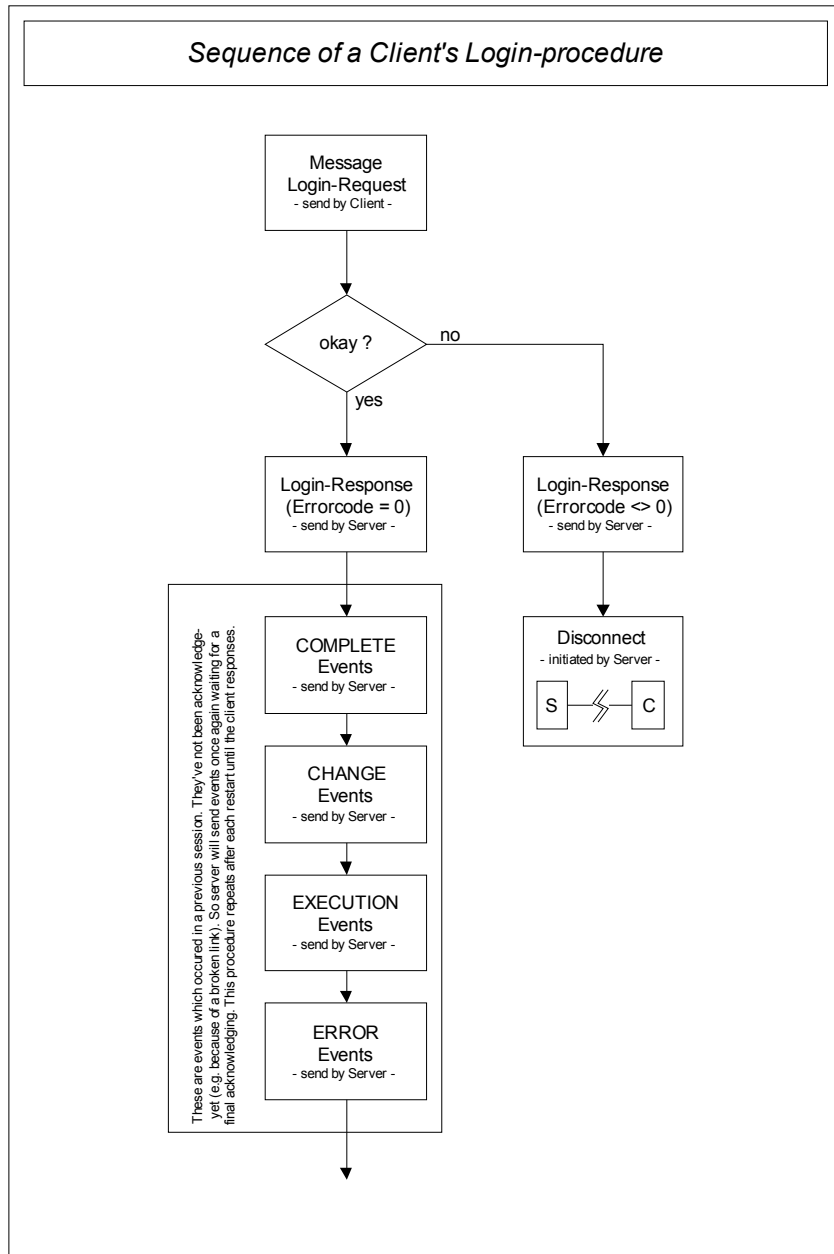
FID	type (max Length)	Description	Req'd
FID_SESSION_ID	numeric / hex (10)	ID for the session	M
FID_ZAEHLER	numeric / hex (10)	Counter (refer to communication progress)	M
FID_DEPOT	alphanumeric (18)	Depot number	M
FID_KUNDE	alphanumeric (18)	Customer	M
FID_ORDER_ID	numeric / hex (10)	Unique identifier for each order	M
FID_DWZ_ORDER_NO	alphanumeric (30)	Optional field for identification the order at the exchange	0
FID_ORDER_STATE	alphanumeric (30)	State of the order	M
FID_ISIN	alphanumeric (12)	The international share id	M
FID_BOERSENPLATZ	alphanumeric (3)	Stock exchange (for valid entries refer to table "Stock exchanges")	M
FID_GESCHAEFTSART	alphanumeric (1)	Type of order: Either "V" (sell) or "K" (buy)	M
FID_VOLUMEN	numeric (15)	Numbers of shares to buy or for sale	M
FID_EXE_VOLUMEN	numeric (15)	Currently executed shares.	0

FID	type (max Length)	Description	Req'd
FID_SCHNITTKURS	numeric (15)	Average price over all executions.	0
FID_REST_VOLUMEN	numeric (15)	Quantity of order which hasn't execute yet (open quantity).	M
FID_LIMIT	numeric (15)	Limit Price (0.0 means market order).	M
FID_STOP_LIMIT	numeric (15)	Stop Price	0
FID_LIMIT_ZUSATZ	alphanumeric (1)	Optional field for limitation: <ul style="list-style-type: none"> - "S" ... stop loss, stop buy - "I" ... Immediate or cancel (IOC) - "F" ... Fill or kill (FOK) - ... 	0
FID_KURSART	alphanumeric (2)	Optional (Execution at): <ul style="list-style-type: none"> - "EK" ... opening price - "SK" ... closing price - "KS" ... Kassa time (special intraday auction) - "VA" ... variable (Default) - ... 	0
FID_ORDER_TYPE	alphanumeric (1)	Optional field, stock exchange depended: <ul style="list-style-type: none"> - "P" ... Midpoint Order (XETRA only) - "O" ... OCO Order - ... 	0
FID_GUELTIGKEIT	alphanumeric (10)	Order validation date (valid until dd.mm.yyyy)	M
FID_QUOTE_ID	alphanumeric (35)	Unique Key from OTC-System Optional field, only filled for quote based OTC-Trading	0
FID_ORDER_DATETIME	alphanumeric (19)	Timestamp (TT.MM.YYYY hh:mm:ss)	M
FID_WKN	alphanumeric (6)	The German national share id	0
FID_BOERSEN_KUERZEL	alphanumeric (5)	Ticker symbol or EUREX-product	0

