



User Guide

KoolProg[®]

http://koolprog.danfoss.com



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0.0 Introduction	Configuring and testing the Danfoss electronic controllers has never been so easy with the new KoolProg PC software.
	With one KoolProg software, you can now take advantage of new intuitive features such as the selection of favorite parameter lists, writing online as well as offline program files, and monitoring or simulating alarm status activities. These are only some of the new features that will minimize the time R&D and production will spend on development, programming, and testing the Danfoss range of commercial refrigeration controllers.
	Supported Danfoss products: ETC 1H, EETc/EETa, ERC 111/112/113, ERC 211/213/214, EKE 1A/B/C, AK-CC55.
	The following instructions will guide you through the installation and first time usage of KoolProg [®] .

1.0 Downloading .exe file Download KoolProgSetup.exe file from the location: <u>http://koolprog.danfoss.com</u>



2.0 System requirements

This software is intended for a single user and recommended system requirements as below.

OS	Windows 7, Windows 10, 32 bit and 64 bit
RAM	8 GB RAM
HD Space	200 GB and 250 GB
Required software	MS Office 2010 and above
Interface	USB 3.0

Macintosh operating system is not supported. Running the setup directly from windows server or network file server is not recommended.



3.0 Installing software

- Double click on the KoolProg[®] setup icon
 - Run the installation wizard and follow the onscreen instructions to complete the KoolProg[®] installation.



Note: If you encounter a "Security warning" during installation, please click on "Install this driver software anyway".

4.0 Connection with controllers

Fig 1: For EET using KoolKey and cable



- 1. Connect the KoolKey to PC's USB port
- 2. Connect the controller to KoolKey using communication cable



Fig 2: For ERC and ETC using Danfoss gateway

(Code No. 080G9711)



1. Connect USB cable to the PC's USB port

2. Connect the controller.

CAUTION: Please ensure that only one controller is connected at any time.

Fig 3: Mass programming of EET and ERC controllers

For EET:

Insert the KoolKey to PC's USB port and save the config file created using KoolProg in *080Nxxxx.xml* format where *xxxx* are code no. of the controller.

For ERC:

Connect EKA programming key to USB port of PC/laptop and transfer the file in *.erc* format from computer to the programming key.





Transferring the file from KoolKey to EET controller:

For EETa the controller has to be powered with main power or KoolKey must powered with 5 V supply. For EETc the KoolKey has to be mandatorily powered up with 5 V supply.

CAUTION: Do not power the KoolKey and controller together.



For more details, please refer KoolKey User Guide: BC349529829398en-000102.

Transferring the file from EKA key to ERC controller:

Fig 3a: Transferring to ERC 11X Insert EKA 183A(080G9740) into docking station (080G9701). Place ERC 11X controller on docking station and keep it pressed down until the successful programming indicator turns green.



Fig 3b: Transferring to ERC 21X:

Insert EKA 183B (080G9741) into the TTL port of ERC 21X as shown in image below. Press the button to initiate transfer of file from EKA 183B to ERC21X.



For more information, please refer to EKA 183B (080G9741) instruction sheet provided in the kit.





Fig 4: Connection for EKE using interface type MMIMYK

Fig 5: Connection for AK-CC55 using interface type MMIMYK (Code No. 080G0073)



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Password protection: If the program is password protected, it is possible to specify two different access levels: one with a password and one without a password.

Accessibility

Users with a password have access to all features.



Users without a password have limited access and may



6.0 Set parameters



pen a recent setting file	Setting files
080G5400	👷 New
080G3413	Import settings from controller
	Open
	Controllers models

This feature allows you to configure parameter settings for your application.

Click one of the icons in the right column to create a fresh configuration offline or import settings from a connected controller or open an already saved project.

You can see projects you have already created under "Open a recent setting file".

New

New	New project						
Sele	ect controller model						
►	ETC1Hx						
►	EET						
►	ERC11x						
►	ERC21x						
►	EKE1x						
►	AK-CC55						

Create new project by selecting:

- Controller type
- Part number (code number)
- PV (product version) number
- SW (software) version

Once you have selected a file, you need to name the project. Click 'Finish' to proceed to view and set parameters.

