Manuals+ — User Manuals Simplified.

EKC 347
Electronic
Controller

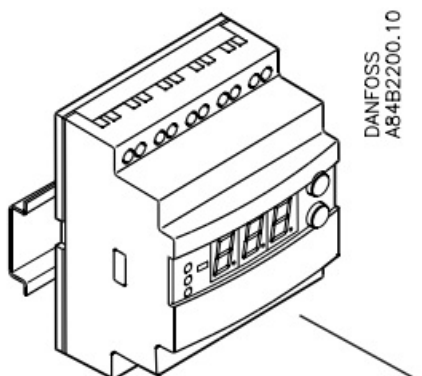# Danfoss EKC 347 Electronic Controller Installation Guide

Danfoss EKC 347 Electronic Controller
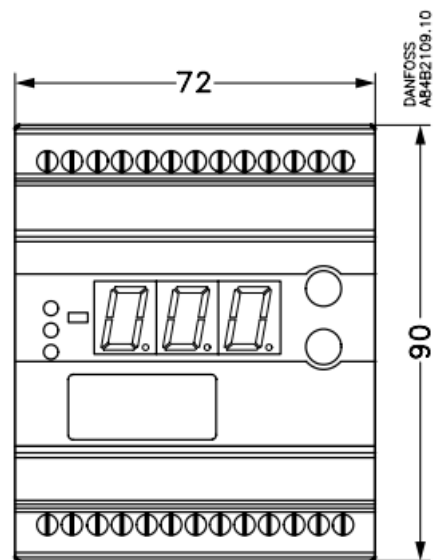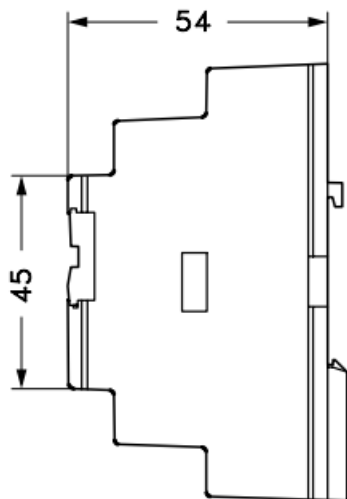
Specifications

- Product: Electronic controller Type EKC 347
- Manufacturer: Danfoss
- Model Numbers: M84H0049_1, M84H00455_1, M84H00456_1, M84H0050_1, M84H0067_1, M84H0058_1, M84H0051_1, M84H0057_1, M84H0059_1, M84H0061_1, M84H0060_1
- Power Supply: 24 V d.c.
- Compatibility: AKS 4100U, AKS 4100

