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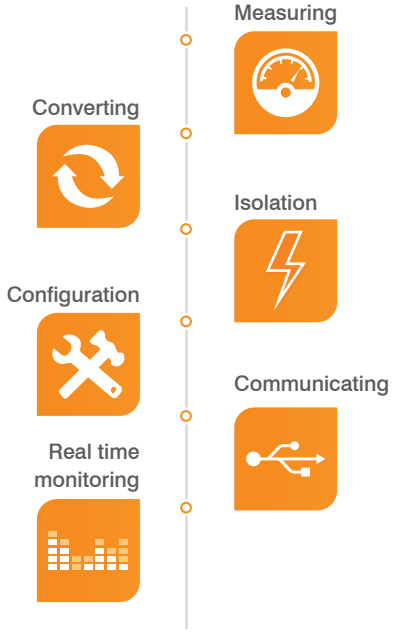
ASCON (Analog Signal Converter)

Defining ASCON Transducers in simple terms

ASCON transducer is an electronic device that changes one form of energy into another. It converts temperature, voltage and current parameters into V, mV, mA and RS485 outputs.

Which actions are executed?



ASCON transducers measure input parameters and convert them to another signal form continuosly.

Input, output and supply parts are electrically isolated from one another in order to provide protective isolation.

It is possible to configure different input ranges and output types by means of adjustment knobs.

Measured values can be transmitted to a PC through serial communication so that real time analog signal monitoring without PLC analog card is possible.

Which market are they used frequently?

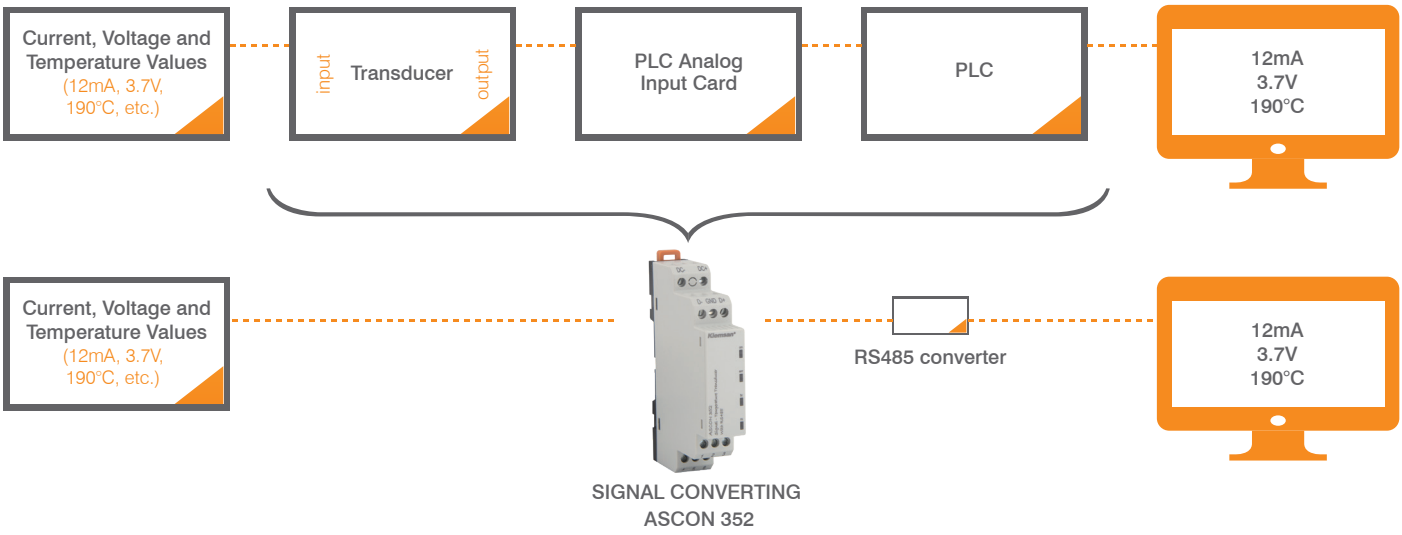
- *Scada System*
- *Electric power plants and substations*
- *Industrial Process*
- *Energy management systems*
- *Medium voltage modular cabinets*
- *Control and safety systems*
- *Telecontrol systems*

Benefits and Advantages

- *Serial Data Output*
- *Extended input range for voltage and current signals*
- *Extended temperature input range for PT100 and termocouple sensors*
- *Easy configuration with knobs*
- *Excellent linearity*
- *Electrical isolation with a high test voltage*
- *Low residual noise*
- *Highly compact and light weight*
- *Self-Extinguishing plastic housing*

Real Time Analog Signal&Temperature Monitoring

Voltage, current and temperature values which are read by ASCON 352, can be monitored instantaneously by a computer through serial data output.
No need to use PLC analog input cards anymore.