New project		Х
Give your project a good description and part number to identify it later Code Number: Product Version: PV01 * Give your project filename and description Project Name (Max 20 Characters) *	The ERC 112C is a multipurpose refrigeration controller that includes temperature and defrost management. Cutting overall total cost level, it mets the requirements of today's advanced commercial applications. The ERC is prefect for refrigerated and heating retarguant equipment by the coolers.	ERC112C 100 - 240 Va.c. SMPS
Project Description (Max 250 Characters)	stainless steel refrigerators & freezers, beer coolers, light supermarket applications and many other uses.	Gabhre termp. Evapoo termp. Conde (Pr 1 07
	Input/ Output highlights:	
		< BACK FINISH CANCEL

Note: Only standard code numbers are available to choose from in the "Code Number" field. To work offline with a non-standard code number (customer specific code number), use one of the following two methods:

- 1. Connect the controller of same code number with KoolProg using Gateway, and use "Import settings from Controller" to create a configuration file from it.
- 2. Use "Open" feature to open an existing locally saved file on your PC of same code number and create a new file from it.

The new file, saved on your PC locally, can be accessed offline in future without having to connect the controller.



Import settings from controller

Allows you to import a configuration from connected controller to KoolProg and to modify the parameters offline.

Select "Import settings from controller" to import all parameters and its details from the connected controller to the PC.

Set parameter	X	🖨 🤶 User
Open a recent setting file	Setting files	^
084B4082	New	1 1 kg
080G5400	Import settings from controller	
080G3413	Open	A A A A A A A A A A A A A A A A A A A
		Connecting
	Controllers models	
	Import controller model	

🔺 🖬 🖻 🖬 👪												🖨 🤶 User
5et parameters												AK-CCSS Single Coll
٩	Appl	ication: 1	. Comp/Alarm/Lig	ht							🗲 🖌	
		☆	Label	New Filename			B (1)			Max		►
☆ Favourites	•	Start / S	top								<u>^</u>	"r12"
4 Main menu		\$	r12	Provide the setting	file n	ame you	want to use					Main switch
Configuration		☆	o01	c						600		beauption.
Thermostat control	•	Configu	ration	New file name:		08484082						
Injection control		\$	o61	4								
Defrost control		☆	q09	4					ОК			
Compressor		☆	002									
Fan control Bailbeat control		☆	o37	DI2 Configuration			None	•	Night setback 👻			
Light/Blinds/Cleaning control		\$	o84	DI3 Configuration			None	•	Thermostat band 👻			
Display control Alarm relay priorities		☆	o30	Refrigerant			Not seleted	۲	R134a 👻			
Miscellaneous		\$	o20	Pe sensor - Min range		-1.0	-1.0 Bar-g		-1.0 Bar-g	5.0		
▷ Invisible		☆	o21	Pe sensor - Max range		6.0	12.0 Bar-g		12.0 Bar-g	200.0		
		☆	006	Temperature sensor type			Pt 1000		Pt 1000 👻			
		☆	r89	Food type			None		None 👻			
		☆	q39	Food temp. sensor			Alarm air	•	S6 Product temp. ~			> View more
KoolProg-Version no. 3.5.5.28581												www.danfoss.com

After "Import completed", save the imported setting file by providing the file name in the pop-up message box.

Set parameters	Product Name Code Number SW Version: Product Versio	: ER(: 060) n:	C112D Project Nz 63217 6.05 PV03	me: 00061217_1.xml						10	ERC112D 08053217 SW: 6.05 00053217 SW: 6.05 0005207 SW: 507 000 PV03 40720 PM (98 1
		☆	Label	Description	Min	Default		Value	Мах		•
☆ Favourites	^ 🔻 s	ervice								^	"SEt"
All Service		÷	oFL	OFM Code Low	0	0		0	999		Set point
Thermostat		~	oFe	OFM Code middle	0	0		0	000		Description:
Fan	all see a					-					Set point This parameter defines the
Pull Down		Ŕ	OEH	OEM Code High	0	0			999		desired temperature (set point).
Defrost		☆	PAr	Parameter Version	-32768	0		0	32767		In standard operation the set point is changed by simply
Compressor	- т	hermos	stat								pressing the "temperature up/down" buttons
Display		\$	SEt	Set point	-100.00	2.00 *0		620.36 °C	200.00		on ERC 112; for laboratory and
Alarm		\$	SPr	Set point adjustment ratio	0.00	0.50		0.50	1.00		software controlled set point
ECO strategy		÷	diF	Differential	0.00	2.00 K	(2.00 K	20.00		adjustment (speed improvement)
ECO management		~	UCE	Minh Cat againt	100.00	50.00 00		50.00 %	200.00		
Assignments Account Thermortat		ж	mat	rign set point	-100.00	50.00 °C		50.00	200.00		
Access Fan		\$	LSE	Low Set point	-100.00	-35.00 °C		620.36 °C	200.00		
Access Light		☆	iCi	Initial cut in		No		No -			
Access Pull Down		\$	SP2	Seasonal offset temperature	-25.00	0.00 K	(0.00 K	25.00		
Access Compressor		\$	dF2	Seasonal Differential	0.00	2.00 K		2.00 K	20.00		
Access Condenser Protect	ulon 🖉 🔻 F	an									> View more

