ICS SCHNEIDER MESSTECHNIK

ICT 700 / 750

Multichannel Process Display with Datalogger, Contacts and Analogue Outputs

Functional range

- ► up to 90 channels for in- / outputs
- ► 35 mathematical / logical functions
- ► 8 integrated PID-controllers with autotuning
- ► 8 time- / event-driven profiles
- ► touchscreen- and remote-controlling
- ► multilevel access system
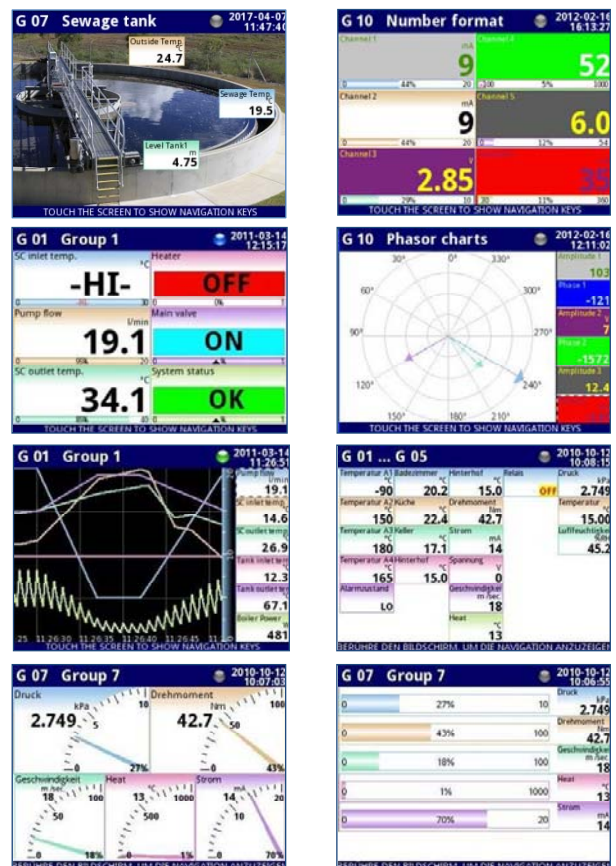- ► webserver incl. HTML5 widgets
- ► e-mail function

Datalogger

- ► data acquisition of up to 60 channels
- ► 2 configurable sample rates (max. 10 Hz)
- ► extensive triggering functions
- ► internal memory 1.5 GB
- ► data transfer via USB memory stick or Ethernet
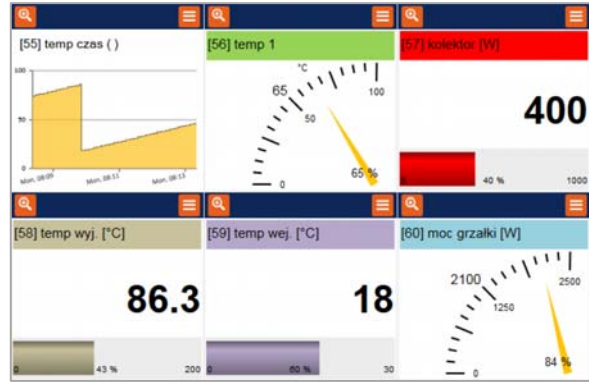
Product characteristics

- ► front panel housing 96 x 96 / 144 x 144mm
- ► graphic TFT monitor, touchscreen
- ► 3 slots for 40 different input- / output modules
- ► interfaces: RS-485 (Modbus RTU), RS-232, USB-Host, Ethernet (Modbus TCP)
- ► transducer power supply 24 V_{DC}