Industrial Process Applications

Measurement of temperature is a vital part of instrumentation in petrochemical industries, heating systems, refrigerating applications etc. Termocouple sensors are often used for their excellent temperature response. ASCON 331 presents best solution with combining TC sensors with PLC/Scada system.

Air conditioning and liquid temperature measurement

RTD's provide wide temperature input range from -150°C to +800°C when accuracy and stability are a requirement of the customer's specification in an industrial process in order to keep it in desired degree.

I/O applications

Conversion voltage and current of measurands, integration them with SCADA and RTU system.

		ASCON 311	ASCON 321	ASCON 331	ASCON 352
					
Definition		Configurable Signal Transducer	Configurable PT100 Transducer	Configurable Termocouple Transducer	Signal - Temperature Transducer with RS485
Order Number		602300	602310	602320	602400
Casing Width(mm)		17,5	17,5	17,5	17,5
Connection		Screw terminal	Screw terminal	Screw terminal	Screw terminal
Mounting		Rail Mount	Rail Mount	Rail Mount	Rail Mount
Supply Voltage		11-30 VDC	11-30 VDC	11-30 VDC	11-30 VDC
Input	Type	DC Voltage and Current (mV,V,mA)	PT100 (2,3,4 wires)	Termocouple (J,K,E,R and S types)	mV, V, mA, PT100 (2, 3 and 4 wire) and Termocouple (J,K,E,R and S types)
	Range	30 signal combinations; 4-20mA, 0-10V, … etc	-150°C .. 800°C configurable	J : -200°C .. 1200 °C configurable K : -200°C .. 1350 °C configurable E : -200°C .. 950 °C configurable R: -50°C .. 1750 °C configurable S : -50°C .. 1750 °C configurable	ASCON 352 involves all input ranges which are indicated in left tables.
Output	Type	DC Voltage and Current (mV,V,mA)	DC Voltage and Current (mV,V,mA)	DC Voltage and Current (mV,V,mA)	RS485 data output
	Range	10 signal combinations; 4-20mA, 0-10V, … etc	10 signal combinations; 4-20mA, 0-10V, … etc	10 signal combinations; 4-20mA, 0-10V, … etc	-
Isolation		3 way - 1.5 kV Rms	3 way - 1.5 kV Rms	3 way - 1.5 kV Rms	3 way - 1.5 kV Rms
Communication Protocol		-	-	-	Modbus RTU

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ASCON 352

RS485'li Sinyal-Sıcaklık Dönüştürücü / Signal-Temperature Transducer With RS485

tip	sipariş numarası
ASCON352	602 400

teknik özellikler

Giriş tipi	mV, V, mA, PT100 (2, 3 ve 4 telli) ve TC (J, K, E, R ve S tip)
Giriş sinyal aralığı	0 .. 60mV, -60 .. 60mV, 0 .. 5mA 0 .. 100mV, -100 .. 100mV, 0 .. 10mA 0 .. 250mV, -250 .. 250mV, 0 .. 20mA 0 .. 500mV, -500 .. 500mV, -5 .. 5mA 0 .. 1V, -1 .. 1V, -10 .. 10mA 0 .. 2V, -2 .. 2V, -20 .. 20mA 0 .. 2.5V, -2.5 .. 2.5V, 4 .. 20mA 0 .. 5V, -5 .. 5V, 0 .. 24mA 0 .. 10V, -10 .. 10V, 4 .. 24mA 0 .. 20V, -20 .. 20V, 0 .. 12mA
Giriş sıcaklık aralığı (PT100)	-150°C .. 800°C arası ayarlanabilir
Giriş sıcaklık aralığı (TC)	J : -200°C .. 1200°C arası ayarlanabilir K : -200°C .. 1350°C arası ayarlanabilir E : -200°C .. 950°C arası ayarlanabilir R : -50°C .. 1750°C arası ayarlanabilir S : -50°C .. 1750°C arası ayarlanabilir
Sensör uyarı akımı (PT100)	< 0.5mA
Maksimum giriş sinyali	30V DC veya 50mA DC
Giriş direnci	102 kΩ (Gerilim girişi) 30.2 Ω (Akım girişi)
Ölçüm hatası	< %0.1 Tam skala
Ara yüz	RS485
Protokol	MODBUS RTU
Baudrate	1200 2400 4800 9600 19200 38400 (Default) 57600
Parite	Yok (Default) Çift Tek
Besleme gerilimi	11 .. 30V DC
Güç tüketimi	≤ 15mA @ 24V (I_{LOAD} =0mA)
Çalışma sıcaklık aralığı	-20°C .. 60°C
Koruma	Aşırı gerilim ve ters bağlantı koruması
İzolasyon	1.5kV$_{RMS}$ (Cont.) , 3kV$_{RMS}$ (5sn)
IP sınıfı	IP20
Bağlantı	Vidalı klemens terminali
Montaj tipi	Raya montaj