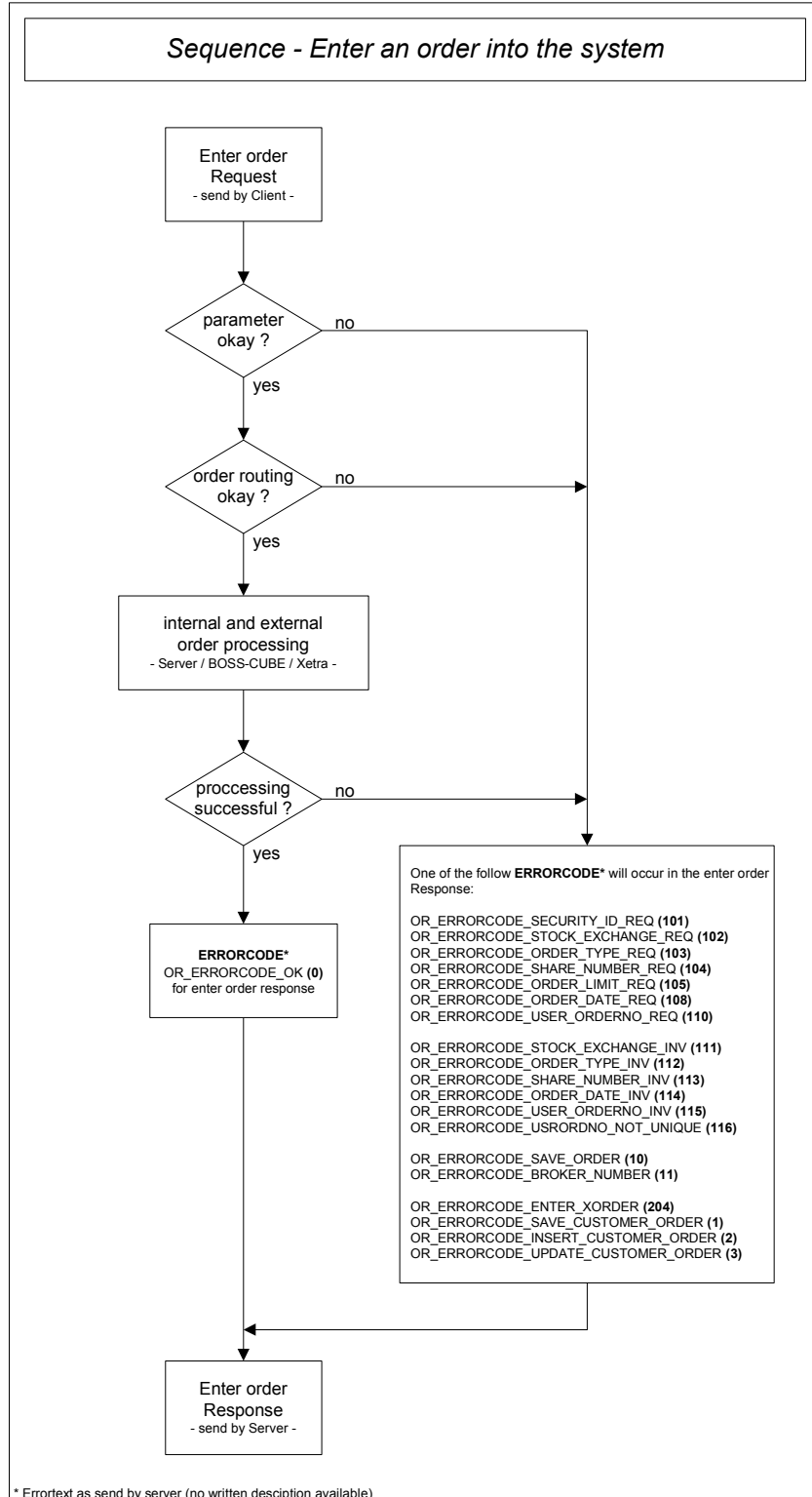
FID	type (max Length)	Description	Req'd
FID_SEC_SHORT_NAME	alphanumeric (30)	Shortname of share	0
FID_EXEC_DATETIME	alphanumeric (19)	Timestamp of execution (TT.MM.YYYY hh:mm:ss)	0