Now the parameter settings can be worked upon offline and can be written back to the controller by pressing "Export" J. While working offline, the connected controller is shown grayed out and changed parameter values are not written to the controller until the export button is pressed.



\rightarrow \checkmark \uparrow \blacksquare \rightarrow This PC \Rightarrow OSDi	sk (C) > KeelDree > Configurations	
	sk (C:) / KoolProg / Conligurations	✓ ♥ Search Configurations
Organize - New folder		
📔 Documents	^ Name	Date modified Type
🐌 Downloads	BCKFILE	04-Sep-19 3:50 PM File folder
🌗 Music	080G3217	08-May-19 3:53 PM XML Document
🔚 Pictures	080G3217_1	04-Sep-19 4:02 PM XML Document
📳 Videos	080G3413	04-Sep-19 3:46 PM XML Document
USDisk (C:)	080G5400	04-Sep-19 3:47 PM XML Document
🥪 USB Drive (D:)	Controller_EKE_1A	08-May-19 3:53 PM XML Document
🛫 eps (\\cs02-f01) (U:)		
👽 Files (\\danfoss.net) (X:)	~ <	
File name:		V XML File (*.xml)
		Open Cancel

"Open" command lets you open setting files already saved to the computer. Once the command is clicked, a window will appear with a list of saved setting files.

All projects are stored here in the folder: "KoolProg/Configurations" by default. You can change the default file saving location in "Preferences" .

You can also open the setting files you have received from another source and saved in any folder using the browse option. Please note that KoolProg supports multiple file formats (*xml, cbk*) for different controllers. select the appropriate setting file format of the controller you are using.

Note: *.erc/.dpf* format files of ERC/ETC controller are not visible here. A *.erc* or *.dpf* file saved on your PC can be opened in one of the following ways:

- 1. Select "New Project" and go all the way to Parameter list view of the same controller model. Select Open button bottom to browse and open *.erc/.dpf* file on your PC.
- 2. Select "Upload from controller" if you are connected to the same controller online and go to the parameter list view. Select Open button 🖹 to browse desired .erc/.dpf file and view it in KoolProg.
- 3. Select "Open" to open any other .xml file of the same controller, reach parameter list view screen, and there select Open button to browse and select .*erc/.dpf* file to view and edit these files.

Import controller model (only for AK-CC55):

This allows you to import controller model (*.cdf*) offline and generate database in KoolProg. This will allow you to create setting file offline without having controller connected to KoolProg. KoolProg can import the controller model (*.cdf*) saved to PC or any storage device.

Set parameter	×	📴 Open					×
	· · · · · · · · · · · · · · · · · · ·	← → × ↑ 🖡 « pass_08484082_20190625	2 > 08484082 > MCXS > AGF > ADAP-KOOL	ن ~ ن	Search ADAP-KC	DOL	٩
Onen a recent setting file	Setting files	Organize • New folder			1	•	0
	4	Cothers 4	Name	Status Dat	te modified	Туре	
08484082	New	PL-25	📕 cdf	O 13-3	Sep-19 11:24 A.	File folder	
080G3217	Import settings from controller	PRODUCT NOTES TRANSLATION PACKAGE This PC	edf	⊘ 13-	Sep-19 11:24 A.,	File folder	
080G3217_1	Dpen	 3D Objects A360 Drive 					
3217		Desktop					
080G5400	Controllers models	Music					
080G3413	Import controller model	별 Videos 린의 OSDisk (C)	<				>
		File name:			CDF File(*.cdf)		~
					Open	Cancel	

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Quick setup wizard 🖊 (only for AK-CC55):

User can run the quick setup both offline and online to set up the controller for the required application before moving on to the detailed parameter settings.