Display modes

CE ROHS REACH **Modbus**

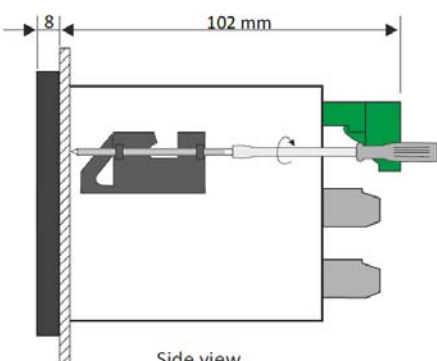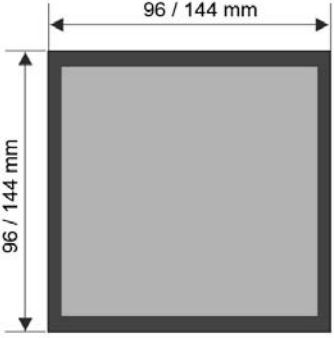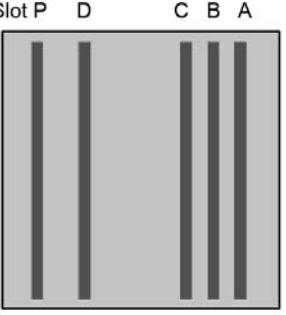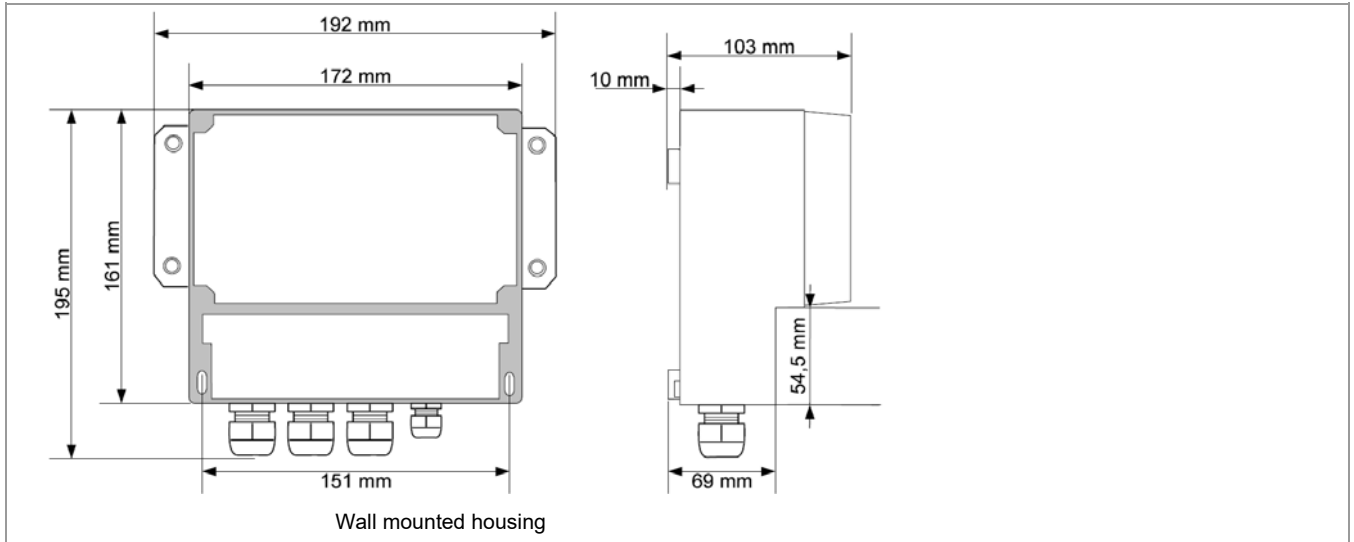| Display	
Display	ICT 700: graphic TFT, 3,5", touchscreen, colored (16 bit), 320 x 240 pixels ICT 750: graphic TFT, 5,7", touchscreen, colored (16 bit), 320 x 240 pixels

Datalogger	
Internnal memory	1,5 GB, max. 125 000 000 measurements
Sampling rate	0,1 sec to 24 h, 2 sampling rates, triggering internal/external, (max. 60 channels, max. 200/sec)

Ingress protection	
Front panel housing	IP 65 (front side), IP20 (case and connectors) IP 65 (front side with additional sealing frame for panel cut-out), IP 20 (case and connectors) IP 40 (front side, USB front), IP20 (case and connectors)
Wall mounted housing	IP 65

Permissible temperatures	
Standard / Option	environment: 0 … 50 °C, storage: -10 … 70 °C / environment: -20 … 50 °C, storage: -20 … 70 °C

Electrical protection	
Electrical safety / EMC / CE	EN 61010-1 / EN 61326-1 / 2014/30/EU

Housing		
Housing type / dimensions	ICT 700: front panel mounting / 96 x 96 x 110 mm ICT 750: front panel mounting / 141 x 141 x 110 m	ICT 700: wall mounted housing / 166 x 161 x 103mm
Material	NORYL-GFN2S E1	ABS, PC
Weight	ICT 700: max. ca. 800 g ICT 750: max. ca. 1200 g	max. ca. 1000 g