3. Sequences

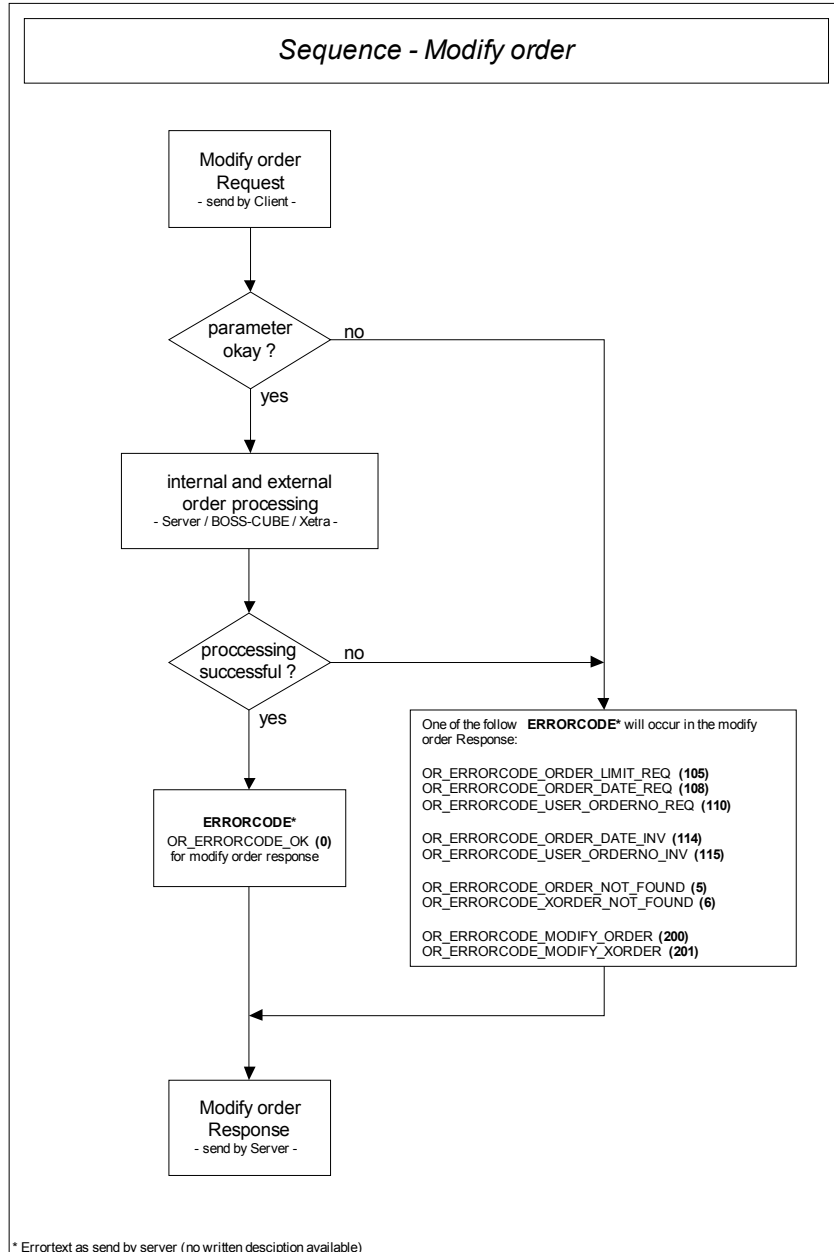
3.1. Login procedure



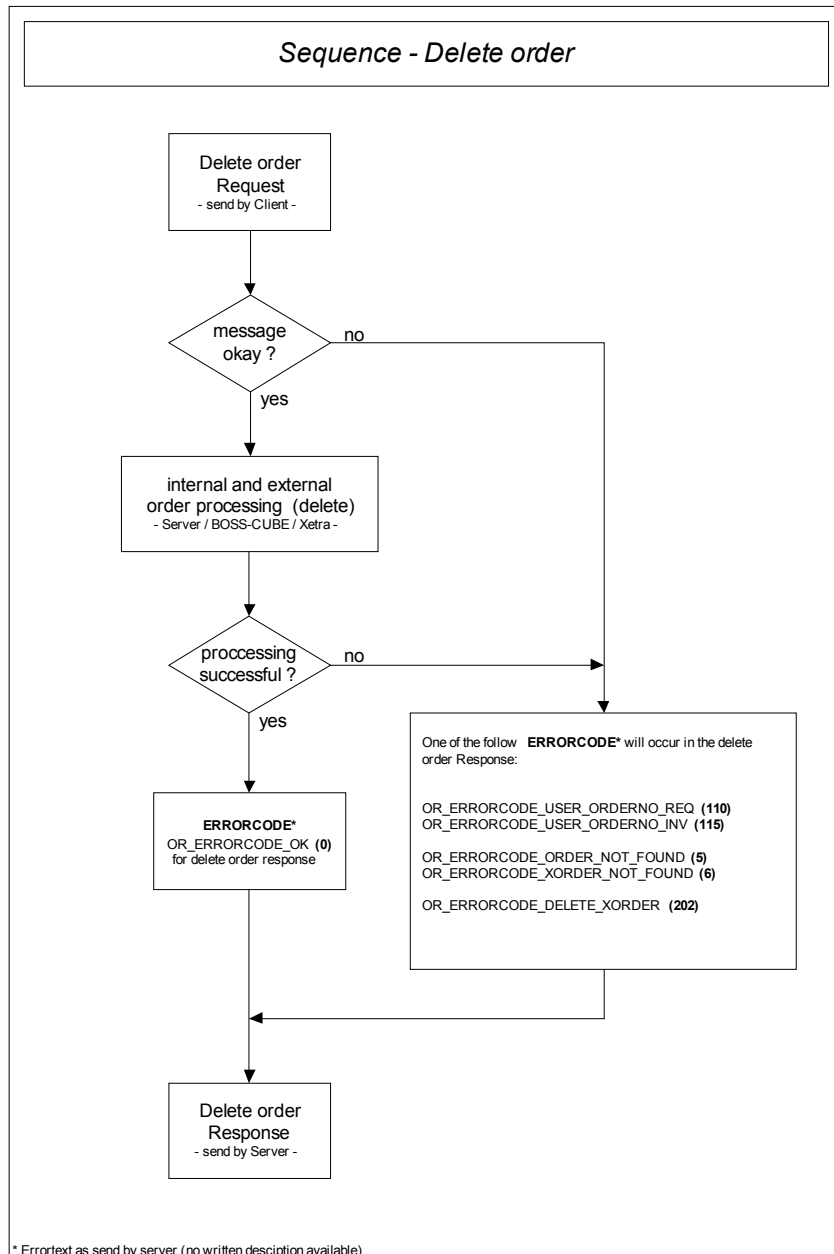
3.2. Enter order into system



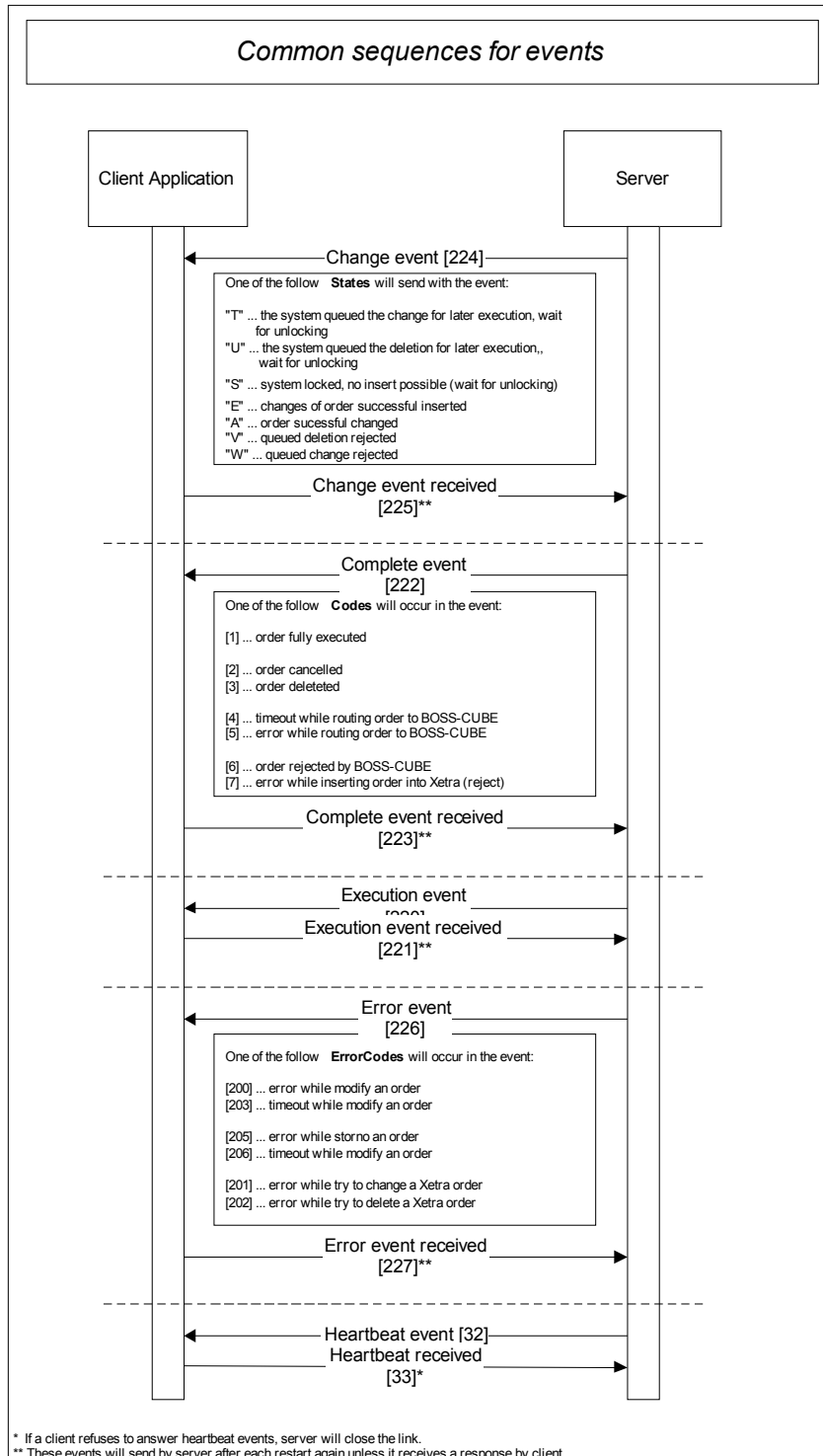
3.3. Modify an order



3.4. Delete an order



3.5. Common sequences for events and heartbeat



4. Appendix

4.1. Available FIDs

Name of FID	hex-decimal code
FID_SESSION_ID	00001
FID_ZAEHLER	00002
FID_USERNAME	00003
FID_PASSWORD	00004
FID_ERRORCODE	00005
FID_ERRORTXT	00006
FID_WKN	00010
FID_BOERSENPLATZ	00011
FID_GESCHAEFTSART	00012
FID_VOLUMEN	00013
FID_LIMIT	00014
FID_LIMIT_ZUSATZ	00015
FID_KURSART	00016
FID_GUETIGKEIT	00017
FID_USER_ORDER_NO	00019
FID_DWZ_ORDER_NO	0001A
FID_BI_ORDER_NO	0001B
FID_EXE_VOLUMEN	0001C
FID_KURS	0001D
FID_REST_VOLUMEN	0001E
