

UMB-TECHNOLOGY

Universal- Measurement- Bus

- Compact design
- Easy installation
- Easy start of operation
- Wired or wireless data transmission
- Common hardware interface
- Common software protocol
- Common software tool for configuration and start-up
- Easy Sensor firmware update
- Web-based SmartView3 software



CERTIFIED
DIN EN ISO 9001
NR 70100 F 222
CERTIFICADO

G. LUFFT MESS-UND-
REGELTECHNIK GMBH
GUTENBERGSTR. 20
70736 FELLBACH
POSTFACH 4252
70719 FELLBACH
TEL. 49 (711) - 51822-0
FAX 49 (711) - 51822-41
INTERNET: <http://www.Lufft.de>
E-MAIL: Info@Lufft.de



THE UMB MODULES

ISOCON-UMB (8160.UISO)
ANACON-UMB (8160.UANA)
IRS21CON-UMB (8410.UISO)

operating conditions

power supply 20...26VDC
 power consumption <100 mA
 ambient temperature -30°C ... +60°C
 rel. humidity <95% r.h.
 protection type IP20
 module width 23mm

RS232 connector DSUB9
 sensor connector screw type

storage conditions

ambient temperature -40°C ... +70°C
 rel. humidity < 95% r.h.

ISOCON-UMB

order-no. 8160.UISO

ANACON-UMB

order-no. 8160.UANA

IRS21CON-UMB

order-no. 8410.UISO

accessories:

power supply 230VAC/24VDC (100VA)

order-no. 8366.USV1

GPRS/GSM Modem

order-no. 8160.GSM

Common features of all UMB-modules

galvanic isolation between sensor supply and communication
 Host-communication via RS232 (PC / GPRS-modem), RS485 (RPU)
 Small housing with DIN rail-mounting and bus-connection
 Firmware upload via RS232
 Common power supply (24V) for UMB modules and (heated) sensors
 Online data-transfer (no memory)
 network up to 32 modules

ISOCON-UMB communication module for all UMB sensors

Communication-watchdog for proper sensor function (reset)
 overvoltage protection for all interfaces
 LED indication for operation mode

ANACON-UMB 2-channels universal transmitter

2 analog inputs, 24-bit-resolution for voltage, current and resistance
 LED indication for operation

for following Lufft-sensors:

- Lufft temperature/humidity sensor
- Lufft windspeed and -direction sensor "half cups"
- Lufft ultrasonic windsensor 4...20mA output signal
- Lufft precipitation gauge (pulse/frequency)

other inputs:

voltage/ current/ resistance
 digital signals (eg. door contacts)

IRS21CON-UMB communication module for Lufft road sensor IRS21

converting the IRS21 protocol into UMB protocol
 controls the galvanically isolated power supply for IRS21
 overvoltage protection for all interfaces
 LED indication for operation mode



THE UMB SENSORS

WS3-UMB (8369.U00)

Compact-Meteo-station: radar-precipitation sensor and temperature/humidity sensor
measuring range drop size: 0,3mm ... 5,0mm
measuring range hail: 5,1mm ... approx. 30mm
resolution liquid precipitation (rain): 0.01...0.1...1.0mm/m²
precipitation types: rain, snow
reproducibility: typically >90%
measuring range temperature: -30°C...+70°C
measuring range rel. humidity: 0...100% r.h.
accuracy temperature: +/- 0,2°C (-20°C...+50°C), else +/-0,5°C
accuracy rel. humidity: +/-2% r.h.
power supply: 24VDC (22...28VDC) / power consumption: approx. 30VA
connecting cable included



R2S-UMB (8367.U01)

precipitation-sensor with UMB-, pulses- and frequency-interface
measuring range drop size: 0,3mm ... 5,0mm
measuring range hail: 5,1mm ... approx. 30mm
resolution liquid precipitation (rain): 0.01...0.1...1.0mm/m²
precipitation types: rain, snow, rain/snow mixture, icy rain, hail
reproducibility: typically >90%
firmware-update via RS485
power supply: 24VDC (22...28VDC)
power consumption: approx. 30VA (24V)
operating temperature -30...70°C / operating relative humidity 0...100%
connecting cable included