Convert setting files (only for AK-CC55):

User can convert the setting files from one software version to another software version of same controller type. Can convert settings from both ways (lower to higher SW version and higher to lower SW version.

- 1. Open the setting file which needs to be converted in KoolProg under "Set parameter".
- 2. Click on convert setting <mark>₹</mark>.
- 3. Select the project name, code number and SW version of the setting file that needs to be generated and click OK.
- 4. Pop up message with summary of added, changed and removed parameters displayed at the end of conversion.

	🖶 ? User
Product Name: A5 CC55 Single Col Project Name: 4002_11.abk Code Number: 044012 A4 CC55 Single Col Project Name: 4002_11.abk Set parameters Total Content on the set of the	•
Application: 1. Com • Ani • Main menu • Configuration • Configu	"713" Malostich Description: Start dato of refrigeration. With this setting refrigeration can be started, stopped or a manual override of the outputs can be value is set at -1. Then the outputs can be force controlled. Start / stop of refrigeration can also be a accompleted with the stop the stopped of the stopped of the connected to a D input. Stopped control will give a "Main with OFF" alarm.
☆ q39 Food temp. sensor Alarm air Alarm air	> View more



7.0 Copy to controller



Here you can copy the setting files to the connected controller as well as upgrade the controller firmware. Firmware upgrade feature is only available for the selected controller model.

f				?
COPY TO CONTROLLER				
			ERC112D	
Select file: C:\KoolProg\Configu	BROWSE SE	T AS FAVOURITE	08033217	SW: 6.05
A	Product Name:	ERC112D	Martine Barge	
ALL CONTRACTOR	Code Number :	080G3217	. 50 -	- 1
······································	SWVersion:	6.05	PV03	
	Product Version:	PV03	408:59 PM 106 1	
			Single or multiple controller progr	amming:
WOURITE FILES			Single controller programming	
			 Multiple controller programming 	
Project name	Project path Co	ntroller type Actions		
080G3217 C:\KoolPri	og\Configurations\080G3217.xml ERC	112D	(1) START	

Copy the setting files: Select the setting file you want to program with the "BROWSE" command.

You can save a setting file in "Favorite Files" by clicking on the "Set as Favourite" button. The project will be added to the list and can be easily assessed later. (Click on the trash icon to remove a project from the list).

Once you have selected a setting file, the key details of the selected file are displayed.





Firmware upgrade (only for AK-CC55):

- 1. Browse the firmware file (Bin file) you want to program, selected firmware file details are displayed on the left hand side.
- 2. If the selected firmware file is compatible with connected controller, KoolProg enables the start button and will update the firmware. If it is not compatible, the start button remains disabled.
- 3. After the successful firmware update, controller restarts and displays the updated details of the controller.
- 4. This feature can be fully protected by password. If KoolProg is password protected, when you browse the firmware file, koolProg prompts for the password and one can load the firmware file only after entering correct password.



8.0 On-line service



- Allows you to monitor the real-time operation of the controller while it is running.
- You can monitor inputs and outputs.
- You can display a line chart based on parameters you have selected.
- You can configure settings directly in the controller.
- You can store line charts and settings and then analyze them.



The Trend Feature

If you want to chart the trend for a measurement, you can select what you want to view from this table. Tick the box of any parameter you would like to include in the chart. You can select a maximum of 10 parameters. Line Chart

Click the "Line Chart" button to switch over to the trend view. You can begin charting any measurements you want in the trend view.



Alarms (only for AK-CC55):

Under the Alarms tab, the user can view the active and historical alarms present in the controller with a time stamp.