FID_SCHNITTKURS	0001F
FID_ANZ_AUSFUEHRUNGEN	00020
FID_REASONCODE	00021
FID_REASONTEXT	00022
FID_ZEIT	00023
FID_CHANGE_NO	00024

Name of FID	hex-decimal code
FID_EXECUTION_NUMBER	00025
FID_ERROR_NO	00026
FID_CHANGE_STATE	00027
FID_STOCK_ERROR_CODE	00028
FID_STOCK_ERROR_TEXT	00029
FID_STOP_LIMIT	0002A
FID_ISIN	0002B
FID_MODIFY_NO	0002C
FID_DELETE_NO	0002D
FID_TRAN_DATETIME	0002E
FID_WAEHRUNG	0002F
FID_DEISENKURS	00030
FID_DEPOT	00031
FID_KUNDE	00033
FID_KURS_DATE	00037
FID_KURS_TIME	00038
FID_BID_PRICE	00039
FID_ASK_PRICE	0003A
FID_BID_SIZE	0003B
FID_ASK_SIZE	0003C
FID_ICEBERG_VISSIZE	0007C
FID_OR_ORDER_ID	00077
FID_BOERSEN_KUERZEL	00079
FID_MODE	0007D
FID_TICKER_SYMBOL	00087
FID_REF_EXTERN	00088
FID_OPEN_CLOSE	00089
FID_STATUS	00098
FID_TIMEOUT	00099