VS20-UMB (8366.U50)

visibility sensor with UMB- and analog interface (4...20 mA)
measuring range: 10...2000 m
firmware update and calibration via RS485
output signal: 4...20mA
interface RS485 half duplex, UMB Protocol
protection type: IP66
weight: approx. 4kg
dimensions: 360x180x80mm
operating temperature: -40...60°C
power supply: typically 24VDC (22...28VDC) 3W
connecting cable included



Intelligent Road Sensor IRS31 (8510.U050)

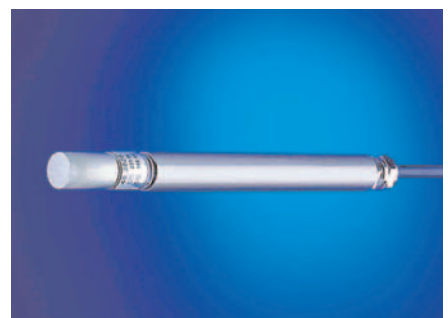
measuring range temperatures: -30°C...+70°C
accuracy temperatures: +/- 0,2°C (-10°C...+10°C), else +/-0,5°C
measuring range water film height: 0...4mm
accuracy water film height: +/- 0,1mm +20% of measurement value
freeze temperatures: 1... 10 (standard: NaCl, CaCl, MgCl)
measuring range freeze temperature: -20°C...0°C
accuracy freeze temperature: +/-1°C for t>-10°C
road conditions: dry/damp/wet/ice or snow/residual salt/critical wet
dimensions: Ø 120mm, height 50mm
weight: approx. 800g
cable length: 50m standard, optionally 100m (8510.U100)
protection type: IP68



for UMB module: (ANACON):

temperature/humidity-Sensor (8160.TFF10)

measuring range temperature: -30°C...+70°C
measuring range rel. humidity: 0...100% r.h.
accuracy temperature: +/- 0,2°C
accuracy rel. humidity: +/-2% r.h.
dimensions: length 185mm, Ø 16mm
weight: 400g
cable length: 10m
protection type: IP54
operating temperature: -30...70°C / operating relative humidity 0...100% RH



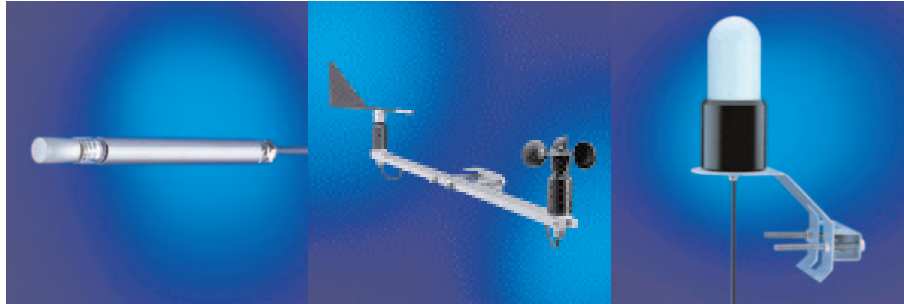
CONFIGURATION EXAMPLES

Temp./Humidity 8160.TFF10 **Wind Speed/Dir.** 8368.01 **Precipitation** 8367.U01

Community Weather Station

Data collection on polling server

Communication via wireless modem (CDMA/GPRS)



UMB modules
24V power supply
and GPRS modem

Standard ARWIS configuration

Data collection on site (RPU)

Possibility to connect a camera

wired or wireless data transmission

NTCIP / TLS compliance with RPU-unit

Temp./ Humidity 8160.TFF10 **Precipitation** 8367.U01 **Wind Speed/ Dir.** 8368.01 **VS20-UMB Visibility** 8366.U50 **Road Sensor** 8410.050 **Road Sensor** 8410.050



RS232



RPU- unit

ANACON 8160.UANA **ISOCON** 8160.UISO **ANACON** 8160.UANA **ISOCON** 8160.UISO **IRS21CON** 8410.UISO **IRS21CON** 8410.UISO

UMB CONFIGURATION-SOFTWARE

UMB configuration-software

functions

- configuration of sensors
- on-site calibration of sensors
- indication of current measurement values
- firmware update for UMB-sensors and UMB-modules

coming soon

- multi lingual user interface
- "trace function", interface recorder

configuration of analog sensors.

The screenshot shows the 'SensorConfig' window with the 'Anacon-UMB' tab selected. It is divided into three main sections: 'General properties', 'Communication properties', and 'Measurement Setup'.