Basic functions
Allocation of 60 / 90 internal channels to 10 / 15 groups (max. 6 channels each group)
Visualisation of values in 6 different modes (value, chart, bar, needle, phase chart, ScadaLite)
Displaying of values numeric (figure) / binary (text) / time / control element (switch / button)
Lo / Hi alarms, channel highlight (change of background color)
Filtering (damping / peak detection), scaling (linear / user defined with 20 points), rounding of displayed values
Extensive mathematic / trigonometric / logical functions
8 PD- / PI- / PID controller incl. autotuning
8 user defined time- / event-driven profiles with max. 99 segments
16 virtual relays, acoustic signal
Multilingual menu (EN, DE, FR, ES, CZ, PL, HU, RO, RU)
Date- and time display, time zones, synchronization via NTP
Adjustable contrast and brightness of display, screen saver, automatic view change, remote shutdown
Multilevel access system (max. 16 user with definable rights), login via USB dongle
Editors for letters, figures, special characters, font- and background colors

Remote control	HTML5 Widgets

Dimensions

Side view   Case dimensions   Backside view

Wall mounted housing

Slot P – power supply modules with basic functions	
PS32, PS42	
Supply voltage / Power consumption	16 … 35 V_{AC} / 19 … 50 V_{DC} / max. 35 VA 85 … 260 V_{AC} / V_{DC} / max. 35 W
Transducer supply	24 V_{DC} ± 5%, max. 200 mA
Binary input	0 ... 24 V DC, U < 1 V = LOW, U > 8 V =HIGH, current consumption 7,5mA @ 24V, isolation 500 V DC
RS-485	RS-485 Modbus RTU (master/slave), 8N1, 8N2, 8E1, 8E2, 8O1, 8O2, 1200…115200 bit/s
USB type Mini-B	service port

Slot D – communication modules		
USB		
Interface	USB host port type A	
Max. current output	100 mA	
Baudrate	12 Mbit/s	
ETU		
Interface	USB host port type A	Ethernet RJ-45
Max. current output	100 mA	-
Baudrate/protocol	12 Mbit/s	10 Mbit/s, Modbus TCP (slave)

ACM			
Interface	USB host port	Ethernet RJ-45	RS-485, RS-485 / RS-232
Max. current output	100 mA	-	-
Baudrate/protocol	12 Mbit/s	10 Mbit/s, Modbus TCP(slave)	1200…115200bit/s, Modbus RTU(master/slave)

ETE	
Interface	Ethernet RJ-45
Max. current output	-
Baudrate/protocol	10 Mbit/s, Modbus TCP (slave)

ETR		
Interface	Ethernet RJ-45	RS-485
Max. current output	-	-
Baudrate/protocol	10 Mbit/s, Modbus TCP (slave)	1200…115200bit/s, Modbus RTU master/slave

SLOT C / B / A – input / output modules		
UI4, UI8, UI12, U16, U24, I16, I24 – 4 / 8 / 12 / 16 / 24 current- / voltage inputs (common ground)		
Input range/resolution	0 ... 12 V / 1 mV	0 ... 24 mA / 1 µA
Measurement ranges	0 ... 5 V, 1 ... 5 V, 0 ... 10 V, 2 ... 10 V	0 ... 20 mA, 4 ... 20 mA
Accuracy	0,1 % @ 25°C, stability: 50 ppm/°C	0,1 % @ 25°C, stability: 50 ppm/°C
Internal impedance	50 kΩ	100 Ω, 50 mA fuse

IS6 – 6 current inputs (isolated)	
Input range/resolution	3 ... 30 mA / 1µA
Measurement ranges	4 ... 20 mA
Accuracy	0,25 % @25°C, stability: 65 ppm/°C
Internal impedance	1750 Ω @ 4 mA, 400 Ω @ 20 mA, 50 mA fuse