Identification

084B7067

Dimensions

DANFOSS
AB4B2109.10

54

45

72

90

Principle

AKS 4100U

EKC 347

ICM with
ICAD motor

Danfoss
M84H0049_1

Danfoss
M84H0045_1

EKC 347

Danfoss
M84H0045_1

AKS 4100/
AKS 4100U

EKC 347

Danfoss
M84H0050_1

EKC 347
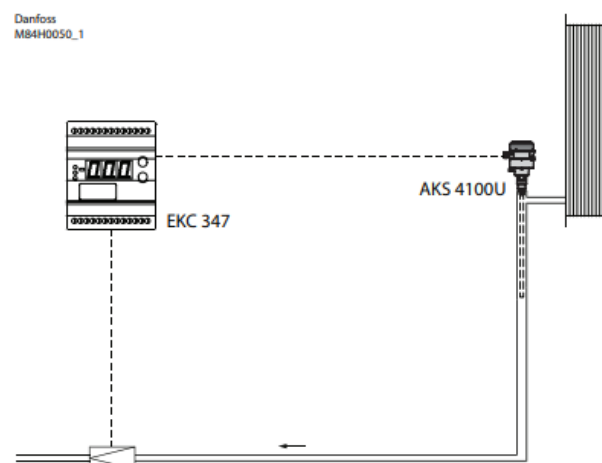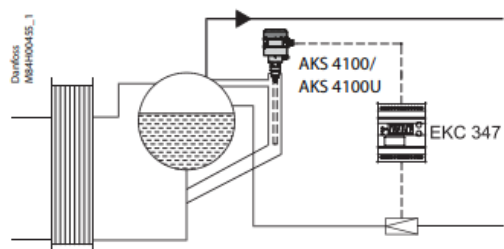
AKS 4100U
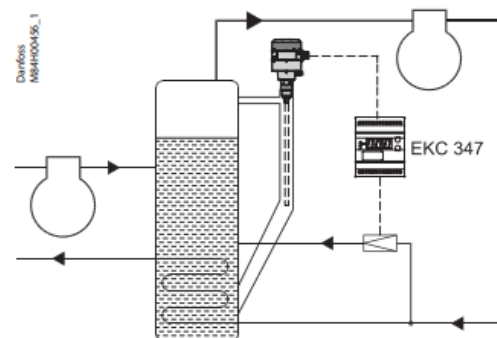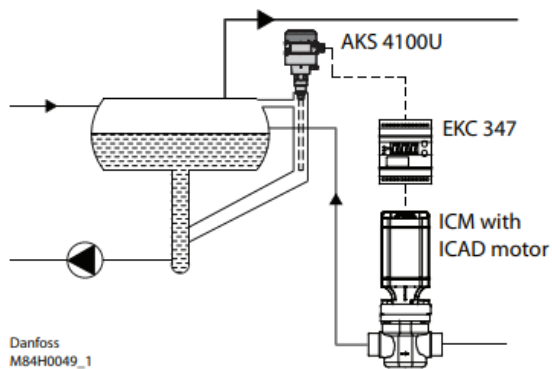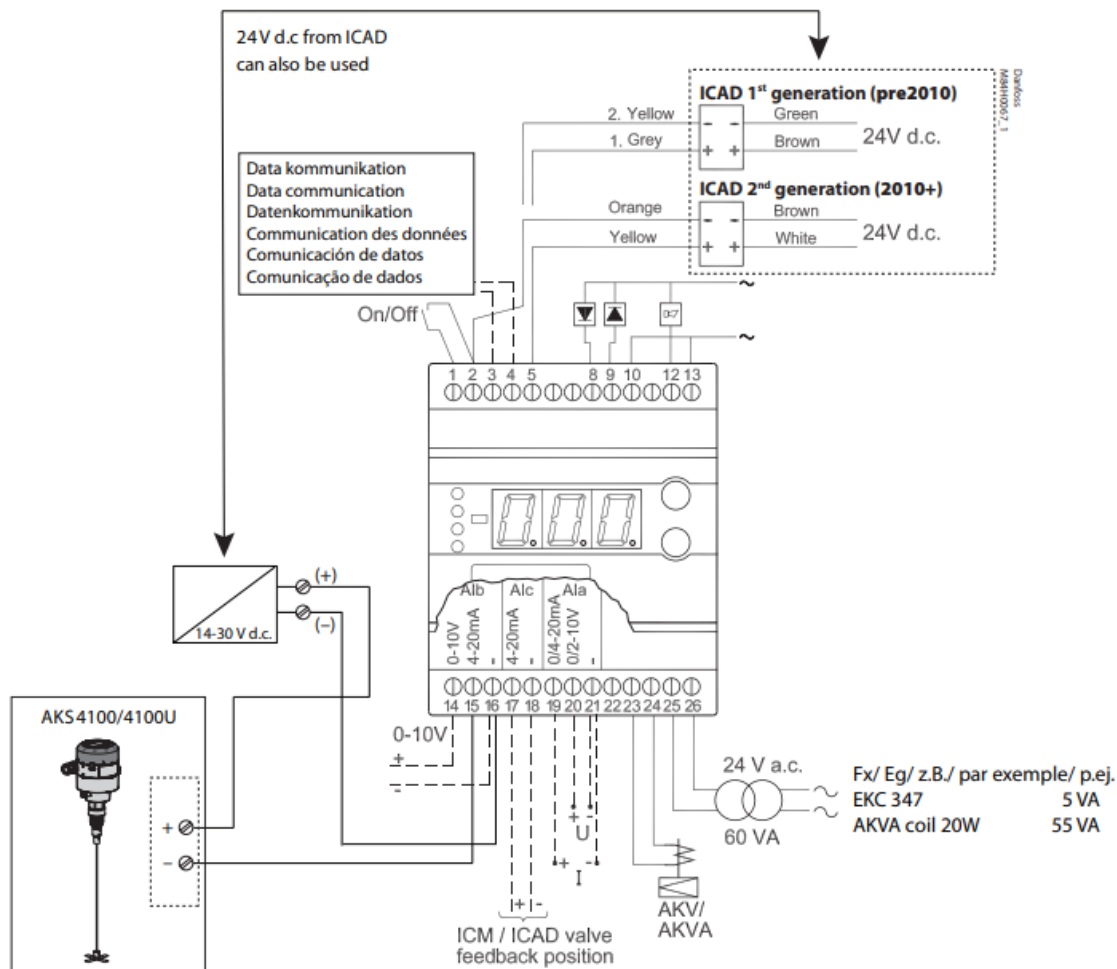
Type = AKV / AKVA

