



# SILO TEMPERATURE MONITORING SYSTEMS



**STORE  
YOUR GRAIN  
SAFELY**



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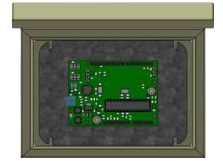
It is necessary to measure, monitor and control the temperature in silos to know situation of grain. If there are warm regions, it is very important to detect this issue before the grain spoils.

The system we have developed in line with the needs of silo manufacturers and silo owners offers professional solutions.

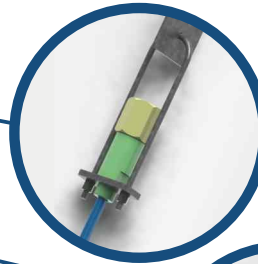
In small silos we can provide an economical solution with our thermocouple sensor cables and handheld thermometer. In large silo installations, we can provide professional solutions by transferring temperature data from our products equipped with digital temperature sensors to PC or PLC via RS-485 line.



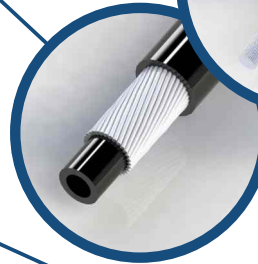
RTU



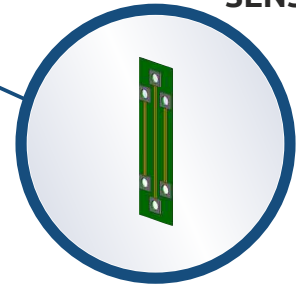
SUSPENSION  
EQUIPMENT



CABLE  
COVER



SENSOR





## STRUCTURE OF HERS TEMPERATURE MONITORING SYSTEMS

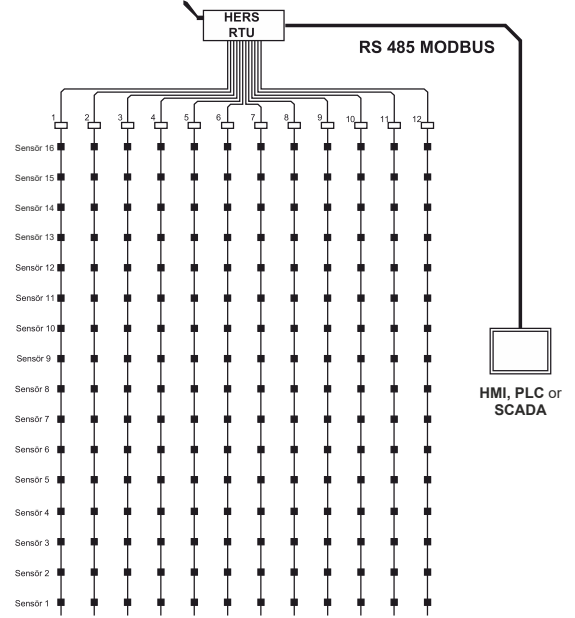
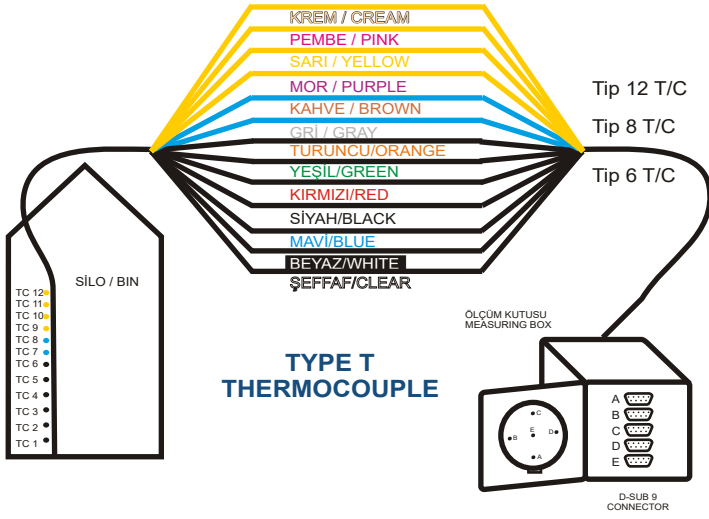
### SENSOR TYPES

#### \* Analog Thermocouple Sensor

Each cable contains 6, 8, or 12 sensors.

#### \* Digital Sensor

Up to 16 sensors can be connected to a cable.