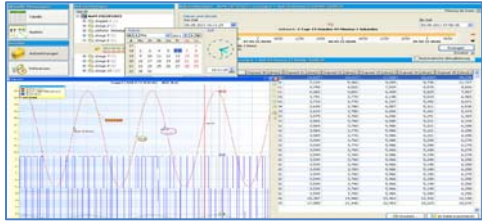| **D8, D16, D24 – 8 / 16 / 24 binary inputs (common ground each 4 inputs)**	
Input range	0 ... 30 V, U < 1 V = LOW, U > 4 V = HIGH
Current consumption	15 mA (24 V), 5 mA (10 V), 2 mA (5 V)

UI4D8, UI8D8 – 4 / 8 current- / voltage inputs + 8 binary inputs (common ground each 4 inputs)
Technical data see UI4, UI8, D8

UI4N8, UI8N8 – 4 / 8 current- / voltage inputs (common ground) + 8 NTC inputs			
Input range/resolution	0 … 12 V / 1 mV	0 ... 24 mA / 1 µA	0 … 110 kΩ / 4 Ω
Measurement ranges	0/1 ... 5 V, 0/2 ... 10 V	0 ... 20 mA, 4 … 20 mA	0 … 110 kΩ
Accuracy	0,1 % @25°C, stability: 50 ppm/°C		
Internal impedance	61 kΩ	100 Ω, 50 mA fuse	121 kΩ

RT4, RT6 – 4 / 6 RTD inputs		
Input range/resolution	0 ... 325 Ω / 0,01 Ω	0 ... 3250 Ω / 0,1 Ω
Measurement ranges	-100 … 600 °C (Pt100), -200 … 600 °C (Pt´50/100), -50 … 200 °C(Cu50/100), -200 … 200 °C(Cu´50/100), -60 … 180 °C (Ni100), 0...300 Ω, 2/3/4-wire	-100 … 600 °C (Pt500/1000), -200 … 600 °C (Pt´500), -60 … 180 °C (Ni1000), 0...3 kΩ, 2/3/4-wire
Accuracy [1]	0,1 % @25°C, stability 50 ppm/°C	0,1 % @25°C, stability 50 ppm/°C
Internal impedance	4 kΩ	4 kΩ

TC4, TC8, TC12 – 4 / 8 / 12 thermocouple inputs		
Input range/resolution	-30...30mV / 1 µV	-120...120 mV / 4 µV
Measurement ranges	-50 … 1768 °C (S), -200 … 400 °C (T), -50 … 1768 °C (R), 250 … 1820 °C (B), -25...25 mV	-200 … 1370 °C (K), -210 … 1200 °C (J), -200 … 1300 °C (N), -200 … 1000 °C (E), -200 … 800 °C (L), 50 … 2290 °C (C), -100...100 mV
Accuracy [1]	0,15 % @25°C, stability 50 ppm/°C	0,1 % @25°C, stability 50 ppm/°C
Internal impedance	6 MΩ	6 MΩ

[1] accuracy of temperature measurement: see manual

UN3, UN5 – 3 / 5 universal inputs (isolated) for current, voltage, RTD, thermocouple			
Current inputs			
Input range/resolution	-2 ... 30 mA / 1µA		
Measurement ranges	0 ... 20 mA, 4 ... 20 mA		
Accuracy	0,1 % @ 25 °C, stability 50 ppm/°C		
Internal impedance	< 65 Ω		
Voltage inputs			
Input range/resolution	-1 ... 12 V / 1 mV	-15 … 30 mV / 2 µV	-15 … 120 mV / 4 µV	-50 … 650 mV / 40 µV
Measurement ranges	0/1 ... 5 V, 0/2 ... 10 V	-10 … 25 mV	-10 … 100 mV	0 … 600 mV
Accuracy	0,1 % @ 25 °C, stability 50 ppm/°C, (-10 … 25 mV: 0,15 % @ 25 °C)			
Internal impedance	> 100 kΩ	> 100 kΩ	> 100 kΩ	> 100 kΩ
RTD inputs			
Input range/resolution	0...325 Ω / 0,01 Ω	0...3250 Ω / 0,2 Ω		
Measurement ranges	-100 … 600 °C (Pt100), -200 … 600 °C (Pt´50/100), -50 … 200 °C(Cu50/100), -200 … 200 °C(Cu´50/100), -60 … 180 °C (Ni100), 0...300 Ω, 2/3/4-Leiter	-100 … 600 °C (Pt500/1000), -200 … 600 °C (Pt´500), -60 … 180 °C (Ni1000), 0...3 kΩ, 2/3/4-Leiter		
Accuracy [1]	0,1 % @ 25 °C, stability 50 ppm/°C	0,1 % @ 25 °C, stability 50 ppm/°C		
Internal impedance	4 kΩ	4 kΩ		
Thermocouple inputs			
Input range/resolution	-15 … 30 mV / 2 µV	-15 … 120 mV / 4 µV		
Measurement ranges	-50 … 1768 °C (S), -200 … 400 °C (T), -50 … 1768 °C (R), 250 … 1820 °C (B)	-200 … 1370 °C (K), -210 … 1200 °C (J), -200 … 1300 °C (N), -200 … 1000 °C (E), -200 … 800 °C (L), 50 … 2290 °C (C)		
Accuracy [1]	0,1 % @ 25 °C, stability 50 ppm/°C	0,1 % @ 25 °C, stability 50 ppm/°C		
Internal impedance	> 1,5 MΩ	< 65 Ω		

