

1.1 Loading

1.1.1 MQTT messages

Name	P/S	Topic	Payload	QoS	Lvl	Description
ReadyToNewMat	Publish	/loading/ReadyToNewMat	String “ready”	0	3	Sends the messages if it is ready for the new material part. (interval 0.5 s)
MatLoaded	Publish	/loading/MatLoaded	String {MAT_ID}	0	3	Is send when a material is placed on the Roller Table and the RFID reader reads it. Contains the id of the material.
MatPosition	Publish	/loading/MatPosition	String {MAT_ID} {MAT_POS}	0	3	Sends position of the material all the time when it is on the table.
MatLoadingInfo	Publish	/rolling/ MatLoadingInfo	String {MAT_ID}	0	2	Sends id if material is ready to roll.
MatDropped	Publish	/loading/ MatDropped	String {MAT_ID}	0	3	Msg after dropping.
MatProcess	Subscribe	/loading/MatProcess	String {MAT_ID} F or {MAT_ID} D	1	3	Waits for a message with the command from the server. There are two commands. “Forwarding” or “Dropping “.
MatReadyToRoll	Subscribe	/loading/MatReadyToRoll	String {MAT_ID}	0	2	Waits for the message from the rolling table (1.2) that it is ready.

1.2 Rolling

1.2.1 MQTT messages

Name	P/S	Topic	Payload	QoS	Lvl	Description
MatReadyToRoll	Publish	/loading/MatReadyToRoll	String {MAT_ID}	0	2	Sends the messages if it is ready for the new material part.
MatPosition	Publish	/rolling /MatPosition	String {MAT_ID} { MAT_POS}	0	3	Sends position of the material all the time when it is on the table.
RollQuery	Publish	/rolling / RollQuary	String {MAT_ID}	0	3	Sends id of material (before rolling).
MatRollInfo	Publish	/quality / MatRollInfo	String {MAT_ID}	0	2	Sends id if material is ready to quality check.
MatAfterRoll	Publish	rolling/ MatAfterRoll	String {MAT_ID}	0	3	Msg after roll
RollThickness	Subscribe	/rolling/ RollThickness	String {MAT_ID} { MAT_THKN SS}	1	3	After RollQuery server sends info about thickness of the material. Then it can be rolled in some mode of the roller table.
MatLoadingInfo	Subscribe	/rolling/ MatLoadingInfo	String {MAT_ID}	0	2	Waits for the message with information about id. (from Loading Table) Then motor is started and transport material to the “Roll”.
MatReadyToQCheck	Subscribe	/rolling/ MatReadyToQCheck	String {MAT_ID}	0	2	Waits for the message from the quality table (1.3) that it is ready.

1.3 Quality

1.3.1 MQTT messages

Name	P/S	Topic	Payload	QoS	Lvl	Description
MatReadyToQCheck	Publish	/rolling/MatReadyToQCheck	String {MAT_ID}	0	2	Sends the messages if it is ready for the new material part.
MatPosition	Publish	/quality/MatPosition	String {MAT_ID} {MAT_POS}	0	3	Sends position of the material all the time when it is on the table.
MatReadyToQCheck	Publish	/ quality / MatReadyToQCheck	String {MAT_ID}	0	2/3	Sends the message to server (colour sensor) when the material is in the “quality check place”.
MatQualityInfo	Publish	/unloading/MatQualityInfo	String {MAT_ID}	0	2	Sends id if material is ready to unloading.
MatRollInfo	Subscribe	/quality/ MatRollInfo	String {MAT_ID}	0	2	Waits for the message with information about id. (from Rolling Table) Then motor is started and transport material to the colour sensor.
MatCheck	Subscribe	/quality/ MatCheck	String {MAT_ID} {RS LT}	0	2/3	Waits for server callback with result of qcheck. After the signal the material will be moved to the end of the quality table.
MatReadyToUnloading	Subscribe	/quality/MatReadyToUnloading	String {MAT_ID}	0	2	Waits for the message from the unloading table (1.4) that it is ready.
MatMove	Subscribe	/quality/MatMove	String {MAT_ID}	0	2	Waits for the message from the colour sensor (if it is connected) and then move material forward and back to detect a defect.

1.3.2 Colour Sensor

Name	P/S	Topic	Payload	QoS	Lvl	Description
MatCheck	Publish	/colourSensor/MatCheck	String {MAT_ID}	0	3	Sends byte arr. Size=400 First 8 byte is id of mat (ascii) Then r,g,b [0,255] If it is not enough time for colour sensor to fill all arr, it fills automatically with 0.
MatMove	Publish	/quality/MatMove	String {MAT_ID} s {MAT_ID} e	0	2	Sends msg to the quality table that the material should be moved. (to detect little defects) at first <u>s</u> (start pos) And then <u>e</u> (end pos)
MatReadyToQCheck	Subscribe	/colourSensor/MatReadyToQCheck	String {MAT_ID}	0	3	Waits for the message from the server then start communication with quality table.
StartAutoQCheck	Subscribe	/colourSensor/StartAutoQCheck	String {MAT_ID}	0	2	Waits for the msg from quality table and only then colour sensor works.
MatEndQCheck	Subscribe	/colourSensor/MatEndQCheck	String {MAT_ID}	0	2	Waits for the message from the quality table that the moving of material is finished, then colour sensor stops.

Unloading

1.3.3 MQTT messages

Name	P/S	Topic	Payload	QoS	Lvl	Description
MatReadyToUnloading	Publish	/quality/ MatReadyToUnloading	String {MAT_ID}	0	2	Sends the messages if it is ready for the new material part.
MatPosition	Publish	/unloading/MatPosition	String {MAT_ID} { MAT_POS}	0	3	Sends position of the material all the time when it is on the table.
MatFinal	Publish	/unloading/ MatFinal	String {MAT_ID}	0	3	Sends when the material is finally handled and transported.
MatQuery	Publish	/unloading/ MatQuery	String {MAT_ID}	0	3	Sends id of material (before rolling).
MatDrop	Subscribe	/unloading/MatDrop	String {MAT_ID} 1 or {MAT_ID} 0	1	3	Waits for the message (after MatQuery) from the server with information about quality test. If it is ok, then continue rolling. If not, it will be turned out.
MatQualityInfo	Subscribe	/unloading/MatQualityInfo	String {MAT_ID}	0	2	Waits for the message with information about id. (from Quality Table) Then motor is started and transport material to the “Turn out”.