### CABLE COVER TYPES

\* PE tube with double steel wire rope



\* PE coated steel wire armoured tube (Ø=14mm)

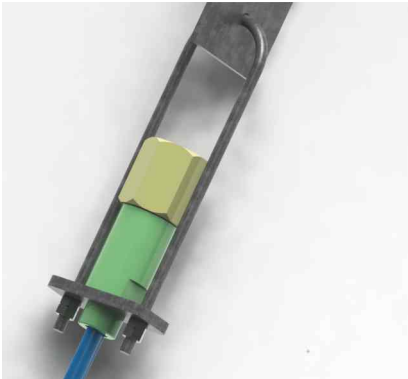


\* PE coated steel wire armoured tube (Ø=19mm)

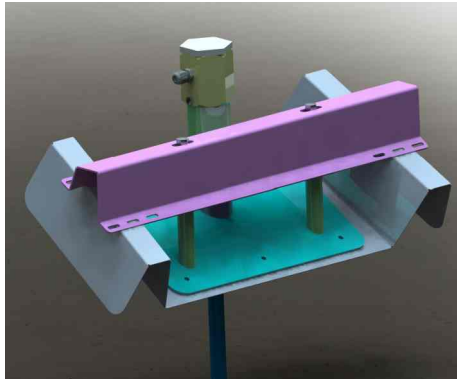


### SUSPENSION TYPES

\* Inside suspension mounting kit



\* Outside suspension mounting kit



\* Suspension mounting kit for moving cable (for horizontal silo applications)



### MONITORING TYPES

#### \* HERS V-D1H :

##### STANDARD FEATURES

###### - Temperatures

*Shows sensor values inside of silo.*

###### - Outside Temperature

*Shows outside temperature.*



HERS MTM-12

#### HERS MTM-12 :

*It was designed to measure temperature of silos equipped with thermocouple sensors.*

#### HERS MTM-D14 :

*It was designed to measure temperature of silos equipped with digital sensors.*



HERS MTM-D14

#### \* HERS V-D1P :

##### STANDARD FEATURES

###### - Temperatures

*Shows sensor values inside of silo.*

###### - Outside Temperature

*Shows outside temperature.*

###### - Outside Humidity

*Shows outside humidity.*

###### - Central Monitoring

*All of the sensors are monitored from one point.*

###### - Alarms

*Gives visual warning according to limit temperature value. In this way, warm region can be detected easily. Also communication errors are monitored.*

###### - HMI

*7" or 4.3" touch-screen color display according to silo size.*

Outdoor °C  
Temperature

22.4

Outdoor  
Humidity %RH

43.8

HL 35.0 °C  
LL 20.0 °C

BACK

R1

R2

R3

R4

R5

R6

R7

R8

R9

TC12

27.0

27.0

27.0

27.0

27.0

27.0

27.0

27.0

27.0

TC11

26.8

26.8

26.8

26.8

26.8

26.8

26.8

26.8

26.8

TC10

26.7

26.7

26.7

26.7

26.7

26.7

26.7

26.7

26.7

TC9

26.3

26.3

26.3

26.3

26.3

26.3

26.3

26.3

26.3

TC8

26.3

39.2

24.0

24.0

24.0

24.0

24.0

24.0

24.0

TC7

24.0

24.0

24.0

24.0

24.0

24.0

24.0

24.0

24.0

TC6

24.1

24.1

24.1

24.1

24.1

24.1

24.1

24.1

24.1

TC5

22.0

22.0

22.0

22.0

22.0

22.0

22.0

22.0

22.0

TC4

22.3

22.3

22.3

22.3

22.3

22.3

22.3

22.3

22.3

TC3

20.8

20.8

20.8

20.8

20.8

20.8

20.8

20.8

20.8

TC2

20.1

20.1

20.1

20.1

20.1

20.1

20.1

20.1

20.1

TC1

22.0

22.0

22.0

22.0

22.0

18.9

22.3

22.3

22.3

SILO: 1

+

-

RTU-1 ok

RTU-2 ok

RTU-3 ok

RTU-4 ok

NEXT

##### OPTIONAL FEATURES

###### - Aeration

*Fans run automatically, if silo has warm sensor.*

###### - Level Control (Automatic)

*Level is monitored with radar sensor automatically.*

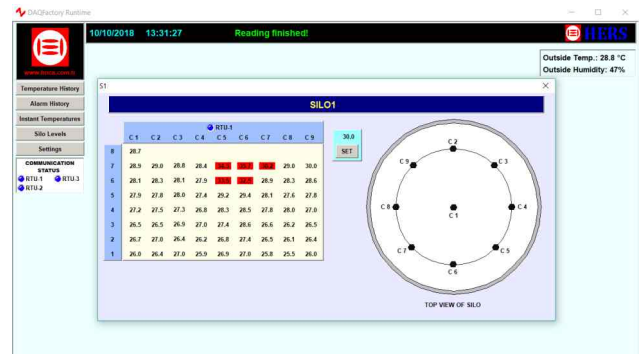
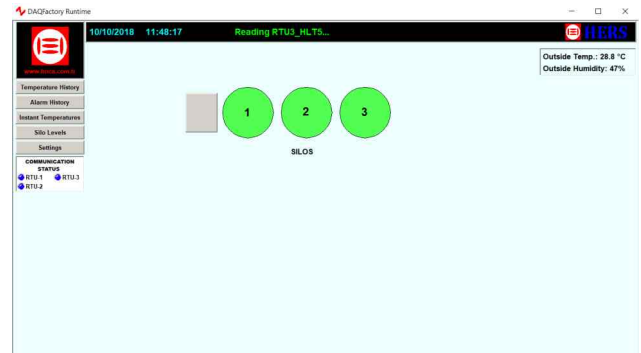
## \* HERS V-D1S :