Connection

Necessary connections

Terminals:

- 25-26 Supply voltage 24 V a.c.
- 15-16 Signal from level transmitter type AKS 4100/4100U or
- 14-16 Signal from transmitter 0-10V
- 23-24 Expansion valve type AKV or AKVA or
- 2-5 Expansion valve type: ICM with ICAD
- 1-2 Switch function for start/stop of regulation. If a switch is not connected, terminals 1 and 2 must be shortcircuited.

Application dependent connections

Terminal:

- 12-13 Alarm relay
- There is connection between 12 and 13 in alarm situations and when the controller is dead
- 8-10 Relay for lower level limit. There is connection between 8 and 10 when the set value is passed
- 9-10 Relay for upper level limit. There is connection between
- 9 and 10 when the set value is passed
- 17-18 ICM valve feedback signal from ICAD 0/4-20 mA
- 19-21 Current signal or
- 20-21 Voltage signal from other regulation (for external reference displacement)
- 3-4 Data communication

Mount only, if a data communication module has been mounted.

- It is important that the installation of the data communication cable be done correctly. Cf. separate literature No. RC8AC…

Connection examples
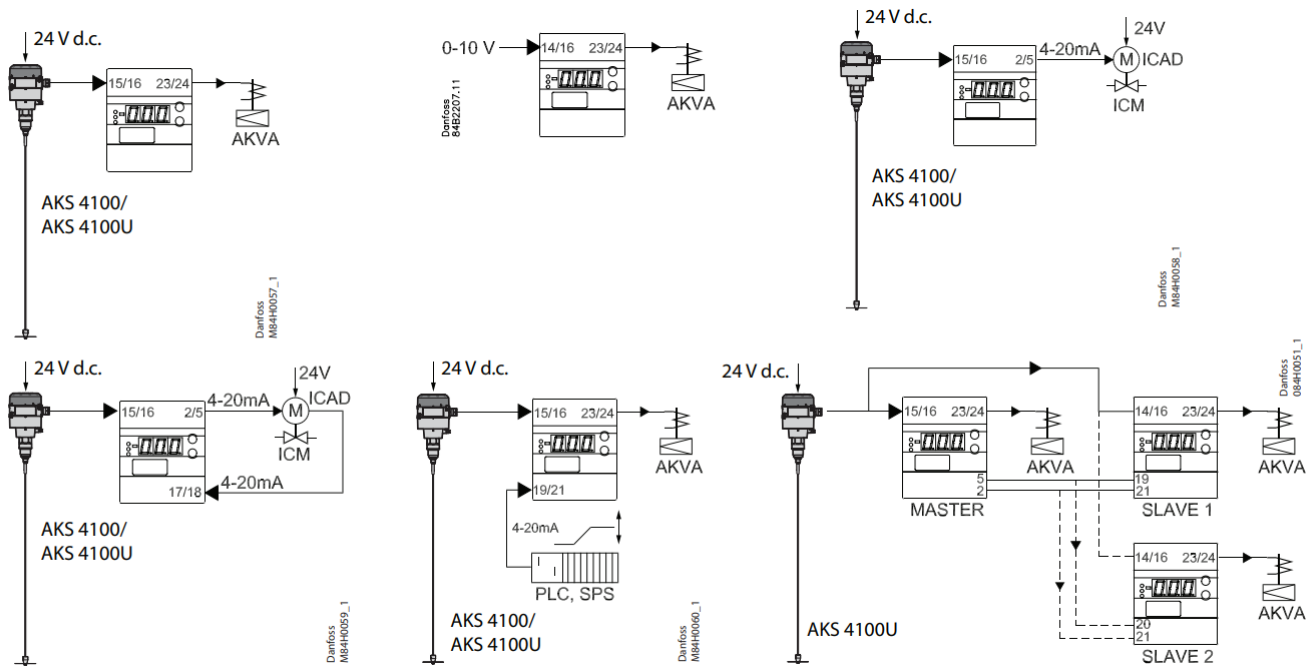
EKC 347 – ON/OFF Application. Open/Close solenoid valve with coil 110 V