- General properties:** Id is set to 1, and Description is 'Prototyp'.
- Communication properties:** Linespeed RS232 is 19200, Protokoll is 'binary', and Timeout protocol change is 10.
- Measurement Setup:** This section has sub-tabs for 'General Parameters', 'Channel 1', and 'Channel 2'. Under 'General Parameters':
 - Sensortype: TFF (R160.TFF)
 - Measurement category: humidity
 - Unit: %RH
 - Min-value: 0.000, Max-value: 100.000
 - Offset: 0.000, in Unit from Channel: (dropdown)
 - Underrange [%]: 0, Overrange [%]: 5
 - Measurement intervall [s]: 5, Number of samples for average: 12, Average over 60 s
 - Sensor powerup time [ms]: 5
 - Channel description: humidity

selection list of sensors.

The screenshot shows the 'F01SensorDefinition' window. It has a 'Sensor Selection' section with a dropdown for 'Type of Sensor' (set to TFF-UMB) and an 'ID' field (set to 1). Below this are buttons for 'Add', 'Delete', 'Modify', 'Configure', 'Update Channellist', 'Firmwareupdate Sensor', 'Save/Exit', and 'Cancel/Exit'.

The 'Selected Sensors' section contains a table with the following data:

ID	Type	Adress	Channels	Active Channels
1	ANACON-UMB	24577	132	6
1	R2S-UMB	8193	9	3
1	VS20-UMB	12289	30	6
1	TFF-UMB	16385	0	0

Below the table are instructions: 'Click Sensor to edit/remove Sensor' and 'Double Click Sensor to edit active channels'. At the bottom are buttons for 'Autoscan', 'Verify', 'Save to Disk', and 'Load from Disk'.

selection list of sensor channels (temporary data request)

The screenshot shows the 'Select active Channels' window with a table listing channels and their status:

ChNr.	Measurement	Unit	Range	Active
140	temperature	°C	-200.00 .. 450.00	inactive
160	temperature	°C	-200.00 .. 450.00	inactive
105	temperature	°F	-328.00 .. 842.00	inactive
125	temperature	°F	-328.00 .. 842.00	active
145	temperature	°F	-328.00 .. 842.00	inactive
165	temperature	°F	-328.00 .. 842.00	inactive
110	dewpoint	°C	-200.00 .. 450.00	active
130	dewpoint	°C	-200.00 .. 450.00	inactive
150	dewpoint	°C	-200.00 .. 450.00	inactive
170	dewpoint	°C	-200.00 .. 450.00	inactive
111	dewpoint	°F	-328.00 .. 842.00	active
131	dewpoint	°F	-328.00 .. 842.00	inactive

On the right side, there is a vertical scrollbar and a button labeled 'Click on Char'.

SOFTWARE Collector / SmartView3

functions

web based visualisation/ and data collection software for Luftt dataloggers/transmitters

storage of data in database

flexible export- and import functions for integration of external / third party software / data (CSV and XML)

simultaneous data collection via unlimited communication modules (eg.modems)

integration of webcam pictures (via TCP / IP - FTP)

basic version Collector (Collector for max. 5 stations)
order-no.: 8160.COLLECT05

unlimited version Collector (unlimited quantity of stations)
order-no.: 8160.COLLECT