Name of FID	hex-decimal code
FID_QUOTE_REQUEST_ID	0009A
FID_QUOTE_ID	0009B
FID_QUOTE_TYPE	00103
FID_EINH_EFF_NOTIZ	00107
FID_PL_UNREALIZED	0010A
FID_PL_REALIZED	0010B
FID_ORDER_TYPE	0010C
FID_ORDER_VERSIONNO	0011A
FID_TS_TYPE	0012F
FID_TS_VALUE	00130
FID_TS_LIMIT_OFFSET	00131
FID_OCO_LIMIT	00132
FID_ORDER_COUNT	00153
FID_ORDER_ID	00154
FID_SEC_SHORT_NAME	00155
FID_ALGO_ID	00156
FID_USER_ORDER_NO_SEC	00157
FID_BI_ORDER_NO_SEC	00158
FID_OR_ORDER_ID_SEC	00159
FID_BOEGATEXT_SEC	0015A
FID_STOP_LIMIT_SEC	0015B
FID_FWD_OR_ORDER_ID	0015C
FID_FWD_BI_ORDER_NO	0015D
FID_ORDER_STATE	01006
FID_ORDER_DATETIME	10004
FID_EXEC_DATETIME	10008
FID_BUYING_POWER	10010
FID_AVIABLE_SHORT_SELLING_LIMIT	10011
FID_USED_SHORT_SELLING_LIMIT	10012

Name of FID	hex-decimal code
FID_AVIABLE_MARGIN	10013
FID_USED_MARGIN	10014
FID_CURRENCY_ACCOUNT	10015

4.2. Return-codes and Error-codes

Code-No.	Description
0	Successful completion
1	Save customers order failed (insert not successful)
2	Save customers order failed (DB-insert)
3	Save customers order failed (DB-update)
4	Save changes for customers order failed (DB-insert)
5	Order not found in database
6	Xetra-order not found in database
10	Save order failed (DB-insert)
11	No german broker number found
12	Order already completed
13	Order already canceled
14	Login failed
15	User does not have a HTX account
101	German national security id required
102	Stock exchange required
103	Type of order required
104	Number of shares required
105	Limitation of order required
108	Order validation date required
110	Unique order id (user-defined) required
111	Invalid stock exchange
112	Invalid type of order
113	Invalid number of shares
114	Invalid validation date
115	Invalid unique order id
116	Order id (user-defined) is not unique
117	Order datetime required

Code-No.	Description
118	Identification number required
119	Datetime of order modification required
120	Instructions required
121	Invalid datetime of order modification
122	Datetime of cancelation required
123	Invalid datetime of cancelation
124	Invalid or missing order parameter(s)
125	Invalid security
126	No price found
200	Host error during modify an order
201	Error while modifying order
202	Error while deleting order
203	Timeout while modifying order
204	Error while entering an order
205	Host error while trying to reject an order (storno)
206	Timeout while trying to reject an order (storno)
207	No need for modification
208	Missing required FID
209	Konto required
210	Dispo error
211	Cancel rejected by exchange
212	Modify rejected by exchange
216	depot already subscribed
217	depot not subscribed
218	subscription is not allowed
223	order type not supportet by exchange
500	invalid message structure
501	invalid message type (refer to errortext for details)
502	mandatory FID missing (refer to errortext for details)
503	incorrect FID value (refer to errortext for details)

Code-No.	Description
504	conditional FID missing (refer to errortext for details)
505	conditional FID not allowed (refer to errortext for details)
506	needless FID (refer to errortext for details)
507	Unknown requested currency account
	Unknown failure occurred

4.2.1. Disposition-Error-Codes for MSG_TYPE_ENTER_ORDER

Code-No.	Description
602	Disposition error. Order value exceeds buying power.
603	Disposition error. Order quantity exceeds depot quantity.
604	Disposition error. Insufficient risk class for this instrument.
605	Disposition error. No price information available for this instrument.
606	Disposition error. Unknown instrument.
607	Disposition error. Database error occurred.
608	Disposition error. Invalid routing destination.
609	Disposition error. Short selling limit exceeded.
610	Disposition error. Activities in short positions are currently prevented.
611	Disposition error. Short selling is locked currently.
612	Disposition error. Depot not found.
613	Disposition error. Shortselling not allowed for this instrument.
614	Disposition error. Prices of market orders cannot be used for best orders.
615	Disposition error. Maximum order amount exceeded.
616	Disposition error. Instrument not tradable.
617	Disposition error. EUREX: depot locked for trading
618	Disposition error. EUREX: trading OK
619	Disposition error. EUREX: trading stop limit overrun
620	Disposition error. EUREX: margin line overrun
621	Disposition error. EUREX: no open position for this close order
622	Disposition error. EUREX: disposition server not available
623	Disposition error. EUREX: disposition server timeout
624	Disposition error. Opposite order (crossing) not possible
625	Disposition error. Exchange blocked
626	Disposition error. Invalid price
627	Disposition error. Restricted instrument

4.2.2. Disposition-Error-Codes for MSG_TYPE_MODIFY_ORDER

Code-No.	Description
702	Disposition error. Order value exceeds buying power.
703	Disposition error. Order quantity exceeds depot quantity.
704	Disposition error. Order not found.
705	Disposition error. No price information available for this instrument.
706	Disposition error. Unknown instrument.
707	Disposition error. Short selling limit exceeded.
708	Disposition error. Activities in short positions are currently prevented.
709	Disposition error. Short selling is locked currently.
710	Disposition error. Depot not found.
711	Disposition error. Shortselling not allowed for this instrument.
712	Disposition error. Maximum order amount exceeded.
713	Disposition error. EUREX: depot locked for trading
714	Disposition error. EUREX: trading OK
715	Disposition error. EUREX: margin line overrun
716	Disposition error. EUREX: no open position for this close order
717	Disposition error. EUREX: disposition server not available
718	Disposition error. EUREX: disposition server timeout
719	Disposition error. Opposite order (crossing) not possible
720	Disposition error. Exchange blocked
721	Disposition error. Invalid price
722	Disposition error. Restricted instrument

