masibus
A Sonepar Company

HT7S11S
Humidity and Temperature Transmitter

SPECIFICATION

INPUT

Input Type	Humidity	Temperature
Integral	YES	YES
Measurement Range	0-100%RH	0 to 60 °C / 32 to 140 °F 273 to 333 K
Accuracy @ 25°C	±2% (0 to 90% RH) ±3% (90 to 100% RH)	±0.4°C
Accuracy over Temperature 0-60°C	±2.5% (0 to 90% RH) ±3.5% (90 to 100% RH)	±0.6°C
Repeatability	0.25%	0.24ºC
Hysteresis	0.80%	X
Resolution	0.1%	0.1ºC
Response Time	12 Sec. typically	
Long-term Drift	≤0.25 %RH/Year	≤0.03°C/year

DISPLAY & KEYS (Optional)

Process Value	2 x 4 digit,7 - segment 0.39" LCD
Keys	Push Button: ENT, ESC, INC for Configuration and Calibration (Not available in Ex-Proof Model)

OUTPUT (for Loop Power Model)

No. of Output	2 (Isolated from each other)
Signal	4-20mA (direct or reverse user configurable)
Accuracy	±0.1% of FS
Temperature co-efficient	≤100 ppm
Load	Rload = ((Loop Supply Voltage – 10) / 0.021) Ohm
Sensor Break Output	≤3.6 or ≥21mA programmable

COMMUNICATION

Model	Loop Powered	Aux. Powered
Interface	TTL	RS-485
Protocol	Modbus RTU	
Baud Rate	4800, 9600, 19200 bps	

POWER SUPPLY

Loop Powered Model	10 to 36VDC with Reverse Polarity Protection
Aux Powered Model	18 to 36 VDC with Reverse Polarity Protection. <0.5W Power Consumption

ISOLATION

Loop Powered Model	1000Vrms for 1 minute between Loop Output-1 and Output-2
Aux Powered Model	1000Vrms for 1 minute between Supply and RS-485 Output

PHYSICAL

Mounting	Wall Mount	Duct Mount	Ex-Proof Wall Mount
Weight	~300 gms	~500 gms	~1 Kg
Enclosure Dimension (mm)	80(H)x82(W)x55(D)		140(H)x145(W) x80(D)
Length of Pipe with Filter	68mm	213mm	100mm
Enclosure Material	ABS		Aluminium Alloy LM-6
Enclosure Gas Group Protection	-		IIA/IIB
IP (Ingress Protection)	IP-65		
Cable Entry Gland	PG 7		M20 Double compression
Cable Terminal Type	2.5 mm² , AWG 14 Wire, Screw Type		
Pipe Material	SS304		
Duct Pipe Flange	-	Nylon (Optional)	-
Filter Material	Sintered SS316 filter		

ENVIRONMENTAL

Operating temperature	0 to 60°C
Storage temperature	-10° to 70°C
Humidity	0% to 100% RH (Non-Condensing)

SAFETY/WARNING PRECAUTIONS

To avoid Electrostatic Discharge (ESD) to the transmitter, that may cause permanent damage, Operator must operate device using ESD safe tools and clothing.

Terminal wiring:
Check that all cables are correctly connected according to the connection diagram. Before installation or beginning of any troubleshooting Procedures, the power to all equipment must be turned off and isolated. Units suspected of being faulty must be Disconnected and removed first and brought to a properly equipped workshop for testing and repair.

Component replacement and internal adjustments must be done either by Masibus or done under the guidance of Masibus. Wiring must be carried out by skilled personnel and correct tools.

All wiring must confirm with standards of good practice and local codes and regulations. Wiring must be suitable for voltage, current, and temperature rating of the system. Beware not to over-tighten the terminal screws.

WARRANTY

Warranty does not apply to defects resulting from action of the user such as misuse, improper wiring, operation outside of specification, improper maintenance or repair, or unauthorized modification.

Masibus is not liable for special, indirect or consequential damages or for loss of profit or for expenses sustained as a result of a device malfunction, incorrect application or adjustment.