### STANDARD FEATURES

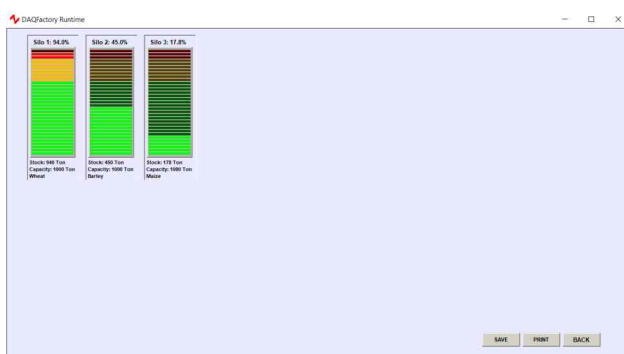
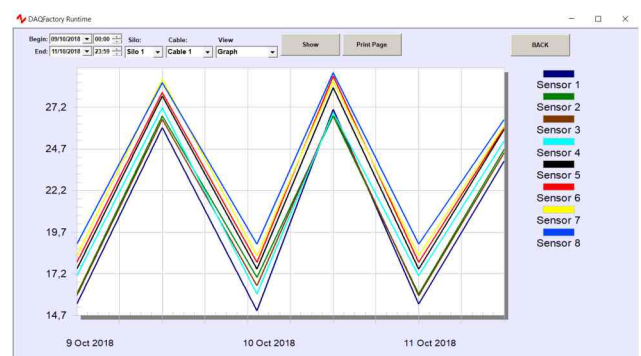
- **Temperatures**  
Shows sensor values inside of silo.
- **Outside Temperature**  
Shows outside temperature.
- **Outside Humidity**  
Shows outside humidity.
- **Central Monitoring**  
All of the sensors are monitored from one point.
- **Alarms**  
Gives visual warning according to limit temperature value. In this way, warm region can be detected easily. Also communication errors are monitored.
- **PC**  
Provides monitoring with SCADA software.
- **Storage Plant View**  
Shows silo situations on main screen. Warm silos can be detected easily.
- **Temperature History**  
Records temperatures in adjusted times.
- **Level Control (manual)**  
Level is monitored according to entered data such as stock, capacity, crop.
- **Database**  
Temperature history is stored in database.  
Temperature changes are monitored in table or graph according to entered date range.

### OPTIONAL FEATURES

- **Aeration**  
Fans run automatically, if silo has warm sensor.
- **Level Control (automatic)**  
Level is monitored with radar sensor automatically.



Date	Time	Sensor 1	Sensor 2	Sensor 3	Sensor 4	Sensor 5	Sensor 6	Sensor 7	Sensor 8	Outside Temperature	Outside Humidity
10/10/2018	11:57:00	24.8	24.7	24.5	25.2	25.5	26.5	26.1	26.5	28.8	47.4
10/10/2018	11:55:00	15.4	16.8	16.9	17.5	17.5	18.3	19.0	20.0	28.8	47.4
10/10/2018	11:53:00	27.1	26.7	26.9	26.9	26.4	26.1	26.4	26.3	28.8	47.4
10/10/2018	11:51:13	15.0	17.0	16.5	16.8	17.5	17.5	18.3	19.0	28.8	47.4
10/10/2018	11:48:00	26.8	26.7	26.5	27.2	27.5	28.1	28.5	28.7	28.8	47.4
10/10/2018	11:47:00	15.4	16.8	16.9	17.1	17.5	17.5	18.3	19.0	28.8	47.4



Silo	Cable	Sens1	Sens2	Sens3	Sens4	Sens5	Sens6	Sens7	Sens8
Silo1	Cable1	24.0	24.7	24.5	25.2	25.5	26.0	26.1	26.5
Silo1	Cable2	26.4	27.0	26.5	27.5	27.8	28.3	29.0	
Silo1	Cable3	27.0	26.4	26.9	27.3	28.0	28.1	28.8	
Silo1	Cable4	25.9	26.2	27.0	26.8	27.4	27.9	28.4	
Silo1	Cable5	26.9	26.8	27.4	28.3	29.2	33.5	34.3	
Silo1	Cable6	27.0	27.4	28.6	28.5	29.4	32.5	35.7	
Silo1	Cable7	25.8	26.5	26.6	27.8	28.1	28.9	29.3	
Silo1	Cable8	25.5	26.1	26.2	28.0	27.6	28.3	29.0	
Silo1	Cable9	26.0	26.4	26.5	27.0	27.8	28.6	30.0	







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 **HOCA ELEKTRİK**  
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