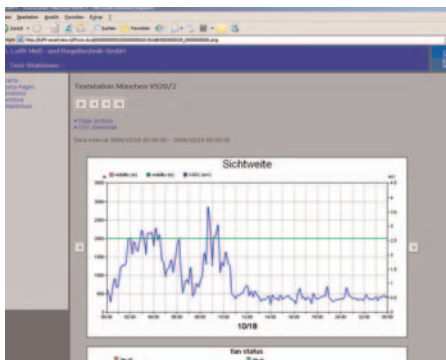
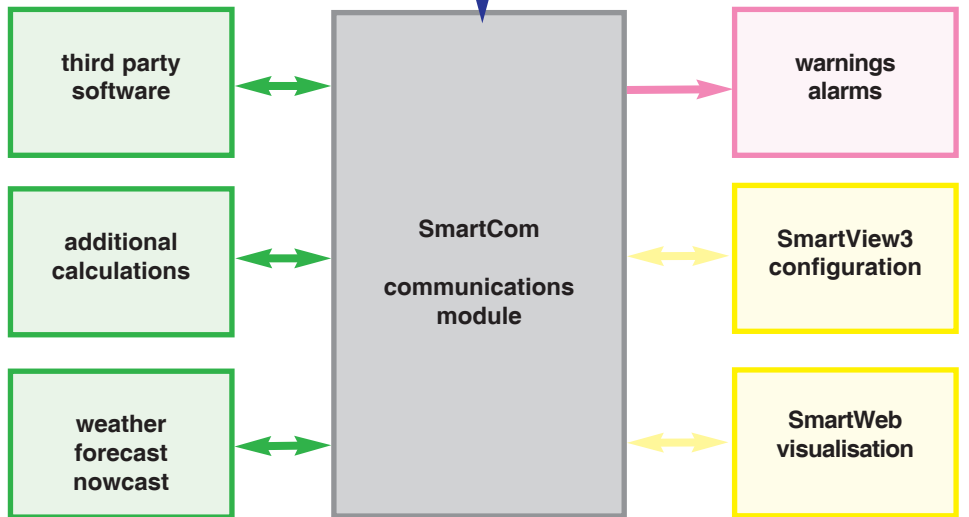
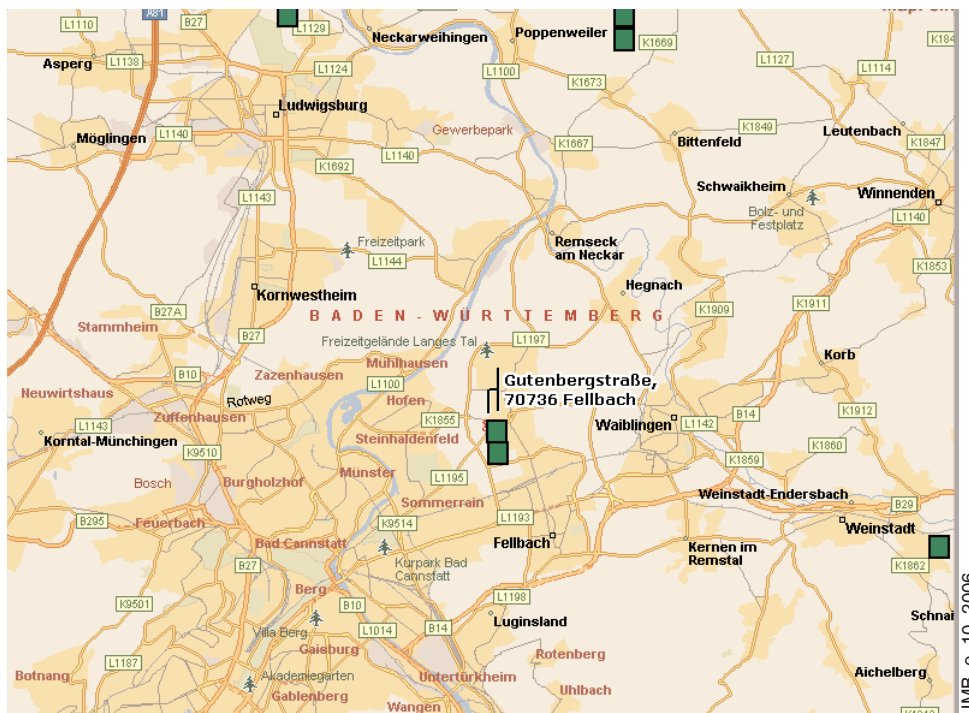
SmartView3 max 5. stations (WEB-visualisation)
order-no.: 8140.SV05