modbus tablosu

Giriş değeri	40001	RO	32 bit float	03H
Ortam sıcaklığı	40003	RO	32 bit float	03H
Giriş tipi	40005	R/W	32 bit integer	03H / 10H
Giriş tipi - seçenek 1	40007	R/W	32 bit integer	03H / 10H
Giriş tipi - seçenek 2	40009	R/W	32 bit integer	03H / 10H
Giriş tipi - seçenek 3	40011	R/W	32 bit integer	03H / 10H
Baudrate	40013	R/W	32 bit integer	03H / 10H
Parite	40015	R/W	32 bit integer	03H / 10H
MODBUS köle ID	40017	R/W	32 bit integer	03H / 10H
Kayıt değeri	40019	WO	32 bit integer	10H

type	order no
ASCON352	602 400

technical specifications

Input type	mV, V, mA, PT100 (2, 3 and 4 wire) and TC (J,K,E,R and S type)
Input signal range	0 .. 60mV, -60 .. 60mV, 0 .. 5mA 0 .. 100mV, -100 .. 100mV, 0 .. 10mA 0 .. 250mV, -250 .. 250mV, 0 .. 20mA 0 .. 500mV, -500 .. 500mV, -5 .. 5mA 0 .. 1V, -1 .. 1V, -10 .. 10mA 0 .. 2V, -2 .. 2V, -20 .. 20mA 0 .. 2.5V, -2.5 .. 2.5V, 4 .. 20mA 0 .. 5V, -5 .. 5V, 0 .. 24mA 0 .. 10V, -10 .. 10V, 4 .. 24mA 0 .. 20V, -20 .. 20V, 0 .. 12mA
Input temperature range (PT100)	-150°C .. 800°C configurable
Input temperature range (TC)	J : -200°C .. 1200°C configurable K : -200°C .. 1350°C configurable E : -200°C .. 950°C configurable R : -50°C .. 1750°C configurable S : -50°C .. 1750°C configurable
Sensor excitation current (PT100)	< 0.5mA
Maximum input signal	30V DC or 50mA DC
Input impedance	102 kΩ (Voltage input) 30.2 Ω (Current input)
Measurement error	< %0.1 Full scale
Interface	RS485
Protocol	MODBUS RTU
Baudrate	1200 2400 4800 9600 19200 38400 (Default) 57600
Parity	None (Default) Even Odd
Supply voltage	11 .. 30V DC
Power consumption	≤ 15mA @ 24V (I_{LOAD} =0mA)
Operating temperature range	-20°C .. 60°C
Protection	Over voltage and reverse polarity protection
İsolation	1.5kV$_{RMS}$ (Cont.) , 3kV$_{RMS}$ (5sec.)
IP class	IP20
Connection	Screw terminals
Mounting type	Rail mounted

modbus table

Input value	40001	RO	32 bit float	03H
Ambient temperature	40003	RO	32 bit float	03H
Input type	40005	R/W	32 bit integer	03H / 10H
Input type - option 1	40007	R/W	32 bit integer	03H / 10H
Input type - option 2	40009	R/W	32 bit integer	03H / 10H
Input type - option 3	40011	R/W	32 bit integer	03H / 10H
Baudrate	40013	R/W	32 bit integer	03H / 10H
Parity	40015	R/W	32 bit integer	03H / 10H
MODBUS slave ID	40017	R/W	32 bit integer	03H / 10H
Record value	40019	WO	32 bit integer	10H

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RS485'li Sinyal-Sıcaklık Dönüştürücü / Signal-Temperature Transducer With RS485

MODBUS RTU açıklamları

Giriş tipi
0 : Gerilim / akım
1 : PT100
2 : TC

Giriş tipi "Gerilim / akım" ise;

Giriş tipi - seçenek 2	Giriş tipi - seçenek 1		
	0, 1, 2	**3, 4, 5, 6**	**7, 8, 9**
0	0 .. 60mV	-60 .. 60mV	0 .. 5mA
1	0 .. 100mV	-100 .. 100mV	0 .. 10mA
2	0 .. 250mV	-250 .. 250mV	0 .. 20mA
3	0 .. 500mV	-500 .. 500mV	-5 .. 5mA
4	0 .. 1V	-1 .. 1V	-10 .. 10mA
5	0 .. 2V	-2 .. 2V	-20 .. 20mA
6	0 .. 2.5V	-2.5 .. 2.5V	4 .. 20mA
7	0 .. 5V	-5 .. 5V	0 .. 24mA
8	0 .. 10V	-10 .. 10V	4 .. 24mA
9	0 .. 20V	-20 .. 20V	0 .. 12mA

"Giriş tipi - seçenek 3", değeri mutlaka 9 olmalıdır.