4.2.3. Disposition-Error-Codes for MSG_TYPE_DELETE_ORDER

Code-No.	Description
752	Disposition error. Order not found.
753	Disposition error. Depot not found.
754	Disposition error. Short selling is locked currently.
755	Disposition error. EUREX: depot locked for trading
756	Disposition error. Exchange blocked

4.3. Completion-codes

Code-No.	Description
0	Successful completion (end of order)
1	Order completely executed
2	Order cancelled
3	Order deleted
4	Timeout while routing an order to BOSS-CUBE
5	Error while routing an order to BOSS-CUBE
6	Order rejected by BOSS-CUBE
7	Error while entering order

4.4. Stock exchanges

The following stock exchanges are provided:

Stock exchange	Short code
Börse Berlin	BER
Börse Düsseldorf	DUS
Börse Hamburg	HAM
Börse Hannover	HAN
Börse München	MUN
Börse Stuttgart	STU
Parkettbörse Frankfurt	FRA
Börse Frankfurt Zertifikate AG	XSC
XETRA Frankfurt	ETR
EUREX	EUR

The following OTC trading partners are available:

OTC Stock exchange	Short code
ABN AMRO	A01
DZ Bank AG	A05
LB-BW Landesbank Baden-Württemberg	A09
Merrill Lynch	A10
Raiffeisen Centrobank	A11
Sal. Oppenheim	A12
UBM UniCredit Banca Mobiliare	A13
UBS Investment Bank	A14
Bayerische Landesbank	A15
JPMorgan	A19
TRADEGATE AG Wertpapierhandelsbank	A30
Deutsche Bank AG	A40

OTC Stock exchange	Short code
Dresdner Bank AG	A52
HypoVereinsbank AG	A53
HSBC Trinkaus & Burkhardt	A54
Lang & Schwarz Wertpapierhandel AG	A55
Société Générale	A57
Citibank	A70
Goldman Sachs	A71
Landesbank Berlin AG	A72
Bank Vontobel	A81
Morgan Stanley	A86
Commerzbank	A90
BNP Paribas	A91

Other stock exchanges:

OTC Stock exchange	Short code
Wiener Börse	G01
Euronext Brüssel	G05
Euronext Paris	G06
Euronext Amsterdam	G07
Euronext Lissabon	G08
Chi-X (EUR)	G10
Chi-X (CHF)	G11
NASDAQ	G20
NASDAQ OBB	G21
NYSE	G22
AMEX	G23
Toronto Stock Exchange	G30
London Stock Exchange (GBP)	G40
London Stock Exchange (USD)	G41

OTC Stock exchange	Short code
London Stock Exchange (USD)	G42
Borsa Italiana Milan	G50
SIX Swiss Exchange AG	G60
SWX Europe	G61
Oslo Bors	G70
Copenhagen Stock Exchange	G71
Helsinki Stock Exchange	G72
Stockholm Stock Exchange	G73
Bosla de Madrid	G74
Irish Stock Exchange	G75
Johannesburg Stock Exchange	G80

4.5. Range of values

FID	messagetype	type	range
FID_USERNAME	MSG_TYPE_LOGIN	String	1-30
FID_PASSWORD	MSG_TYPE_LOGIN	String	1-30
FID_SESSION_ID	MSG_TYPE_HEARTBEAT_RESPONSE	Hex	1-10
FID_ZAEHLER	MSG_TYPE_HEARTBEAT_RESPONSE	Hex	1-10
FID_SESSION_ID	MSG_TYPE_ENTER_ORDER	Hex	1-10
FID_ZAEHLER	MSG_TYPE_ENTER_ORDER	Hex	1-10
FID_USER_ORDER_NO	MSG_TYPE_ENTER_ORDER	String	2-16
FID_DEPOT	MSG_TYPE_ENTER_ORDER	String	1-18 [0-9]
FID_WKN	MSG_TYPE_ENTER_ORDER	String	6-6 [A-Z 0-9]
FID_ISIN	MSG_TYPE_ENTER_ORDER	String	12-12 [A-Z 0-9]
FID_BOERSENPLATZ	MSG_TYPE_ENTER_ORDER	Values	BER DUS HAM HAN MUN STU FRA XSC ETR EUR A01 A05 A09 A10 A11 A12 A13 A14 A15 A19 A30 A40 A52 A53 A54 A55 A57 A70 A71 A72 A81 A86 A90 A91
FID_GESCHAEFTSART	MSG_TYPE_ENTER_ORDER	Values	K V
FID_VOLUMEN	MSG_TYPE_ENTER_ORDER	Float	1-15 [0.001- 999999999]
FID_LIMIT	MSG_TYPE_ENTER_ORDER	Float	1-15 [0.000- 999999999]
FID_LIMIT_ZUSATZ	MSG_TYPE_ENTER_ORDER	Values	S I F
FID_KURSART	MSG_TYPE_ENTER_ORDER	Values	ES SK KS VA
FID_ORDER_TYPE	MSG_TYPE_ENTER_ORDER	Values	P
FID_GUELTIGKEIT	MSG_TYPE_ENTER_ORDER	Date	dd.mm.yyyy
FID_STOP_LIMIT	MSG_TYPE_ENTER_ORDER	Float	1-15 [0.001- 999999999]
FID_OPEN_CLOSE	MSG_TYPE_ENTER_ORDER	Values	O C