HM2, HM4 – 2 / 4 hourmeter inputs (isolated)	
Input range	0 ... 30 V, U < 1 V = LOW, U > 10 V = HIGH
Current consumption	14 mA (24 V), 6 mA (10 V), 50mA fuse
Processing	each 1x start-/stop input, 1x programmable input (reset/hold/binary input) counting range: max. 10^9 s

CP2, CP4 – 2 / 4 universal pulse counters (isolated)	
Input range	0...30V, U<1V = LOW, U>10V = HIGH, max. 10 kHz
Current consumption/isolation	14 mA (24V), 6 mA (10V), 50mA fuse / 2kV
Processing	each 2x counting input, 1x programmable input (reset/hold/direction), 1x reset input counting range: 52 bit, counting modes: A+B / A-B / counter (up/down) / quadrature counter

FI2, FI4 – 2 / 4 analogue flowmeters with totalizer + 2 / 4 current inputs (common ground)	
Input range/resolution	0 ... 24 mA / 1 µA
Measurement ranges	0 ... 20 mA, 4 ... 20 mA
Accuracy	0,1 % @ 25 °C, stability 50 ppm/°C
Internal impedance	100 Ω / 50 mA fuse
Processing	each 1x current input (standard + flowmeter), 1x current input (standard), counting range: 10^{12}

FT2, FT4 – 2 / 4 pulse flowmeter / ratemeter with totalizer (isolated) + 2 / 4 current inputs (common ground)	
Input range/resolution	0...30V, U<1V = LOW, U>10V = HIGH, max. 50 kHz	-2 ... 30 mA / 1 µA
Measurement ranges	1/sec, 1/min, 1/h	0 ... 20 mA, 4 ... 20 mA
Accuracy		0,1 % @ 25 °C, stability 50 ppm/°C
Internal impedance		100 Ω / 50 mA fuse
Current consumption	12 mA (24V), 50mA fuse	
Processing	each 2x counting inputs + 1x current input, counting range: 10^{12}, modes: counter (up/down) / quadrature	

FUN2, FUN4 – 2 / 4 universal analogue inputs with flowmeter / totalizer (isolated) for current, voltage, RTD, thermocouple		
Technical data see UN3, UN5		
DU2 – 4 binary inputs (common ground each 2 inputs) or 2 pulse flowmeter / ratemeter with totalizer (isolated)		
Technical data see D8, D16, D24 or FT2, FT4, max. 5kHz		
D4 – 4 binary inputs (common ground each 2 inputs)		
Technical data see D8, D16, D24		
IO2, IO4, IO6, IO8 – 2 / 4 / 6 / 8 passive current outputs 4…20mA (isolated)		
Output range/resolution	3 ... 25 mA, 50 mA fuse / 12 bit	
Accuracy	0,1 % @ 25 °C, stability 50 ppm/°C	
Voltage drop/loop supply	max. 9 V / 9 ... 30 V	
R21, R41, R45, R65, R81, R121 – 2 / 4 / 6 / 8 / 12 relay outputs		
Output	4 / 6 SPDT relay	2 / 4 / 8 / 12 SPST relay
Max. current/voltage	5 A (cosφ =1, each output) / 250 VAC	1A (cosφ =1, each output) / 250 VAC
S2, S4, S8, S16, S24 – 2 / 4 / 8 / 16 / 24 solid state relay outputs (SSR) with PWM		
External supply	Uext. 10 ... 30 V	
Max. current/voltage	100 mA, max. 500 mA each 8 outputs / > Uext. -0,5 V	
PWM-period/-resolution	0,1 ... 1 600 s / 0,1 s	
PWM-frequency/-duty factor	5 kHz (internal), 20 µs (output) / 0 ... 100 %, resolution 15 bit	
R21IO2 – 2 relay outputs + 2 passive current outputs 4…20mA (isolated)		
Technical data see R21, IO2		
R21S2 – 2 relay outputs + 2 solid state relay outputs (SSR) with PWM		
Technical data see R21, S2		
IO2S2 – 2 passive current outputs 4…20mA (isolated) + 2 solid state relay outputs (SSR) with PWM		
Technical data see IO2, S2		