• 🖻 🖻 👘							a 🧧		
On-line service							AK-CC55 Single Coil		
Deservations Alarma	Innut/Out	here at					08484082 N.ID:		
arameters Alarms		φυτ					1.10 431:35 PM 5 21 26		
	Applicatio	Alarm	A	Consultant at	Deleviter				
4 All	Active Alar	Alaim	Active at	Cancelled at	Phoney	^	"E28"		
Active Alarms	* Acure Adams								
Cleared Alarms	E28	56 product temp. A - Sensor error	01-Jan-00 12:55:31 AM		High		Control state A : Power up de		
	E27	S5 Evaporator A - Sensor error	01-Jan-00 12:55:31 AM		High		Thermostat air temp. A : 18		
	E26	S4 Air OFF evap. A - Sensor error	01-Jan-00 12:55:31 AM		High		Thermostat cutout temp. : 2 S6 product temp. : 180.0 °C		
	E24	S2 Gas outlet A - Sensor error	01-Jan-00 12:55:31 AM		High		Description:		
	E20	Pe Evap. pressure A - Sensor error	01-Jan-00 12:55:31 AM		High				
	▼ Cleared Alarms								
	E28	S6 product temp. A - Sensor error	01-Jan-00 12:40:56 AM	01-Jan-00 12:55:28 AM	High				
	E27	S5 Evaporator A - Sensor error	01-Jan-00 12:40:56 AM	01-Jan-00 12:55:28 AM	High				
	E26	S4 Air OFF evap. A - Sensor error	01-Jan-00 12:40:56 AM	01-Jan-00 12:55:28 AM	High				
	E24	S2 Gas outlet A - Sensor error	01-Jan-00 12:40:56 AM	01-Jan-00 12:55:28 AM	High				
	E20	Pe Evap. pressure A - Sensor error	01-Jan-00 12:40:56 AM	01-Jan-00 12:55:28 AM	High				
	E27	S5 Evaporator A - Sensor error	01-Jan-00 12:00:03 AM	01-Jan-00 12:40:52 AM	High				
	E26	S4 Air OFF evap. A - Sensor error	01-Jan-00 12:00:03 AM	01-Jan-00 12:40:52 AM	High				
	E24	S2 Gas outlet A - Sensor error	01-Jan-00 12:00:03 AM	01-Jan-00 12:40:52 AM	High		> View more		
						÷			

IO Status and Manual Override:

User can get an instant overview of configured inputs and outputs and their status under this group. User can test the output function and electrical wiring by putting controller into manual override mode and controlling the output manually by switching them ON and OFF.

A 🖻 🖻 👘							🖨 ? Usa
M On-line service Parameters Alarms		Input/O	utput				AK-CC55 Single Coil 4 08484082 N.ID: 1
Main switch: O Man	ual	0 5	Stop 💿 S	Start			1.10 431:24 PM 1801 126 28 56
	ર	Applicat	tion: 1. Comp/Ala	ırm/Light			
		☆	I/O Point	I/O Function	Status		•
✓ All Al Appleg Input	-	AI Analog	g Input			A	"AI1"
Di Digital Input		☆	All	Pe Evap. pressure	-1.0 Bar-g		Pe Evap. pressure
AO Analog Output		\$	AI2	S2 Gas outlet A	180.0 °C		Description:
DO Digital Output		☆	AI3	S3 Air ON evap. A	120.0 °C		
		☆	AI4	S4 Air OFF evap. A	180.0 °C		
		☆	AI5	S5 Evaporator A	180.0 °C		
		☆	AI6	S6 product temp.	180.0 °C		
	-	DI Digital					
		\$	DII	Defrost start	OFF		
		\$	DI2	Night setback	OFF		
		☆	DI3	Thermostat band	OFF		
	-	AO Analo					
		\$	AO1	Rail heat PWM	100%		
	-	DO Digita	al Output				
		\$	DO1	AKV opening A	10%		> View more
KaalDrag Version no. 2.5.5.2059							www.danfoss.com



Trend Charts

The program only saves data if the "Save chart" box is checked. If you want to save the collected data in another file format, use the "Save As" command. This enables you to save data in either a .csv/.png file format. After saving an image, the chart can be viewed later in selected file format.



You can stop a parameter from trending by unchecking the box in front of that parameter.



