3. QS-Track TCP/IP –PLC Interface Structure

Default-TCP-Port between PLC and Software: 3100

3.1. Data Request Commands from PLC to Software:

After connection between PLC and Software the PLC should send (PLC has to be programmed accordingly) this inquiry:

"Get Custom Values" |G|V|C|CR| = `47:56:43:0d`   //Hex

G = Get = 47 //Hex
V = Values = 56 //Hex
C = Custom = 43 //Hex, selected values set in settings.ini below [Results over Ethernet]
CR = Carriage Return = 0x0D //Hex

3.2. QS-Track answer to PLC, Return String:

|Header |Length|Result Value 00 |Result Value 01 |Status |

Only results which have been set in the QS-Track settings and stored in the settings.ini file with =1 under the section [Results over Ethernet] will be transmitted as Active

[Results over Ethernet]
V00: Center=1
V01: Distance=1
V02: L-Distance=0
V03: R-Distance=0
V04: Z-Offset=0
V05: Width=1
V06: Slope=0
V07: L-Angle=0
V08: R-Angle=0
V10: Seam_Height=0
V20: Encoder=0
V62: Temperature=0
V31: Setpoint_X=0
V44: Setpoint_Z=0
V30: Hysteresis=0
V32: Min_Height=0
V46: Width_Setpoint=0
V47: Width_Tolerance=0
V33: Angle_Setpoint=0
V15: Profile_Intensity=0

CR = Carriage Return = 0x0D

3.3. Example answer

|0xFF|0xFE|xx|yy|V|0|0|A|>|+|0|0|1|.|2|3|CR|V|0|1|A|>|-|0|0|1|.|2|3|CR|V|0|5|A|>|-|0|0|1|.|1|2|CR V|0|6|I|>|-|0|0|5|.|0|0| C|0|0|0|0|0|M|0|0|CR|

// 76 bytes max. length. Once defined, the length should be kept constant in PLC

The length starts after 0xFF and 0xFE bytes.
xx Length of Return-String lo-Byte // set by system
yy Length of Return-String hi-Byte // set by system

3.4. Returned results

V00A>+001.23 +CR
// Value 00 (Tracking Point X) Active result   +1.23 mm, A = active result (value measured), > delimiter sign)

V06I>-005.00 +CR
// Value 06 (Slope) In-Active result -5.00 mm, I = Inactive (value will not be measured), if values are not used in changed settings to a specific program.

3.5. Status

C|0|0|0|0|0|M|0|0|CR|

C00000M00 +CR // Dec. 5 bytes decimal value, shows status of scanner

// Binary 2 Bytes = 16 bits = 00000000 00000000 converted to decimal value

Bit 0 (1) -> Scanner OK
Bit 1 (2) -> Scanner connected
Bit 2 (4) -> Profile
Bit 3 (8) -> Recognition OK
Bit 4 (16) -> Intensity > 25%
Bit 5 (32) -> Intensity > 50%
Bit 6 (64) -> Intensity > 75%
Bit 7 (128) -> Heartbeat
Bit 8 (256) -> Position too right
Bit 9 (512) -> Position OK
Bit 10 (1024) -> Position too left
Bit 11 (2048) -> FIFO load, performance problems
Bit 12 (4096) -> Recording
Bit 13 (8192) -> reserved
Bit 14(16384) -> Position Centered
Bit 15(32768) -> reserved

3.6. Selected Measurement Program

C00000**M00** +CR // values after M define selected measurement program

M03: center of gap
M08: left edge
M09: right edge
M06: flat gap
M10: bottom of gap