Masibus total liability is limited to repair or replacement of the product. The warranty set forth above is inclusive and no other warranty, whether written or oral, is expressed or implied.

MECHANICAL INSTALLATION AND REMOVAL

HT7S11S transmitter is available in Wall mount, Duct mount, Ex-Proof Wall Mount. Wall Mount clamps are also included with kit.

WALL MOUNT:
With mounting clamps (Provided) attach the wall assembly plate to the wall with two screws.

DUCT MOUNT:
To install these device, loosen up the LNKey screw available on Flange so that Flange moves easily on Duct Pipe. Insert the Duct probe in Duct hole at desired depth and then tighten up the LNKey screw on Flange. After this step fix the Flange on Ducting.

Ex-Proof WALL MOUNT:
Mount the device on the wall with 4nos. screws.

Mechanical Installation
Relative humidity is extremely dependent on temperature. Proper measurement of relative humidity requires that the probe and its sensors be at exactly the temperature of the environment to be measured.

Because of this, the location where you choose to install the probe can have a significant effect on the performance of the instrument.

**The following guidelines should guarantee good instrument performance:**

Select a representative location: install the probe where humidity, temperature and pressure conditions are representative of the environment to be measured. Provide good air movement at the probe: air velocity of at least 200 ft/ minute (1 meter/second) facilitates adaptation of the probe to changing temperature. Immerse as much of the probe as possible in the environment to be measured. Prevent the accumulation of condensation water at the level of the sensor leads. Install the probe so that the probe tip is looking downward. If this is not possible, install the probe horizontally.
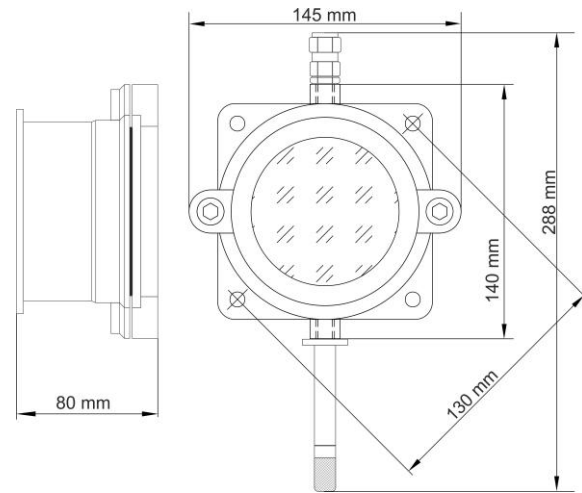
OVERALL DIMENSIONS PIPE MOUNT (In mm)
HT7S11S Wall Mount
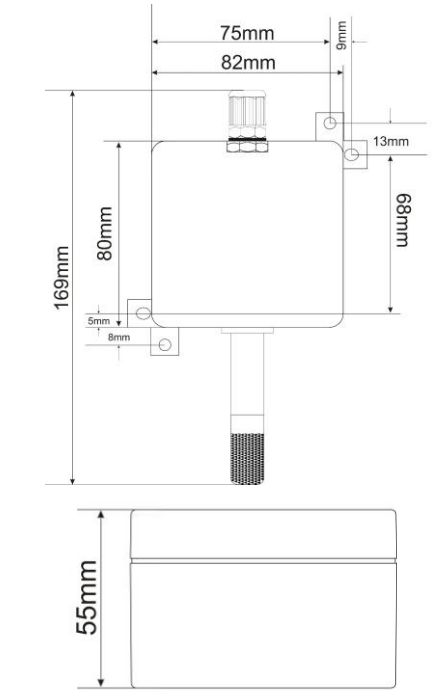
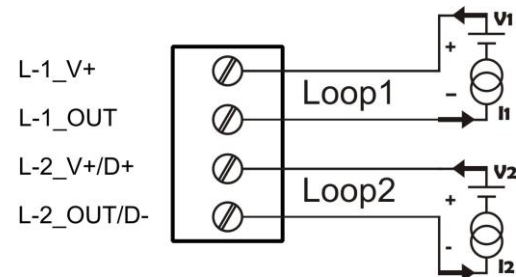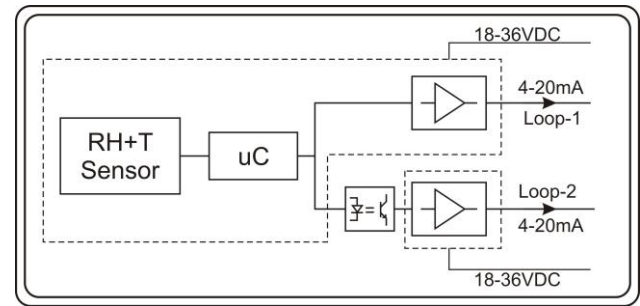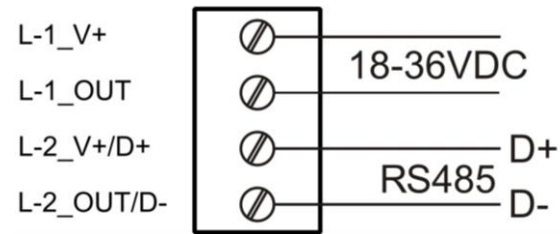**HT7S11S – Pipe Mount**
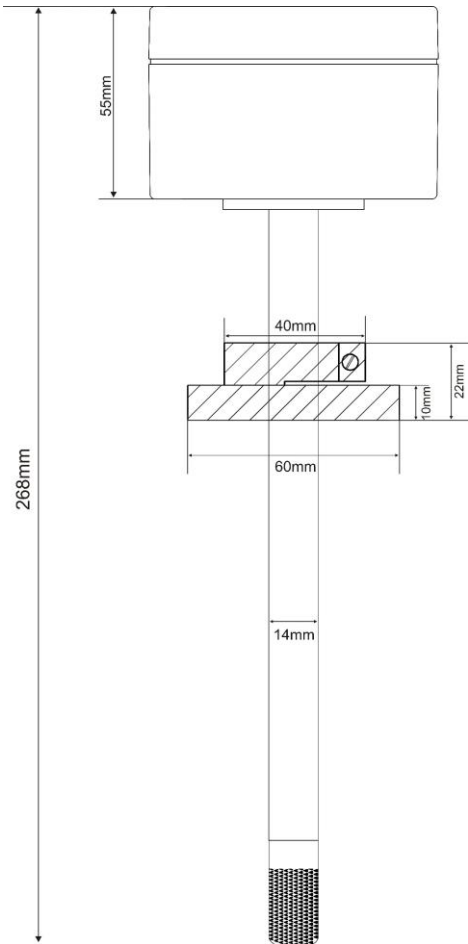
HT7S11S – Ex-Proof Wall Mount
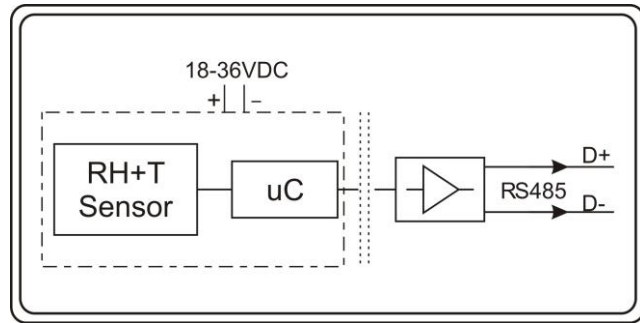