Liquid Level [%]

$\dfrac{n34}{2}$

SP

$\dfrac{n34}{2}$

[T]

ON

OFF

AKV/A output

Operation

Display
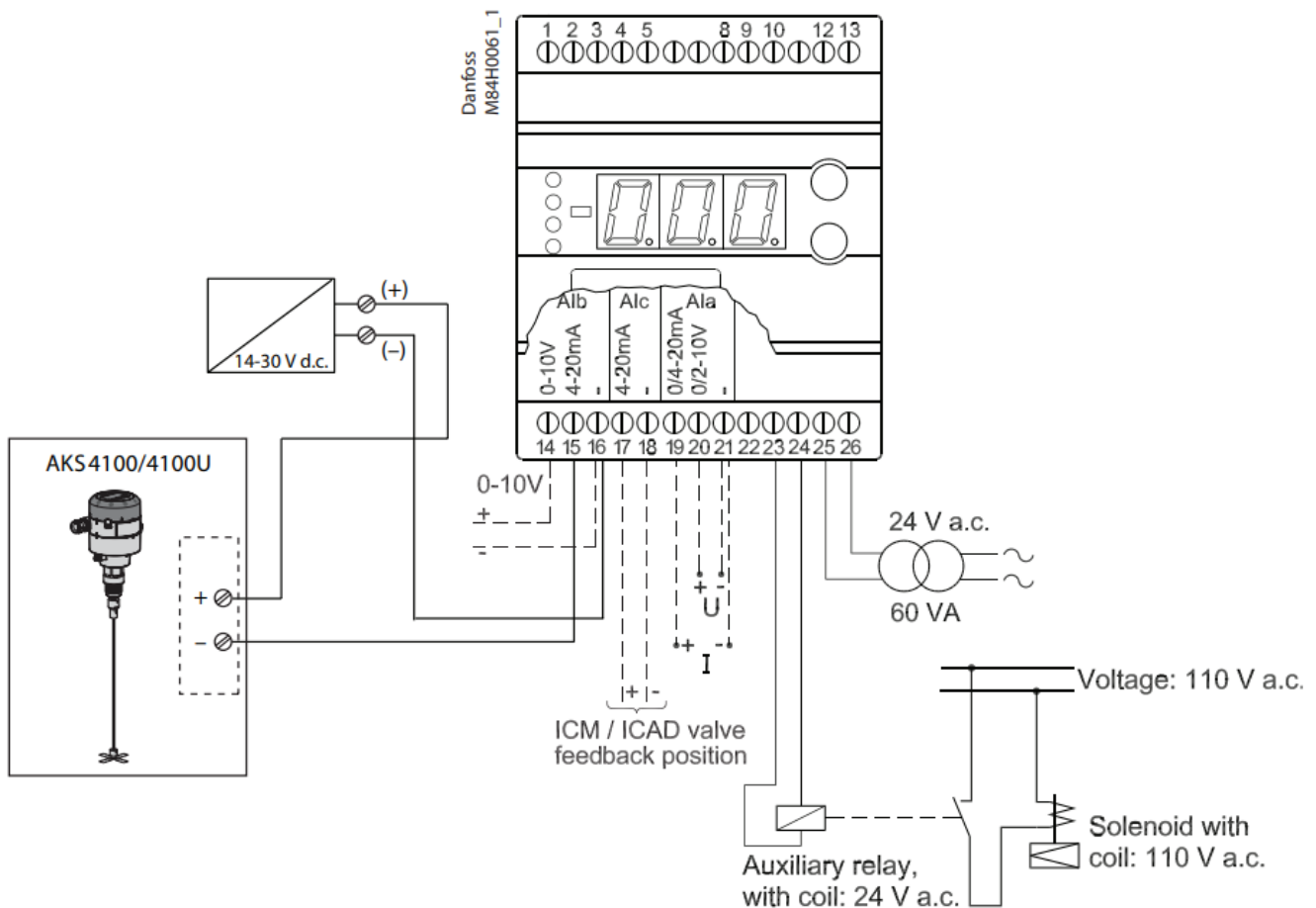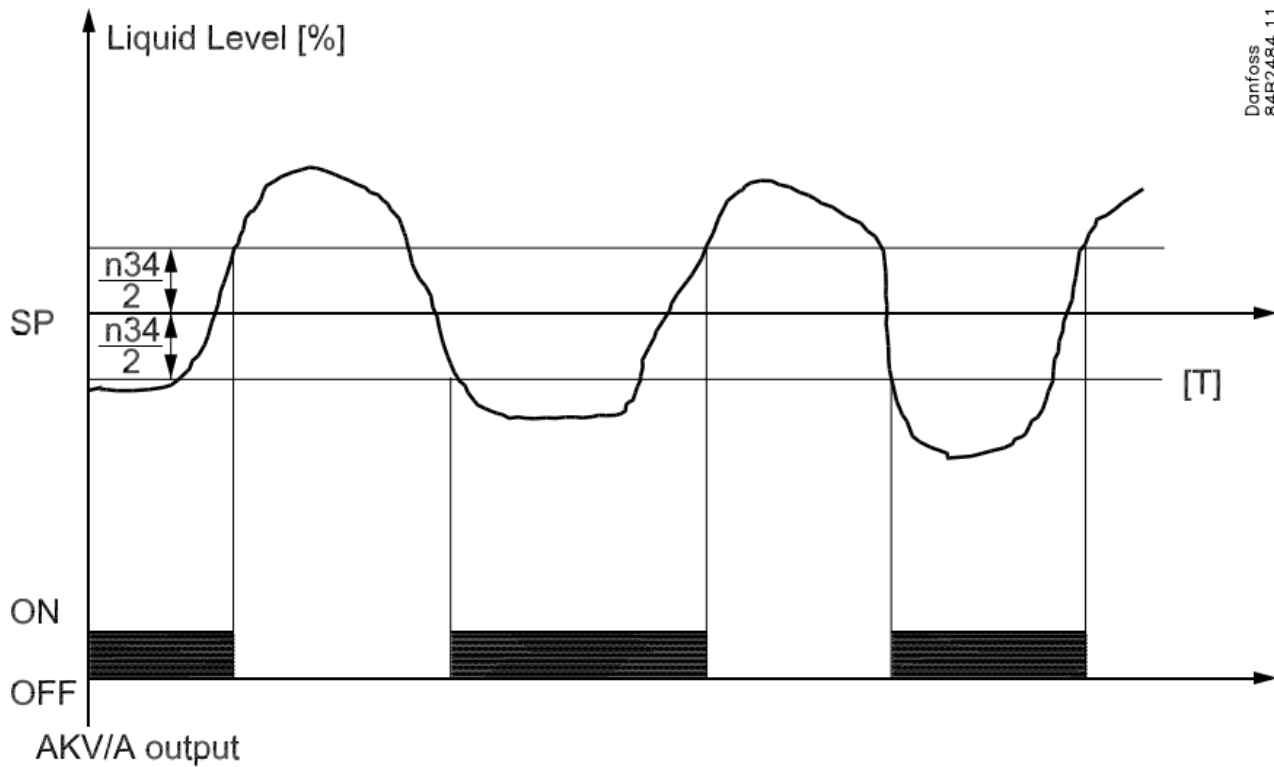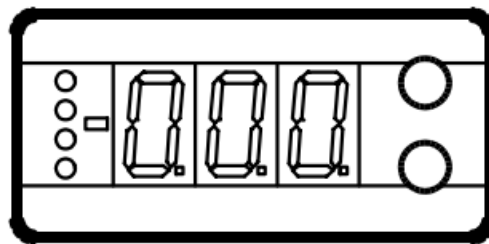The values will be shown with three digits, and after an operation the controller will return to its standard mode and show the measured liquid level.

