

# **PROTOCOL SPECIFICATION**

## **PRIME PUMP INTERFACE**

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## 1. General

The standard data link is based on a controller / pump relationship, where the controller polls the pumps. If the controller wants to send data to a pump, it sends a block with data instead of a poll. If the controller wants to send data it answers with data on a poll. Half duplex is used. The protocol is code transparent and byte oriented. The protocol shall provide for variable length messages.

## 2. Data format

Asynchronous communication

9600 baud

1 start bit, 8 data bits, 1 parity bit (EVEN), 1 stop bit

## 3. Reliable Data Transfer

It must provide for reliable data transfer. Error checking to be implemented by LRC. Parity checking is required on each byte.

## 4. Operational Specifics

It shall operate half-duplex and transmit data in asynchronous start-stop format.

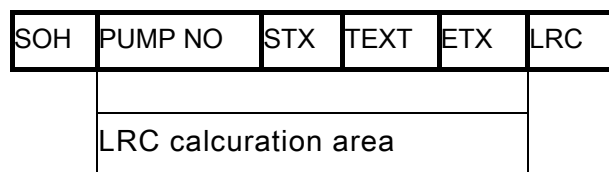
## 5. Communication specification

- Buffer size is application dependent. However, maximum is 256bytes including control characters.
- The Pump respond to a poll or data within 30ms,  
i.e. transmit the first character after a complete poll or data.
- RS 422

## 6. Control Charaters in the Protocol

NO	CODE	CODE NO.	COMMENT
1.	SOH	01 H	Start of head
2.	STX	02 H	Start of text
3.	ETX	03 H	End of text
4.	EOT	04 H	End of transmit
5.	ENQ	05 H	Enquiry
6.	ACK	06 H	Acknowledge
7.	NAK	15 H	No Acknowledge
8.	EOB	17 H	End of block
9.	FS	1C H	Field Seperator

## 7. Data Format



\* Pump No : 2 digit ASCII (01~99)

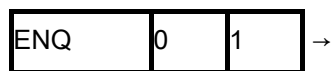
## 8. Command

NO	COMMAND	COMMENT	
1.	ENQ	Polling	Controller → Pump
2.	AQ	Request Authorize	Pump → Controller
3.	AP	Authorize	Controller → Pump
4.	PP	Filling	Pump → Controller
5.	LK	Filling completed	Pump → Controller
6.	TQ	Request data of filling completed	Controller → Pump
7.	TR	Anser of TQ	Pump → Controller
8.	ST	Preset Volume or Amount	Controller → Pump
9.	PC	Price Change	Controller ↔ Pump
10.	CQ	Request Volume totalization	Controller → Pump
11.	CT	Anser of CQ	Pump → Controller

#### 8-1. AQ, AP

(Controller)

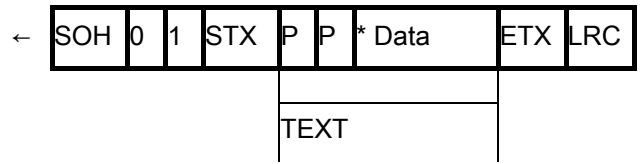
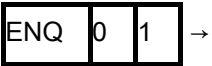
(Pump)



#### 8-2 PP

(Controller)

(Pump)

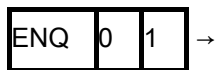


\* Data : 14 Byte (Volume 7 Byte, Amount 7 Byte)

8-3. LK

(Controller)

(Pump)

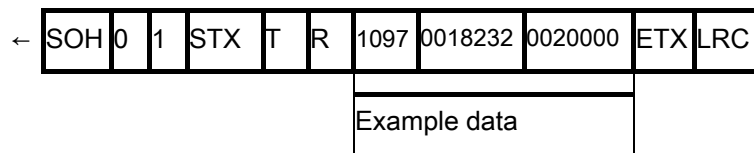


8-4. TQ, TR

(Controller)

(Pump)





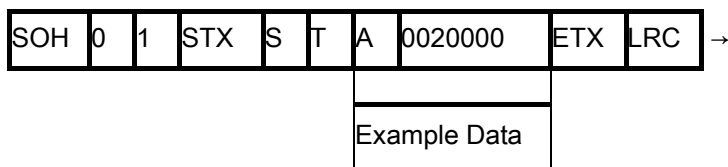
\* Example Data : Unit price, 4 Byte 1097  
 Volume, 7 Byte 0018232 (18.232 Liter)  
 Amount, 7 Byte 0020000

#### 8-5. ST

- Example : Preset Amount 20,000

(Controller)

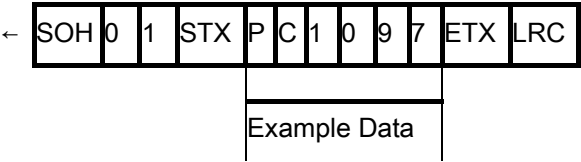
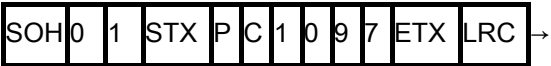
(Pump)



\* Example data : A = Preset Amount 7 Byte (Volume or Amount)  
 Q = Preset Volume 7 Byte

8-6. PC

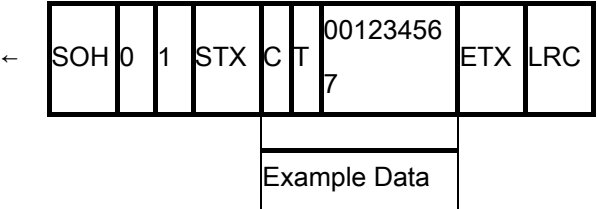
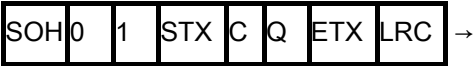
(Controller) (Pump)



\* Example Data : 4 Byte (Unit price)

8-7. CQ, CT

(Controller) (Pump)



\* Example Data : 9 Byte (Including 3 decimal point) 1234.567 Liter