9.0 Unknown controller support (Only for ERC 112 & ERC 113 controllers)

If a new controller is connected, the database of which is not already available in the KoolProg, you can still connect to the controller in online mode. Select either "Upload from Controller" in set parameters or "Service and test" to view parameter list of the connected controller. All new parameters of connected controller will be displayed under separate menu group "New Parameters". User can edit the parameter settings of connected controller and save the setting file on PC to mass program using "Programming EKA 183A (Code no. 080G9740)".

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Note: saved setting file created in this way cannot be reopened in KoolProg.

Fig 6a: Unknown controller connection under "Upload from controller":

🔥 🕒 🕒 🖬 🗠 🛃	ப்							admin			
SET PARAMETERS	The set parameters										
<i>•</i>								080G3503 SW: 9.50			
								4:12:38 PM 94 1			
	<u> </u>										
	\$	Label	Description	Min	Default	Value	Max	•			
子 Favourites 个 4 All	🔻 New Pa	rameters					*	"SE2"			
New Parameters New Parameters	\$	SE2	SE2			10.00	200.00	SE2			
Access New Parameters Service	☆	dl2	dl2	0.00	2.00	2.00	20.00	Description:			
Status	☆	HS2	HS2	-100.00	50.00	50.00	200.00	Newly Added Parameter			
Thermostat	☆	LS2	LS2	-100.00	-35.00	-35.00	200.00				
Light	\$	duA	duA	0	0	0	1				
Pull Down	☆	FC2	FC2	0	0	0	2				
Compressor	\$	F02	F02	0	0	0	960				
Condenser Protection Display	☆	FS2	FS2	0	0	0	960				
Alarm	\$	don	don	0	20	20	100				
Auto Heater Control ECO strategy	☆	HCt	HCt	0	10	10	240				
ECO management	*	dHt	dHt	-50.00	10.00	10.00	50.00				
Assignments Access Thermostat	~	dSd	dSd	0	0	0	120				
Access Fan	н 	453	453	0	0	0	2				
Access Light	¥	urz.	urz	U	0	r000	3				
Access Defrost	Ŷ	dt2	at2	-50.00	-50.00	-50.00	0.00	> View more			
KoolProg-Versian no. 3.4.0.21423	~	-40	343	0.00	7.65	6.00	00.30	www.danfoss.com			

Fig 6b: Unknown controller connection under "Service and test":

	🔺 🖬 🛃		🖶 🤶 Admin						
	M SERVICE TEST							~*	ERC112D 080G3503 SW: 9.50
	Readouts	s	tatus	Outputs	Status				
	Air temp	321.00 °C		DOs Status(Relay 1) Of	^				
	Evaporator1 temp	327.67 °C		DOs Status(Relay 2) Of					#1528 DM 2124 9 21 31
	Evaporator2 temp	327.67 °C		DOs Status(Relay 3) Or					#1950 HM [210#[3[31]31
	Condensor temp	327.67 °C		DOs Status(Relay 4) Or	Ŧ				
	<mark>م</mark>								
		☆ 🗠	Label	Description	Min	Default	Value	Мах	•
	☆ Favourites ^	 New Paramete 	rs					^	"SE2"
New Devenenters	4 All	🔶 🗖	SE2	SE2	-100.00	10.00	10.00	200.00	SE2 Description: Newly Added Parameter
New Parameters —	Access New Parameters	☆ □	dl2	dl2	0.00	2.00	2.00	20.00	
	Service	\$	HS2	HS2	-100.00	50.00	50.00	200.00	
	Thermostat	¢ 🗆	LS2	L52	-100.00	-35.00	-35.00	200.00	
	Fan	\$	duA	duA	0	0	0	1	
	Pull Down	☆ □	FC2	FC2	0	0	0	2	
	Defrost Compressor	☆ □	F02	F02	0	0	0	960	
	Condenser Protection	\$	FS2	FS2	0	0	0	960	
	Alarm	☆ □	don	don	0	20	20	100	
	Auto Heater Control	☆ □	HCt	HCt	0	10	10	240	
	ECO management	☆ □	dHt	dHt	-50.00	10.00	10.00	50.00	
	Assignments Access Thermostat	\$	dSd	dSd	0	0	0	120	
	Access Fan 🗸	\$	dF2	dF2	0	0	0	3 👻	> View more
	KoolProg-Version no. 340 21423								www.danforr.com

Please contact your nearest sales representative for further assistance.

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