FID	messagetype	type	range
FID_ICEBERG_VISSIZE	MSG_TYPE_ENTER_ORDER	Float	1-15 [0.001-999999999]
FID_QUOTE_ID	MSG_TYPE_ENTER_ORDER	String	1-35
FID_SESSION_ID	MSG_TYPE_QUOTE_REQUEST	Hex	1-10
FID_ZAEHLER	MSG_TYPE_QUOTE_REQUEST	Hex	1-10
FID_QUOTE_REQUEST_ID	MSG_TYPE_QUOTE_REQUEST	Hex	1-16
FID_BOERSENPLATZ	MSG_TYPE_QUOTE_REQUEST	Values	A01 A05 A09 A10 A11 A12 A13 A14 A15 A19 A30 A40 A52 A53 A54 A55 A57 A70 A71 A72 A81 A86 A90 A91
FID_GESCHAEFTSART	MSG_TYPE_QUOTE_REQUEST	Values	K V
FID_VOLUMEN	MSG_TYPE_QUOTE_REQUEST	Float	1-15 [0.001-999999999]
FID_ISIN	MSG_TYPE_QUOTE_REQUEST	String	12-12 [A-Z 0-9]
FID_SESSION_ID	MSG_TYPE_MODIFY_ORDER	Hex	1-10
FID_ZAEHLER	MSG_TYPE_MODIFY_ORDER	Hex	1-10
FID_USER_ORDER_NO	MSG_TYPE_MODIFY_ORDER	String	2-16
FID_LIMIT	MSG_TYPE_MODIFY_ORDER	Float	1-15 [0.000-999999999]
FID_GUELTIGKEIT	MSG_TYPE_MODIFY_ORDER	Date	dd.mm.yyyy
FID_ORDER_TYPE	MSG_TYPE_MODIFY_ORDER	Values	P
FID_STOP_LIMIT	MSG_TYPE_MODIFY_ORDER	Float	1-15 [0.001-999999999]
FID_ICEBERG_VISSIZE	MSG_TYPE_MODIFY_ORDER	Float	1-15 [0.001-999999999]
FID_VOLUMEN	MSG_TYPE_MODIFY_ORDER	Float	1-15 [0.001-999999999]
FID_DWZ_ORDER_NO	MSG_TYPE_MODIFY_ORDER	String	1-30
FID_ORDER_VERSIONNO	MSG_TYPE_MODIFY_ORDER	String	1-30
FID_SESSION_ID	MSG_TYPE_DELETE_ORDER	Hex	1-10

FID	messagetype	type	range
FID_ZAEHLER	MSG_TYPE_DELETE_ORDER	Hex	1-10
FID_USER_ORDER_NO	MSG_TYPE_DELETE_ORDER	String	2-16
FID_SESSION_ID	MSG_TYPE_ORDER_EXECUTION_EVENT_RESPONSE	Hex	1-10
FID_ZAEHLER	MSG_TYPE_ORDER_EXECUTION_EVENT_RESPONSE	Hex	1-10
FID_USER_ORDER_NO	MSG_TYPE_ORDER_EXECUTION_EVENT_RESPONSE	String	2-16
FID_EXECUTION_NUMBER	MSG_TYPE_ORDER_EXECUTION_EVENT_RESPONSE	Hex	1-10
FID_SESSION_ID	MSG_TYPE_ORDER_COMPLETE_EVENT_RESPONSE	Hex	1-10
FID_ZAEHLER	MSG_TYPE_ORDER_COMPLETE_EVENT_RESPONSE	Hex	1-10
FID_USER_ORDER_NO	MSG_TYPE_ORDER_COMPLETE_EVENT_RESPONSE	String	2-16
FID_SESSION_ID	MSG_TYPE_ORDER_CHANGE_EVENT_RESPONSE	Hex	1-10
FID_ZAEHLER	MSG_TYPE_ORDER_CHANGE_EVENT_RESPONSE	Hex	1-10
FID_USER_ORDER_NO	MSG_TYPE_ORDER_CHANGE_EVENT_RESPONSE	String	2-16
FID_CHANGE_NO	MSG_TYPE_ORDER_EXECUTION_EVENT_RESPONSE	Hex	1-10
FID_SESSION_ID	MSG_TYPE_ORDER_ERROR_EVENT_RESPONSE	Hex	1-10
FID_ZAEHLER	MSG_TYPE_ORDER_ERROR_EVENT_RESPONSE	Hex	1-10
FID_USER_ORDER_NO	MSG_TYPE_ORDER_ERROR_EVENT_RESPONSE	String	2-16
FID_ERROR_NO	MSG_TYPE_ORDER_ERROR_EVENT_RESPONSE	Hex	1-10

FID	messagetype	type	range
FID_SESSION_ID	MSG_TYPE_GET_ORDER	Hex	1-10
FID_ZAEHLER	MSG_TYPE_GET_ORDER	Hex	1-10
FID_USER_ORDER_NO	MSG_TYPE_GET_ORDER	String	2-16
FID_SESSION_ID	MSG_TYPE_ORDER_ERROR_EVENT_RESPONSE	Hex	1-10
FID_ZAEHLER	MSG_TYPE_ORDER_ERROR_EVENT_RESPONSE	Hex	1-10
FID_DEPOT	MSG_TYPE_PORTFOLIO_SUBSCRIPTION	String	1-18
FID_MODE	MSG_TYPE_PORTFOLIO_SUBSCRIPTION	Values	S U
FID_OCO_LIMIT	MSG_TYPE_ENTER_ORDER	Float	1-15 [0.000-999999999]
FID_BUYING_POWER	MSG_TYPE_TRADING_POWER_UPDATE	Float	1-30[-1E28 - 1E38]
FID_AVIABLE_SHORT_SELLING_LIMIT	MSG_TYPE_TRADING_POWER_UPDATE	Float	1-30[-1E28 - 1E38]
FID_USED_SHORT_SELLING_LIMIT	MSG_TYPE_TRADING_POWER_UPDATE	Float	1-30[-1E28 - 1E38]
FID_AVIABLE_MARGIN	MSG_TYPE_TRADING_POWER_UPDATE	Float	1-30[-1E28 - 1E38]
FID_USED_MARGIN	MSG_TYPE_TRADING_POWER_UPDATE	Float	1-30[-1E28 - 1E38]
FID_CURRENCY_ACCOUNT	MSG_TYPE_TRADING_POWER_SUBSCRIPTION	String	3-3 [A-Z]