HT7S11S Block Diagram and Terminal Connection Loop Power Model

Aux Power RS485 Model

PARAMETER SETTINGS

PV Display →

HT7S11S

- ENT KEY
- ESC/SHIFT KEY
- UP/INC KEY

Menu Layout for HT7S11S
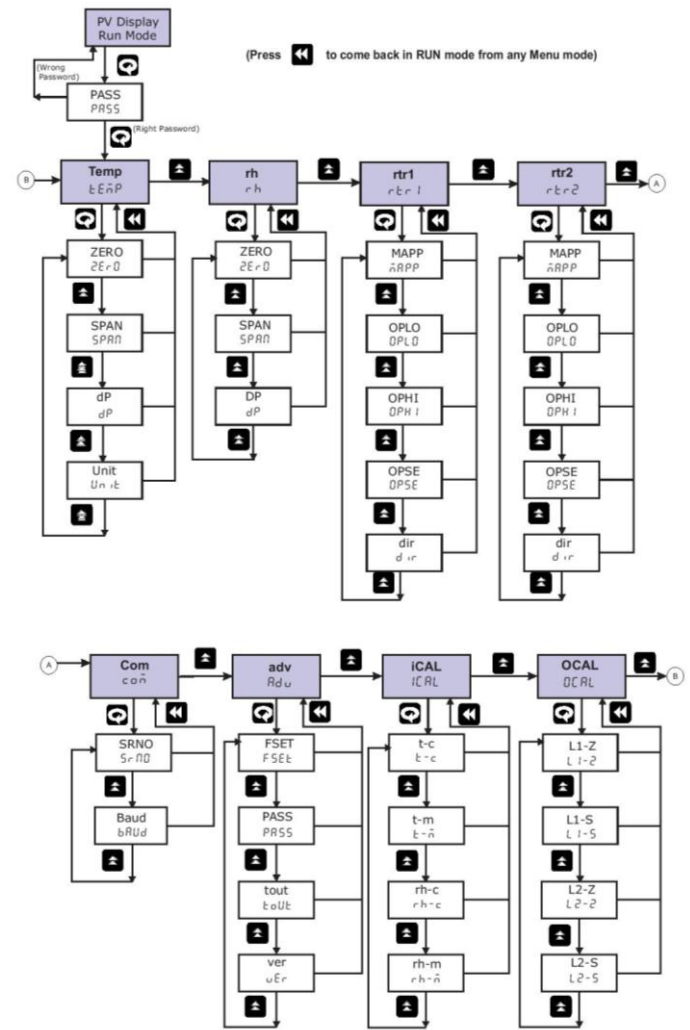
Menu Parameter Description

Display	Name	Description
TEMP Mode		
ZERO (ZERO)	Zero	Can be set to any value within the Input Range & less than SPAN Value. Value of Zero must be less than Span Value by 10. Ref no.1:
SPAN (SPAN)	Span	Can be set to any value within the Input Range & greater the ZERO Value. Value of Span must be greater than Zero Value by 10.Ref no.1:
Dp (dp)	Decimal point	To Set position of Decimal Point on Process Value. 0 : 0 1 : 00.0