SmartView3 incl. Collector unlimited (WEB-visualisation)
order-no.: 8140.SV300



Data collection / polling / GPRS

MYSQL database

SmartView3 software functions

functions of SmartView3					
		8160.COLL ECT05	8160.COLL ECT	8040.SV300 SmartView	
Data Transfer					Example
	quantity of weather stations	max. 5	unlimited	unlimited	
Lufft dataloggers/ transmitters	Opus200 (Online and Offline)	x	x	x	
	Opus2 (Online and Offline)	x	x	x	
	UMB (Online)	x	x	x	
	HP100 (Offline)	x	x	x	
	read sensor configurations	all types	all types	all types	
	change sample- and storage rate and memory-mode (Min/Max/ave)	Opus200	Opus200	Opus200	
	transfer camera picture via FTP	x	x	x	
connections	direct (RS232)	x	x	x	
	TCP/IP (Station with COM Server or CDMA/GPRS Modem with fix IP address or DynDNS support)	x	x	x	
	Modem (TAPI)	x	x	x	
	PPP (only camera picture)	x	x	x	
intervals	fix	x	x	x	every 20 minutes
	no transfer at special night periods	x	x	x	not between 10.00 p.m. and 5.00 a.m.
	special times	x	x	x	
modem poll	max quantity of modems	unlimited	unlimited	unlimited	
	"Modem Pools" (poll stations with dedicated modems)	x	x	x	
recalculation of values	re-scale date before storing these in the database	x	x	x	
	mapping of data before storing these in the database	x	x	x	change of road conditions codes
clock synchronisation	synchronisation of device clock (datalogger) through PC clock, device clock can be UTC or local time (with or without summertime adjustment)	x	x	x	device needs the corresponding software function
Backup/archive of data	time-controlled automatic backup of full database	x	x	x	
	time-controlled deletion of old data in database	x	x	x	including backup of data before deletion starts
	time-controlled compression of data in the database including backup before compression starts	x	x	x	reduction of data down to one value per hour/day
	time-controlled deletion of "old" camera pictures in the database	x	x	x	including backup of data before deletion starts
	Restore of backup-data - including deletion of compressed data before restoring process starts	x	x	x	if the backup is the result of a data compression
	automatic transfer of backup-file onto a server via FTP	x	x	x	
user access administration	administration of users / functions and user groups	x	x	x	
	admission to functions for users/groups	x	x	x	
	create/delete stations	x	x	x	
	edit/view configuration of a station	x	x	x	
	create/delete Web-Site	-	-	x	
	change configuration of Web-Site	-	-	x	
	edit/view configuration of Web-Site	-	-	x	
	create/change user	x	x	x	
	change configuration data of software	x	x	x	

Export/Import	manual export/import	-	-	x	
	automatic export/import	-	-	x	
	export of configurable values of one or more stations in one file				
	export in "CSV" format incl. Parameter settings	-	-	x	
	import in "CSV" Format incl. parameter settings	-	-	x	
	export in "XML" format incl. parameter settings	-	-	x	
	scale of data for export	-	-	x	recalculation of m/s into km/h
	mapping of data for export	-	-	x	recalculation of road conditions codes
	scale of import-data before storing the data in the database	-	-	x	
	mapping of import-data before storing the data in the database	-	-	x	
control of automatic export/import	export if new data have been stored	-	-	x	
	time-controlled export	-	-	x	every 5 minutes
	flexible definition of time-interval for export based on start-up-time	-	-	x	
	export and execution of a software program	-	-	x	
	export and automatic transfer of a file via FTP	-	-	x	
	export and execution of a software program and import of the calculated result	-	-	x	disease model calculation
	FTP transfer of files before import starts	-	-	x	
	time-controlled FTP transfer of files including "Wildcard" support	-	-	x	
	automatic deletion of files transferred via FTP after transfer has been finished	-	-	x	
	import of files including "Wildcard" support	-	-	x	
visualisation of data as "Web-Site"	automatic deletion of import files after import has been finished	-	-	x	
	indication of stations status (last data transfer) in a table	-	-	x	
	indication of stations status (last data transmission) on a static map	-	-	x	
	indication of status-informations and current values of stations on "stations-page" per station	-	-	x	
	indication of camera-picture on "stations-page" of a station	-	-	x	
	automatic generation of "data pages" to indicate the data in the given time interval (diagram and table)	-	-	x	day / week / month / year
	selectable "data pages" including current values from sensors of different stations and different storage intervals on one page	-	-	x	day / week / month / year
	selectable line- and status (barr-) diagrams on "data-pages"; line diagrams with up to 4 different Y-axis (units). Scale of line diagrams manually or automatically	-	-	x	
	management of "pages-archive" for data pages	-	-	x	historic measurements
	automatic transfer of admission rights on to website/webserver (via .htaccess - function has to be active on web-server)	-	-	x	
warnings/alarms	configuration of high and low threshold per sensor	-	-	x	generation of warnings/alarms if value is out of limits
	alarm message if station cannot be polled	-	-	x	
	alarm message if import file cannot be used	-	-	x	
	in case of alarms, generation of email message to one or more destination addresses	-	-	x	station could not be polled sensor delivers error sensor delivers error value/import sensor delivers error /import sensor delivers alarm value