Light-emitting diodes (LED) on front panel

- There are LED's on the front panel which will light up when the corresponding relay is activated.
- The upper LED will indicate the valve's opening degree. A short pulse indicates a slow liquid flow and a long pulse a fast liquid flow.
- The three lowest LED's will flash, if there is an error in the regulation.
- In this situation you can upload the error code on the display and cancel the alarm by giving the uppermost button a brief push.

The buttons
When you want to change a setting, the two buttons will give you a higher or lower value depending on the button you are push-ing. But before you change the value, you must have access to the menu. You obtain this by pushing the upper button for a couple of seconds – you will then enter the column with parameter codes. Find the parameter code you want to change and push the two buttons simultaneously. When you have changed the value, save the new value by once more pushing the two buttons simultane-ously.

Gives access to the menu (or cuts out an alarm)

 Gives access to changes

 Saves a change

Examples of operations

Set reference

1. Push the two buttons simultaneously
2. Push one of the buttons and select the new value
3. Push both buttons again to conclude the setting

Set one of the other menusz

1. Push the upper button until a parameter is shown
2. Push one of the buttons and find the parameter you want to change
3. Push both buttons simultaneously until the parameter value is shown
4. Push one of the buttons and select the new value
5. Push both buttons again to conclude the setting

Literature survey:

- Manual for EKC 347…………………………………………………PS.G00.A—
- Instruction for EKC 347………………………………………..PI.RP0.A—
- Installation guide, "Data communication link
- for ADAP-KOOL® "……………………………………………RC8AC—

Menu survey

SW = 1.1x

Function	Pa- ram - eter	Min.	Max.	Fac. set- ting
Normal display				
Read the measured liquid level	–	%		50.0
If you wish to see the actual opening degree, give the lower button a brief push	–	%		0
If you wish to set the required setpoint you obtain ac- cess by pushing both buttons simultaneously	–	0%	100%	100
Level control				

External contribution to the reference. Cf. also o10. Value is set in %-points.	r06	-100	100	0.0
Start / stop of level control	r12	OFF/0	ON/1	1
Alarm				
Upper level limit	A01	0 %	100%	85
Lower level limit	A02	0%	100%	15
Time delay for upper level limit	A03	0 s	999 s	50
Time delay for lower level limit	A15	0 s	999 s	10
Level alarm limit	A16	0%	100%	20
Delay for level alarm	A17	0 s	999 s	0
The level alarm is linked to: 0: Rising level (higher level than A16) 1: Falling level (lower level than A16) 2: Same function as if A18=0. When A2 alarm is gener- ated and Relay for lower level limit, gives OFF signal (cut out). 3: Same function as if A18=1 When A2 alarm is gener- ated and Relay for lower level limit, gives OFF signal (cut out).	A18	0	3	0
Function for Alarm relay when A1, A2 or A3 alarms are detected. 0: Alarm relay to be activated when A1 or A2 or A3 are detected. 1: Alarm relay only to be activated when A3 is detected.	A19	0	1	0
Regulating parameters				
P – band	n04	0%/Off	200%	30
I: Integration time Tn	n05	60	600/ Off	400
Period time (only if AKV/A valve is used)	n13	3 s	10 s	6

Max. opening degree	n32	0%	100%	100
Min. opening degree	n33	0%	100%	0
Neutral zone (only for ICM valve)	n34	2%	25%	2
Definition of regulating principle Low: On the low-pressure side (valve closes when liquid level is rising) High: On the high-pressure side (valve opens when liquid level is rising)	n35	Low/0	Hig/1	0
Miscellaneous				
Controller's address	o03*	0	60	0
ON/OFF switch (service-pin message)	o04*	OFF	ON	
Define valve and output signal: 1: ICM. AO: 4-20 mA 2: ICM. AO: 0-20 mA 3: AKV/A, AO: 4-20 mA 4: AKV/A, AO: 0-20 mA Or if a master/slave function is used: 5: AKV/A, MASTER 6: AKV/A, SLAVE 1/1. AO:4-20 mA 7: AKV/A, SLAVE 1/1. AO:0-20 mA 8: AKV/A, SLAVE 1/2. AO:4-20 mA 9: AKV/A, SLAVE 1/2. AO:0-20 mA 10: AKV/A, SLAVE 2/2. AO:4-20 mA 11: AKV/A, SLAVE 2/2. AO:0-20 mA 12: AKV/A, SLAVE 1/1. AO:4-20 mA – AO always updated 13: AKV/A, SLAVE 1/1. AO:0-20 mA- AO always updated 14: AKV/A, SLAVE 1/2. AO:4-20 mA- AO always updated 15: AKV/A, SLAVE 1/2. AO:0-20 mA- AO always updated 16: AKV/A, SLAVE 2/2. AO:4-20 mA- AO always updated 17: AKV/A, SLAVE 2/2. AO:0-20 mA- AO always updated	o09	1	17	1