Unit (unit)	Unit	Configure the Engineering Unit for Process Value. 0: DEG C 1: DEG F 2: DEG K
RH Mode		
ZERO (zero)	Zero	Can be set to any value within the Input Range & less than SPAN Value. Value of Zero must be less than Span Value by 10.
SPAN (span)	Span	Can be set to any value within the Input Range & greater the ZERO Value. Value of Span must be greater than Zero Value by 10.
Dp (dp)	Decimal point	To Set position of Decimal Point on Process Value. 0 : 0 1 : 00.0
RTR1 Mode		
MAPP (MAPP)	Mapping	Map rtr1 output for PV value of either rh or temp. 0: rh(Humidity) 1: temp(temperature)
OPLO (opLo)	Output Low	O/P Low value limit will be limited between 0-25% of output. Output will not be scaled but will be limited to configured % of output.
OPHI (opHi)	Output High	O/P Hi value limit will be limited between 75-100 % of output. Output will not be scaled but will be limited to configured % of output.
OPSE (opSE)	OPEN Sensor	To set O/P to either Upscale or Downscale when Input is OPEN. 0: up 1: dn
DIR (dir)	Output Direction	To set Retransmission O/P Direction to either Direct or Reverse. 0: dir 1: rev
RTR2 Mode		
MAPP (MAPP)	Mapping	Map rtr2 output for PV value of either rh or temp. 0: rh(Humidity) 1: temp(temperature)
OPLO (opLo)	Output Low	O/P Low value limit will be limited between 0-25% of output. Output will not be scaled but will be limited to configured % of output.
OPHI (opHi)	Output High	O/P Hi value limit will be limited between 75-100 % of output. Output will not be scaled but will be limited to configured % of output.
OPSE (opSE)	OPEN Sensor	To set O/P to either Upscale or Downscale when Input is OPEN. 0: up 1: dn
DIR (dir)	Output Direction	To set Retransmission O/P Direction to either Direct or Reverse. 0: dir 1: rev
COM Mode		
SRNO (SRNO)	Serial No.	Sr. No. for communication(1 to 247)
baud (baud)	Baud Rate	Set Serial Communication Baud Rate 0 : 4800 bps 1 : 9600 bps 2: 19200 bps
ADV Mode		
FSET (FSET)	Factory reset	To retrieve the factory setting. 0: para 1: cal
PASS (PASS)	Change Password	To change the Password of device to Enter in Menu Mode.
TOUT (TOUT)	Time out	Time Setting to Return in RUN mode from any mode while no key operation. Timeout Range is between 10to 300 seconds.
ver (ver)	Version No.	Shows the Version of the Current Firmware.
ICAL Mode		
t-c (t-c)	Calibration Offset	Calibration offset for PV input Temperature.
t-m (t-m)	Calibration Gain	Calibration gain for PV input Temperature.
rh-c (rh-c)	Calibration Offset	Calibration offset for PV input Humidity.
rh-m (rh-m)	Calibration Gain	Calibration gain for PV input Humidity.
OCAL Mode		
L1-Z (L1-Z)	Calibration Zero	Calibration Zero for output loop1.
L1-S (L1-S)	Calibration Span	Calibration Span for output loop1.
L2-Z (L2-Z)	Calibration Zero	Calibration Zero for output loop2.
L2-S (L2-S)	Calibration Span	Calibration Span for output loop2.

MODBUS Parameters Details:

Analog Parameters	Address	Type of Access	Paramet er Type	Values Applicable
Process value temp	30001	Read	Int	-
Process value RH	30002	Read	Int	-
Zero for temp	40001	Read/write	Int	0-60
Span for temp	40002	Read/write	Int	0-60
Dp for temp	40003	Read/write	Int	0-1
Unit for temp	40004	Read/write	Int	0 to 2
Zero for RH	40005	Read/write	Int	0-100
Span for RH	40006	Read/write	Int	0-100
Dp for RH	40007	Read/write	Int	0-1
Mapping for loop1	40008	Read/write	Int	0-1
Output low for loop1	40009	Read/write	Int	0-25
Output high for loop1	40010	Read/write	Int	75-100
Open sensor for loop1	40011	Read/write	Int	0-1
Direction for loop1	40012	Read/write	Int	0-1
Mapping for loop2	40013	Read/write	Int	0-1
Output low for loop2	40014	Read/write	Int	0-25
Output high for loop2	40015	Read/write	Int	75-100
Open sensor for loop2	40016	Read/write	Int	0-1
Direction for loop2	40017	Read/write	Int	0-1
Serial No.	40018	Read	Int	1-247
Baud rate	40019	Read	Int	0 to 2
Factory reset	40020	Read/write	Int	0-1
Password	40021	Read/write	Int	0 To 9999
Timeout	40022	Read/write	Int	10-300
Version	40023	Read	Int	100
Temp offset for input calibration	40024	Read/write	Int	-100 to 100
Temp gain for input calibration	40025	Read/write	Int	800 to 1200
Humidity offset for input calibration	40026	Read/write	Int	-100 to 100
Humidity gain for input calibration	40027	Read/write	Int	800 to 1200
L1-Z(calibration zero for output loop1)	40029	Read/write	Int	3000to 5000
L1-S (calibration span for output loop1)	40030	Read/write	Int	19000 to 21000
L2-Z(calibration zero for output loop2)	40032	Read/write	Int	3000 to 5000
L2-S (calibration span for output loop2)	40033	Read/write	Int	19000 to 21000
Loop1 Output Calibration Mode Selection(Zero Calibration, Span Calibration, Exit-Run mode)	40028	Read/write	Int	0-2
Loop2 Output Calibration Mode Selection(Zero Calibration, Span Calibration, Exit-Run mode)	40031	Read/write	Int	0-2