Accessories	
License key for datalogger capabilities Material number LK-700	Activation of datalogger capabilities
License key for e-mail notifications Material number LK-702	Activation of e-mail notifications (Ethernet port required)
Software DAQ-Manager Program for displaying (table or graph), archiving, evaluation and export data stored on ICT 700 with enabled data logging capabilities. Data are imported via USB flash drive or Ethernet. Export of data is performed in CSV format. The program shows current measurements as chart or graphic (Ethernet port required). Material number SW-DAQ	
Lockable door IP 54 for front panel housing Prevents damage of display and increases access protection. 96 mm Material number Z900002 144 mm Material number Z900025	
Hat rail adapter for panel housing Enables mounting on a hat rail TS35. 96 mm Material number Z900030 144 mm Material number Z900031	
Mini USB Stick 8 GB Enables transfer of logged data and configuration to a PC (even with mounted front door). Material number Z900024	

Ordering code ICT 700 / 750 panel housing

ICT ☐☐ - ☐☐☐☐ - ☐☐☐ - ☐☐☐☐ - ☐☐☐☐ - ☐☐☐☐ - ☐☐☐

Basic version

	Code
TFT display 3,5"	7 0 0
TFT display 5,7" [1]	7 5 0

Slot P

	Code
Supply 19..50 VDC, 16…35 VAC / Output 24 VDC 200 mA / Digital input 24 VDC, RS-485 Modbus RTU	P S 3 2
Supply 85..260 VAC/DC / Output 24 VDC 200 mA / Digital input 24 VDC, RS-485 Modbus RTU	P S 4 2

Slot D

	Code
empty	E
rear USB host port	U S B
rear USB host port / Ethernet 10 Mbit/s	E T U
Rear USB host port / Ethernet 10 Mbit/s, RS-485 Modbus RTU / RS-485 Modbus RTU / RS-232	A C M