Giriş tipi "PT100" ise;

Giriş tipi - seçenek 1		
0, 1, 2	**3, 4, 5, 6**	**7, 8, 9**
PT100-2W	PT100-3W	PT100-4W

"Giriş tipi - seçenek 2", değeri mutlaka 9 olmalıdır.

"Giriş tipi - seçenek 3", değeri mutlaka 9 olmalıdır.

Giriş tipi "TC" ise;

Giriş tipi - seçenek 1				
0, 1	**2, 3**	**4, 5**	**6, 7**	**8, 9**
J tipi TC	K tipi TC	E tipi TC	R tipi TC	S tipi TC

"Giriş tipi - seçenek 2", değeri mutlaka 9 olmalıdır.

"Giriş tipi - seçenek 3", değeri mutlaka 9 olmalıdır.

Baudrate						
0	**1**	**2**	**3**	**4**	**5**	**6**
1200	2400	4800	9600	19200	38400	57600

Parite		
0	**1**	**2**
Yok	Çift	Tek

Köle ID	1 .. 247
Kayıt değeri	Değişikliklerin kaydı için 100 yazılmalıdır.

hata durumu bildirimi

Hata Durumu	LED Gösterimi
gerilim çıkışı modu: kısa devre durumu	Err:

bağlantılar

Besleme girişi	DC+, DC-
Analog çıkış	V, Gnd (Gerilim çıkış) I, Gnd (Akım çıkış)
Giriş bağlantısı	mV girişi : 4 (+), 5 (-) V girişi : 6 (+), 2 (-) mA girişi : 5 (+), 2 (-) 2 telli bağlantı : 4 ve 3 3 telli bağlantı : 4 ve 2, 3 4 telli bağlantı : 1, 4 ve 2, 3 TC bağlantısı : 4, 5

MODBUS RTU descriptions

Input type
0 : Voltage / current
1 : PT100
2 : TC

If Input type is "Voltage / current";

Input type - option 2	Input type - option 1		
	0, 1, 2	**3, 4, 5, 6**	**7, 8, 9**
0	0 .. 60mV	-60 .. 60mV	0 .. 5mA
1	0 .. 100mV	-100 .. 100mV	0 .. 10mA
2	0 .. 250mV	-250 .. 250mV	0 .. 20mA
3	0 .. 500mV	-500 .. 500mV	-5 .. 5mA
4	0 .. 1V	-1 .. 1V	-10 .. 10mA
5	0 .. 2V	-2 .. 2V	-20 .. 20mA
6	0 .. 2.5V	-2.5 .. 2.5V	4 .. 20mA
7	0 .. 5V	-5 .. 5V	0 .. 24mA
8	0 .. 10V	-10 .. 10V	4 .. 24mA
9	0 .. 20V	-20 .. 20V	0 .. 12mA

"Input type - option 3" value must be a 9.

If Input type is "PT100";

Input type - option 1		
0, 1, 2	**3, 4, 5, 6**	**7, 8, 9**
PT100-2W	PT100-3W	PT100-4W

"Input type - option 2" value must be a 9.

"Input type - option 3" value must be a 9.

If Input type is "TC";

Input type - option 1				
0, 1	**2, 3**	**4, 5**	**6, 7**	**8, 9**
J typeTC	K type TC	E type TC	R type TC	S type TC

"Input type - option 2" value must be a 9.

"Input type - option 3" value must be a 9.

Baudrate						
0	**1**	**2**	**3**	**4**	**5**	**6**
1200	2400	4800	9600	19200	38400	57600

Parity		
0	**1**	**2**
None	Even	Odd

Slave ID	1 .. 247
Record value	Enter "100" to save the changes

failure indication

Failure Status	LED Indication
voltage output mode: short circuit	Err:

connections

Power ınput	DC+, DC-
Analog output	V, Gnd (Voltage ınput) I, Gnd (current ınput)
Input connection	mV input : 4 (+), 5 (-) V input : 6 (+), 2 (-) mA input : 5 (+), 2 (-) 2 wire connection : 4 and 3 3 wire connection : 4 and 2, 3 4 wire connection : 1, 4 and 2, 3 TC connection : 4, 5