40004. Engg. Units
0. DEGC
1. DEGF
2. DEGK

40028.Output Calibration Mode for Loop1
0. Exit
1. Zero Cal
2. Span Cal

40008. Mapping
0. RH
1. Temp

40031.Output Calibration Mode for Loop2
0. Exit
1. Zero Cal
2. Span Cal

40011&40016. OPSE for Current Output
0. UPSC
1. DNSC

40019. Baud rate
0. 4800
1. 9600
2. 19200

40012&40017. Direction for Current Output
0. DIRT
1. REVR

40020. Factory Reset
0. Configuration Parameter
1. Calibration

Ref no.1:

UNIT	ZERO	SPAN
DEFC	0	60
DEGF	0	140
DEFK	0	334

| Input type	Input Cal. Range for Modbus
Temp	0 to 60
RH	0 to 100%

- Process Value of device will show "over" when process value is higher than 5% of individual span. At that time Device will send '32766' by Modbus to PC.
- Same way when process value is lower than 5 % of individual zero, Device will show "undr" on its display but it will send '32765' by Modbus to PC.
- If process value is out of limit for particular I/P type, then device will show "Open" on display but it will send '32767' by Modbus to PC.

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mTran Software

- To download the mTran software, visit Masibus Website and go to download section.

Device Detection Mode:

- The Device Detection mode is used to select the COM Port from Dropdown Window. User can press connect button after selection of right COM Port.
- If the wrong COM Port selected, Error shows, "Wrong COM Port Selected / Device Not Connected".
- If the right COM Port is selected, Pop up window shows "Device connected" message, and it will redirect to RUN Mode after click on OK Button.
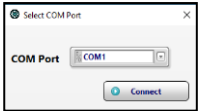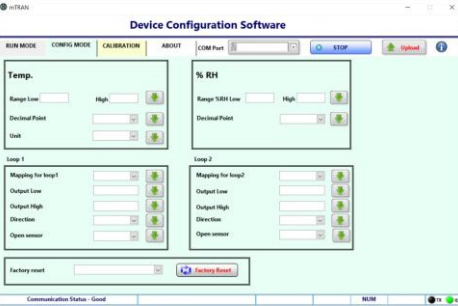

RUN Mode:

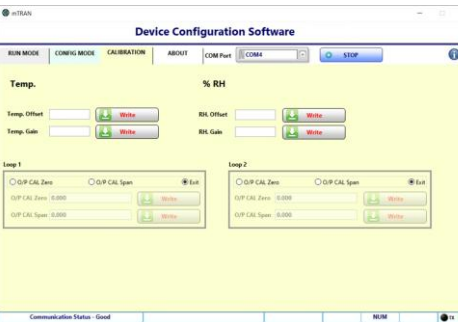- Run Mode displays process values, Range and Temperature Unit.

CONFIGURATION Mode:

- In configuration mode user can set configuration parameters given in device.
- After successfully write/download, the status message displays in status box.

CALIBRATION Mode:

- In calibration mode user can calibrate connected device.

TROUBLE SHOOTING
Unit Not Turn ON:
Check the transmitter Loop-1 connections. Without Loop-1 connection, unit will not turn ON.

O/P mA Fault:
Check the transmitter output connections. Check the connection between the sensor and the transmitter.

O/P mA Not Matching to the Required Value:
If a reference sensor is available check it with the transmitter working correctly or not. If there is calibration doubt, apply known values of Calibration and check the Output accordingly. If still problem persist contact Masibus.

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