Slot C / B / A

	SLOT C	SLOT B	SLOT A
empty	E	E	E
16x current input (I)	I 1 6	I 1 6	I 1 6
24x current input (I)	I 2 4 [1]	I 2 4 [1]	I 2 4 [1]
6x current input (isolated)	I S 6	I S 6	I S 6
16x voltage input (U)	U 1 6	U 1 6	U 1 6
24x voltage input (U)	U 2 4 [1]	U 2 4 [1]	U 2 4 [1]
4x U + 4x I input	U I 4	U I 4	U I 4
8x U + 8x I input	U I 8	U I 8	U I 8
12x U + 12x I input	U I 1 2 [1]	U I 1 2 [1]	U I 1 2 [1]
8x binary input (D)	D 8	D 8	D 8
16x binary input (D)	D 1 6	D 1 6	D 1 6
24x binary input (D)	D 2 4 [1]	D 2 4 [1]	D 2 4 [1]
4x U + 4x I + 8x D input	U I 4 D 8	U I 4 D 8	U I 4 D 8
8x U + 8x I + 8x D input	U I 8 D 8 [1]	U I 8 D 8 [1]	U I 8 D 8 [1]
4x U + 4x I + 8x NTC input	U I 4 N 8	U I 4 N 8	U I 4 N 8
8x U + 8x I + 8x NTC input	U I 8 N 8 [1]	U I 8 N 8 [1]	U I 8 N 8 [1]
4x resistance thermometer input (RTD)	R T 4	R T 4	R T 4
6x resistance thermometer input (RTD)	R T 6 [1]	R T 6 [1]	R T 6 [1]
4x thermocouple input (TC)	T C 4	T C 4	T C 4
8x thermocouple input (TC)	T C 8	T C 8	T C 8
12x thermocouple input (TC)	T C 1 2 [1]	T C 1 2 [1]	T C 1 2 [1]
3x universal input (I, U, RTD, TC)	U N 3	U N 3	U N 3
5x universal input (I, U, RTD, TC)	U N 5 [1]	U N 5 [1]	U N 5 [1]
2x time counter input	H M 2	H M 2	H M 2
4x time counter input	H M 4	H M 4	H M 4
2x pulse counter input	C P 2	C P 2	C P 2
4x pulse counter input	C P 4	C P 4	C P 4
2x flowmeter + 2x I input	F I 2	F I 2	F I 2
4x flowmeter + 4x I input	F I 4	F I 4	F I 4
2x ratemeter + 2x I-input	F T 2	F T 2	F T 2
4x ratemeter + 4x I input	F T 4	F T 4	F T 4
2x current output	I O 2	I O 2	I O 2 [1]
4x current output	I O 4	I O 4	I O 4 [1]
6x current output	I O 6 [1]	I O 6 [1]	I O 6 [1]
8x current output	I O 8 [1]	I O 8 [1]	I O 8 [1]
8x SPST relay 1A	R 8 1	R 8 1	R 8 1 [1]
12x SPST relay 1A	R 1 2 1 [1]	R 1 2 1 [1]	R 1 2 1 [1]
4x SPDT relay 5A	R 4 5	R 4 5 [1]	R 4 5 [1]
6x SPDT relay 5A	R 6 5 [1]	R 6 5 [1]	R 6 5 [1]
8x SSR output	S 8	S 8	S 8
16x SSR output	S 1 6	S 1 6	S 1 6
24x SSR output	S 2 4 [1]	S 2 4 [1]	S 2 4 [1]

Special version

	Code	
standard [2]	0 0 0	
sealing frame IP65 [2]	0 1 0	
front USB host port	0 B 0	
operating temperature -20°C…50°C	0 8 0	consult
sealing frame IP65 + -20…50°C [2]	0 P 0	consult
front USB host port + -20…50°C	0 K 0	consult
customer	9 9 9	consult

[1] not with TFT display 3,5"
[2] only with rear USB host port

Ordering code ICT 700 wall mounted housing

ICT ☐☐-☐☐☐☐-☐☐☐-☐☐☐☐☐☐-☐☐☐-☐☐☐☐-☐☐☐

						SLOT C	SLOT B	SLOT A		
Basic version										
TFT display 3,5"	7 0 0									
Slot P										
Supply 19..50 VDC, 16…35 VAC Output 24 VDC 200 mA Digital input 24 VDC, RS-485 Modbus RTU		P S 3 2								
Supply 85..260 VAC/DC Output 24 VDC 200 mA Digital input 24 VDC, RS-485 Modbus RTU		P S 4 2								
Slot D										
empty			E							
Ethernet 10 Mbit/s			E T E							
Ethernet 10 Mbit/s RS-485 Modbus RTU			E T R							
Slot C / B / A										
2x universal / flowmeter input (I, U, RTD, TC)								F U N 2		
4x universal / flowmeter input (I, U, RTD, TC)								F U N 4		
2x pulse counter/ratemeter / 4x binary input							D U 2			
4x binary input							D 4			
2x SPST relay 1A						R 2 1				
4x SPST relay 1A						R 4 1				
2x current output						I O 2				
4x current output						I O 4				
2x SSR output						S 2				
4x SSR output						S 4				
2x SPST relay 1A + 2x current output						R 2 1 I O 2				
2x SPST relay 1A + 2x SSR output						R 2 1 S 2				
2x current output + 2x SSR output						I O 2 S 2				
Special version										
USB + Wall mounted housing IP65									5 B 0	
USB + wall mounted housing IP65 + -20…50°C									5 K 0	consult
customer									9 9 9	consult

Accessories	
licence key datalogger	LK-700
licence key e-mail notifications	LK-702
lockable, transparent door 96 x 96 mm	Z900002
lockable, transparent door 144 x 144 mm	Z900025
hat rail adapter 96 mm	Z900030
hat rail adapter 144 mm	Z900031
software DAQ-manager	SW-DAQ
mini USB stick 8GB	Z900024