4.6. Document History

Version	Date	Author	Comments
1.0	04/04/2006	Andreas Schreyer	initial version
1.1	23/05/2008	René Goldberg	Stock exchange "Schoach Frankfurt" added
1.2	21/07/2008	René Goldberg	OTC stock exchanges added Messages MSG_TYPE_QUOTE_REQUEST MSG_TYPE_QUOTE_RESPONSE MSG_TYPE_QUOTE_ACKNOWLEDGE MSG_TYPE_PORTFOLIO_SUBSCRIPTION MSG_TYPE_PORTFOLIO_UPDATE added Message MSG_TYPE_CLOSE_CONNECTION FID_ERRORCODE and FID_ERRORCODE added unused FIDs removed FID order optimized minor corrections
1.3	11/08/2008	Andreas Schreyer	FID_EXEC_NO = 0x00025 changed
1.4	11/08/2008	Andreas Schreyer	New FID-Definitions
1.5	16/09/2008	René Goldberg	Message MSG_TYPE_QUOTE_ACKNOWLEDGE removed Message MSG_TYPE_*_EVENT_RECEIVED renamed to MSG_TYPE_*_EVENT_RESPONSE MSG_TYPE_ORDER_CHANGED_EVENT renamed to MSG_TYPE_ORDER_CHANGE_EVENT MSG_TYPE_ORDER_CHANGED_EVENT _RESPONSE renamed to MSG_TYPE_ORDER_CHANGE_EVENT _RESPONSE Error codes added 500-504
1.6	22/09/2008	René Goldberg	Message MSG_TYPE_PORTFOLIO_SUBSCRIPTION_RESPONSE added Error codes added 216-218, 505-506 FID FID_ORDER_TYPE added in MSG_TYPE_ENTER_ORDER and MSG_TYPE_MODIFY_ORDER

Version	Date	Author	Comments
1.7	07/10/2008	René Goldberg	FID_EXEC_NO changed to FID_EXECUTION_NUMBER FID_FID_INTERNAL_QUOTE_ID changed to FID_QUOTE_REQUEST_ID FID_FID_VOLUMEN added in MSG_TYPE_ORDER_CHANGE_EVENT FID_STATUS removed from MSG_TYPE_QUOTE_RESPONSE FID_ERROR_CODE and FID_ERROR_TEXT removed from MSG_TYPE_PORTFOLIO_UPDATE some comments added
1.8	15/12/2008	Andreas Schreyer	New error codes for order disposition
1.9	12/01/2009	Andreas Schreyer	Range of values added
2.0	11/03/2009	Andreas Schreyer	FID_DWZ_ORDER_NO deleted FID_ICEBERG_VISSIZE added in MSG_TYPE_GET_ORDER_RESPONSE added EUREX as valid stock exchange
2.1	30/03/2009	René Goldberg	Error text in MSG_TYPE_CLOSE_CONNECTION extended
2.2	28/05/2009	Andreas Schreyer	New FIDs in MSG_TYPE_GET_ORDER_RESPONSE
2.3	30/10/2009	Andreas Schreyer	MSG_TYPE_EXECUTION_EVENT changed
2.5	03/03/2010	Andreas Schreyer	New optional FIDs: <ul style="list-style-type: none"> ● FID_DWZ_ORDER_ID ● FID_ORDER_VERSIONNO
2.6	22/07/2010	Dag Lohse	MSG_TYPE_ENTER_ORDER: <ul style="list-style-type: none"> ● New FID FID_OCO_LIMIT ● New OrderType 0 (OCO)
2.7	12.07.2012	René Goldberg	New Value "R" (order restated) for FID_CHANGE_STATE in MSG_TYPE_ORDER_CHANGE_EVENT
2.8	03.09.2012	Andreas Schreyer	Changes in MSG_TYPE_GET_ORDER_RESPONSE
2.9	17.06.2013	Andreas Schreyer	New Messages: MSG_TYPE_ORDER_SUBSCRIPTION MSG_TYPE_ORDER_SUBSCRIPTION_RESPONSE MSG_TYPE_ORDER_UPDATE
3.0	30.09.2013	René Goldberg	New FID FID_ALGO_ID in Messages: MSG_TYPE_ENTER_ORDER MSG_TYPE_MODIFY_ORDER MSG_TYPE_DELETE_ORDER
3.1	17.10.2013	René Goldberg	FID_FID_ALGO_ID definition modified

Version	Date	Author	Comments
3.2	10.12.2013	Andreas Schreyer	Changes: MSG_TYPE_CHANGE_EVENT New Messages: MSG_TYPE_ENTER_OCO_ORDER MSG_TYPE_ENTER_OCO_ORDER_RESPONSE
3.3	22.01.2014	Andreas Schreyer	New Messages: MSG_TYPE_MODIFY_OCO_ORDER MSG_TYPE_MODIFY_OCO_ORDER_RESPONSE
3.4	18.02.2014	René Goldberg	Changes: MSG_TYPE_MODIFY_OCO_ORDER
3.5	26.06.2015	Daniel Clauß	Changes: MSG_TYPE_MODIFY_ORDER
3.6	01.07.2015	Daniel Clauß	New Messages: MSG_TYPE_TRADING_POWER_SUBSCRIPTION MSG_TYPE_TRADING_POWER_SUBSCRIPTION_RESPONSE MSG_TYPE_TRADING_POWER_UPDATE