Define the input signal on terminals 10, 20, 21 (external reference displacement) 0: OFF 1: 4-20 mA 2: 0-20 mA 3: 2-10 V 4: 0-10 V	o10	0	4	0
Language 0=English, 1=German, 2=Frensh, 3=Danish, 4=Spanish, 5=Italian, 6=Swedish. When you change the setting you must also activate o04.	o11*	0	6	0
Set supply voltage frequency	o12	0/50 Hz	1/60 Hz	0
Selection of parameter for display and AO (except from when o09=1,2 or 5) If o34 = 0: 0: Liquid level is show 1: Valve's opening degree OD will be shown If o34 = 1: 0: Liquid level is show 1: The ICM valve position feed back signal [%] will be shown	o17	0	1	0
Manual control of outputs: OFF: No manual control 1: Upper level relay put in pos. ON 2: Lower level relay put in pos. ON 3: AKV/A output put in pos. ON 4: Alarm relay activated (cut out)	o18	OFF	4	0

Description				
Define input signal (level signal) on terminals 14, 15, 16 0: OFF 1: 4-20 mA 2: 0-10 V (also set the voltage values in the next two menus) Read functional description if the connection used is a master/slave function.	o31	0	2	1
Define input signal's lower value for terminal 14, if required	o32	0.0 V	4.9 V	4.0
Define input signal's upper value for terminal 14, if required	o33	5.0 V	10 V	6.0
Define input signal on terminals 17-18 0: Not used 1: ICM mA feedback signal from ICAD connected 2: Not used	o34	0	2	0
Service				
Read liquid level	u01	%		
Read liquid level reference	u02	%		
Read external contribution to the reference	u06	mA		
Read external contribution to the reference	u07	V		
Read current signal on the analog output	u08	mA		
Read status of input DI	u10			
Read valve's opening degree	u24	%		

Read level signal		u30	mA
Read level signal		u31	V
Read signal from ICM/ICAD		u32	mA
Read signal from ICM/ICAD converted into %		u33	%

Error messages

The controller can give the following messages:		
E1		Errors in the controller
E12		The external reference contribution is outside the range
E21		Level signal outside the range 1)
E22	**Error message**	Signal from ICM/ICAD outside the range
A1		Upper level limit reached
A2		Lower level limit reached
A3	**Alarm message**	Alarm level limit reached

1)
If E21 is detected. EKC 347 will force the valve to close or open the valve depending af n35

If Low presure has been selected. (n35=0)
The valve is forced to fully closed, however if Min. Opening Degree (n33) is higher than 0 the valve will open to the value of n33

If High presure has been selected. (n35=1)
The valve is forced to fully open, however if Max. Opening Degree (n32) is lower than 100 the valve will open to the value of n32

The Product contains electrical components
And may not be disposed together with domestic waste. Equipment must be separate collected with Electrical and Electronic waste. According to Local and currently valid legislation.

FAQ

- **Q: What type of power supply does the EKC 347 require?**

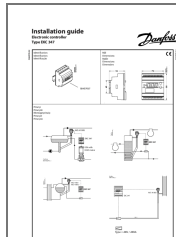 A: The EKC 347 requires a 24 V d.c. power supply.

- **Q: How do I set up alarm relay connections?**

  A: Connect the alarm relay to terminals 12-13 as per the application requirements.

- **Q: How do I configure the ON/OFF operation?**

  A: Adjust the P.Band to 0% or OFF and set the Hysteresis using the Setpoint procedure for ON/OFF operation.

Documents / Resources

Danfoss EKC 347 Electronic Controller [pdf] Installation Guide EKC 347, AKS 4100U, EKC 347 Electronic Controller, EKC 347, Electronic Controller, Controller

References

- **User Manual**